



Public Health
England

ABS
ASSOCIATION OF
BREAST SURGERY

NHS Breast Screening Programme & Association of Breast Surgery

An audit of screen detected breast cancers
for the screening year April 2019 to March
2020

About Public Health England

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About PHE Screening

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Foreword

This is the 25th annual report of the UK National Health Service Breast Screening Programme and covers the year from April 2019 to March 2020. We present a qualitative and quantitative review of the service provided by screening services nationwide, using this to continuously reflect on how we can improve all aspects of care for women participating in breast screening. The report includes details of adjuvant therapy delivery for the year April 2018 to March 2019.

The time frame of this years report includes the beginnings of the Covid-19 pandemic. The pandemic started making headlines in January 2020, gaining momentum in February 2020. However, the first national lockdown in the UK commenced 23 March 2020, becoming law on 26 March. The screening audit group postulated that the lockdown would have minimum, if any, effect on the numbers and analysis of this years audit report. To test this hypothesis, data for 11 months (1 April '19 to 29 February '20 inclusive) was compared with the standard 12 month timeframe (1 April '19 to 31 March '20 inclusive). Beside the obvious difference in absolute numbers in the 11 v 12 month comparison, review of the relative numbers/analyses between the two timeframes showed no variance, confirming the view that it is reasonable to publish this years report in the standard 12 month format.

The data collected since inception by the NHSBSP provides a large repository of high quality contemporaneous information on diagnosis and outcomes in women with screen detected breast cancer. In addition to the annual reports, further analysis of the dataset can answer important research questions. In the past 12 months, two high impact papers have been published examining breast cancer mortality in women diagnosed with DCIS ⁽¹⁾ and looking at de-escalation of axillary surgery in women with screen detected invasive breast cancer ⁽²⁾. Research interrogation of the screening data is ongoing and is guided by the Breast Screening Programme Research Advisory Committee ⁽³⁾.

It is always apposite to recognise and appreciate the effort and dedication of colleagues for the world class standard of care provided across all aspects of the breast screening service. This year, the appreciation is deepened by seeing screening staff from all areas join colleagues in the wider NHS to contribute in the national response to the pandemic.

I would like to thank all of these colleagues on behalf of the NHSBSP & ABS Screening Audit Committee for their dedication, and for maintaining what screening service they could within the parameters set by Government for social distancing and public safety.

This report stands equal to previous reports in its detail and accuracy. I am therefore very pleased to be able to present it, on behalf of the Audit Committee, to the public and to colleagues for review.

Mr Ashu Gandhi
Chair, NHSBSP & ABS Screening Audit Group

Acknowledgements

The 2019/20 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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Clinical and administrative staff working throughout the NHS Breast Screening Programme.

Staff in Scotland, Wales & Northern Ireland (the Celtic nations) information teams who provide data and liaise with their cancer registries.

Screening Quality Assurance Service Professional and Clinical Advisors in England and their Celtic country equivalents for each of the relevant disciplines.

PHE Screening Quality Assurance Service staff working in breast screening and their equivalent colleagues in the Celtic nations.

PHE National Cancer Registration Analysis Service staff in the West Midlands who extracted adjuvant, survival and previous cancer data from the Cancer Analysis System.

The Association of Breast Surgery office staff for providing organisational support to the audit group.

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Introduction

Aims and objectives

The 2019/20 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 2019 to 31 March 2020 and adjuvant therapy undertaken in the period 1 April 2018 to 31 March 2019. 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 NHS Breast Screening Programme. These include the standards set in the following publications:

- **Best Practice Guidelines for Surgeons in Breast Cancer Screening**
Association of Breast Surgery, 2018
- **Early & Locally Advanced Breast Cancer: Diagnosis and Management**
NICE Guideline 101, 2018
- **NHS Breast Screening Programme: consolidated standards**
Public Health England, Updated 2019
- **Breast Screening: Quality Assurance Guidelines for breast pathology services**
Public Health England, Updated 2020
- **NHS Breast Screening Programme: Clinical guidance for breast cancer screening assessment**
NHSBSP Publication No.49 4th edition, 2016

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 acknowledge high-quality services and not simply 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 quality 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 multidisciplinary meeting of the lead clinicians. Regional commissioning teams, 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. SQAS should disseminate the data locally therefore closing the audit loop.

Surgeons and local services are responsible for reviewing their own performance as outlined in the audit data. This data can be used as a baseline for local audits and provide a robust comparison on outcomes. Instances where the data is found to be incorrect should be corrected on the local National Breast Screening System and the audit group informed so that a decision regarding resubmission can be made.

A supportive document is included in appendix 3 to help services and responsible Trusts to act on performance outside the national norms for the QPIs. The responsibility of individual organisations with respect to following up these outliers is provided.

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.

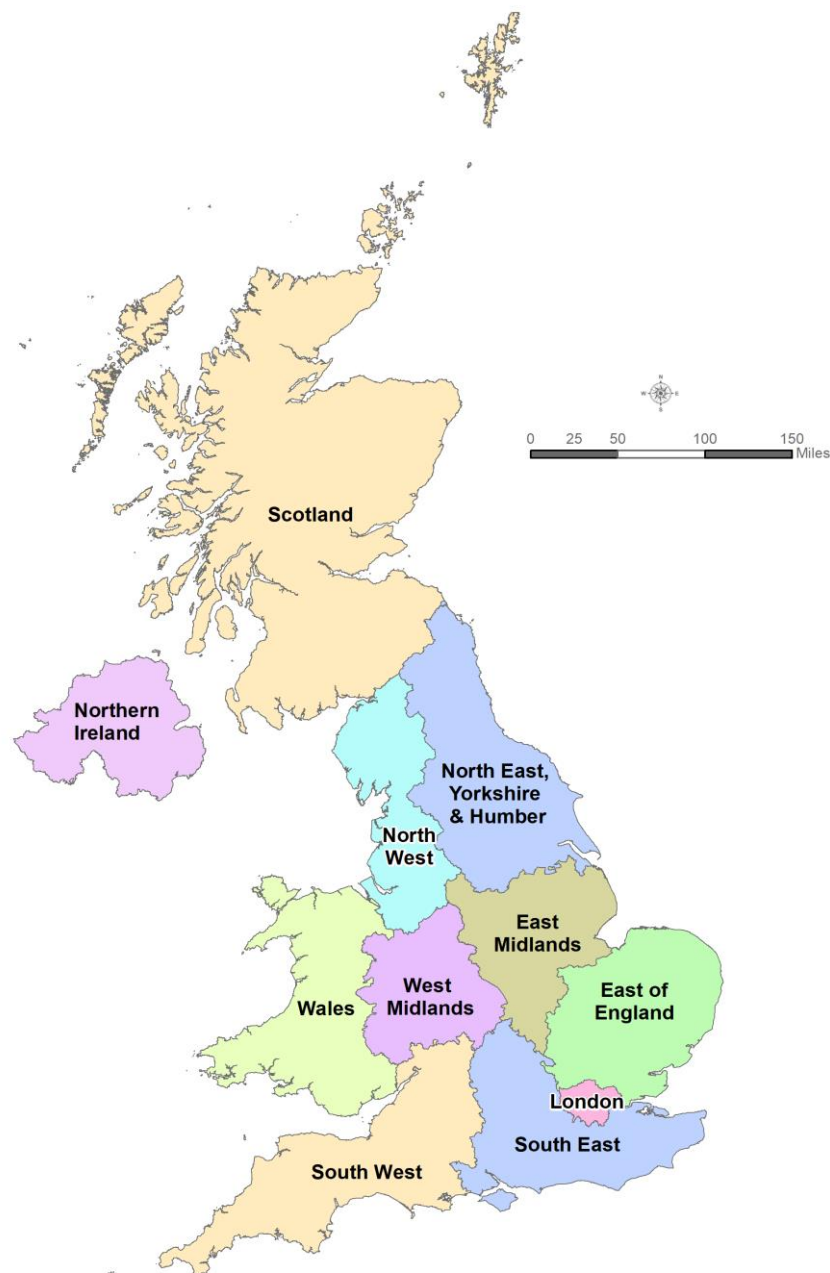
If you wish to communicate with us about the 2019/20 audit report or the development of future NHSBSP & ABS Breast Screening Audits please contact:

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Provision of data for the 2019/20 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 4 Screening Quality Assurance Services (SQAS) 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)



Breast screening services participating in the 2019/20 audit

Screening Services 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	16765	160	124	36
	CDS	Southern Staffordshire and East Derbyshire	34766	286	219	67
	CLE	Leicester	41780	377	297	80
	CLI	Lincolnshire	33232	274	227	47
	CNN	North Nottingham	10828	88	79	9
	CNO	Nottingham	28117	241	207	34
	KKE	Kettering	15402	129	111	18
	KMK	Milton Keynes	10428	84	70	14
	KNN	Northampton	16145	122	94	28
East of England	DCB	Cambridge & Huntingdon	15144	97	73	24
	DGY	Great Yarmouth & Waveney	10689	96	79	17
	DKL	King's Lynn	8901	93	78	15
	DNF	Norfolk & Norwich	23675	202	161	41
	DPT	Peterborough	11990	92	79	13
	DSU	East Suffolk	16520	127	112	15
	DSW	West Suffolk	13031	101	86	15
	ELD	Beds & Herts	60796	479	379	100
	FCO	Chelmsford & Colchester	28846	235	200	35
	FEP	West Essex (Epping)	14561	112	87	25
	FSO	South Essex	26115	222	183	39
London	EBA	North London	59817	516	385	130
	ECX	West London	44095	340	273	67
	FBH	Outer North East London	25042	196	152	44
	FLO	Central and East London	46494	349	264	84
	GCA	South East London	50858	354	267	87
	HWA	South West London	41960	320	227	93
North East, Yorkshire & Humber	AGA	Gateshead	34280	271	222	49
	ANE	Newcastle	37393	350	260	90
	ANT	North Tees	35807	282	243	39
	AWC	North Cumbria	15167	114	79	35
	BHL	Humberside	39963	287	251	36
	BHU	Pennine	38724	317	247	70
	BLE	Leeds Wakefield	45001	418	324	94
	BYO	North Yorkshire	36355	295	243	52
	CBA	Barnsley	9459	82	64	18
	CDO	Doncaster/Bassetlaw	18566	135	119	16
	CRO	Rotherham	10928	70	57	13
	CSH	Sheffield	19419	113	97	16
North West	NCR	Crewe	12802	111	87	24
	NLI	Liverpool	35215	300	234	65
	NMA	East Cheshire & Stockport	20463	180	144	36
	NWA	Warrington, Halton, St Helens & Knowsley	22632	183	142	41
	NWI	Wirral	23586	219	167	52
	PBO	Bolton	31163	257	203	54
	PLE	East Lancashire	20824	142	113	29
	PLN	North Lancashire & South Cumbria	28074	232	185	47
	PMA	Manchester	50540	396	321	75
PWI	South Lancashire	27903	221	168	53	

An audit of screen detected breast cancers for the year of screening April 2019 to March 2020

Screening Services 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	JBA	North & Mid Hants	22,720	186	160	26
	JIW	Isle of Wight	9,819	84	73	11
	JPO	Portsmouth	22,587	177	129	48
	KHW	Aylesbury & Wycombe	20,734	202	154	48
	KOX	Oxfordshire	25,896	216	171	45
	KRG	West Berkshire	22,261	186	148	38
	KWI	East Berkshire	17,706	147	115	31
	GBR	Brighton	31,175	285	214	71
	GCT1	Canterbury	30,318	244	206	38
	GCT2	Maidstone	20,248	189	142	47
	GCT3	Medway	25,830	238	191	47
	HGU	Guildford	54,105	558	403	155
	HWO	Worthing	35,524	297	228	69
	South West	JDO	Dorset	33,258	301	222
JSO		Southampton & Salisbury	23,194	248	185	63
JSW		Wiltshire	25,363	240	199	41
LAV		Avon	46,102	419	310	109
LCO		Cornwall	21,499	189	154	35
LED		North & East Devon	25,333	237	192	45
LGL		Gloucestershire	28,742	251	185	66
LPL		West Devon	20,049	176	140	36
LSO		Somerset	22,522	145	123	22
LTB		South Devon	15,199	132	106	26
West Midlands		MBS	South Birmingham	40,585	136	124
	MBD	City, Sandwell & Walsall	14,032	321	234	87
	MCO	Warwickshire, Solihull & Coventry	39,829	349	291	58
	MDU	Dudley, Wolverhampton and South West Staffordshire	31,793	297	235	62
	MHW	Hereford & Worcester	30,457	245	202	43
	MSH	Shropshire	21,991	175	147	27
	MST	North Midlands	24,471	242	184	58
Northern Ireland	ZNE	Eastern	25,444	202	168	34
	ZNI	Northern	15,446	118	93	25
	ZNS	Southern	11,088	99	86	13
	ZNW	Western	12,356	101	82	18
Wales	WNM	North Wales	32,567	311	266	45
	WSE	South Wales	56,550	499	405	94
	WSW	West Wales	31,320	239	202	37
Scotland		South East of Scotland	52,395	426	363	63
		East of Scotland	18,075	132	116	16
		North East of Scotland	24,034	213	176	37
		South West of Scotland	21,613	207	175	32
		North of Scotland	13,013	110	96	14
		West of Scotland	76,654	598	497	99
UK			2,514,158	21,034	16,775	4,251

Quality Performance Indicators

Breast screening services are benchmarked against important clinical and quality parameters. The discipline specific quality performance indicators (QPIs) are considered and chosen by the multidisciplinary Screening Audit Group based on consideration of the key moments of a patient's journey through breast screening, diagnosis and treatment. The QPIs may refer to, but are not limited to, the national consolidated standards for the NHSBSP. QPIs may vary annually or the Screening Audit Group may wish to return to previously examined topics to examine year on year data.

QPIs for the 2019/20 audit are presented below. A deliberate decision was made to stick to the same QPIs as the previous years audit.

Data for the QPI analysis was retrieved from 86 services in England, Wales & Northern Ireland. There was insufficient data available from the six screening services in Scotland to be included in the QPI analysis, however Scotland data has been included in the Data Tables (Appendix 4) where possible.

Identifying outlier performance

Statistical methods allow for the identification of services with outlier performance which is 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 standard; and setting the limits too widely, with the risk that sub-standard or excellent 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, services that have not achieved or are outliers for a quality assurance (QA) standard or quality performance indicator are highlighted in text boxes. Services should use this information to instigate local investigation of their performance and to identify either errors in the data which should be fed back as previously outlined, factors which explain the performance demonstrated in the data or outlier performance which should be managed in line with their host trust clinical governance policies. Detailed guidance on the assessment of outliers is provided in Appendix 3.

2019/20 quality performance indicators

Radiology

- R1 Proportion of B3 diagnosed lesions which have open surgical biopsies: <25% of B3 lesions eligible for VAE should be managed with surgical excision
- R2 Recall to assessment rate at prevalent round (age 45-52*): $\geq 10\%$ identified as outliers.
*Celtic countries are not part of the Age-X trial so provided data for age 50-52.
- R3 Recall to assessment rate within women at very high risk of breast cancer: $\geq 12\%$ identified as outliers.

Pathology

- P1 Invasive cancer grade: 1-year and 3-year 99.7% high and low outlier services for invasive cancer grade status.
- P2 Lymphovascular invasion: 1-year 99.7% high and low outlier services for lymphovascular invasion found in invasive cancers (excluding services with $>10\%$ unknown lymphovascular status)

Surgery

- S1 Individual surgeon screening cancer caseload over a 3-year period
- S2a Surgical examination of axillary lymph nodes: For each screening service we assess the number of occurrences over 3 years where more than 5 nodes were removed in node negative cases. 95% high outlier services are highlighted
- S2b Surgical examination of axillary lymph nodes: For each screening service we assess the number of occurrences over 3 years where women with non-invasive cancer have had any axillary lymph nodes removed during breast conserving surgery. 95% high outliers are highlighted.
- S3 Reconstruction for non-invasive cancers: 6-year low outlier services with immediate reconstruction following mastectomy for non-invasive cancer cases.

Oncology

- O1 Radiotherapy after breast conserving surgery: 1-year 95% upper control limit outliers for patients with invasive cancer treated with breast conserving surgery with no adjuvant radiotherapy or unknown adjuvant radiotherapy excluding patients over 65, with an invasive tumour size of less than 20mm and an ER+, grade 1 or 2 cancer.

Radiology

Radiology QPI R1

Proportion of B3 diagnosed lesions which have open surgical biopsies.

<25% of B3 lesions eligible for Vacuum Assisted Excision (VAE) should be managed with surgical excision

This QPI examines data from England only.

When reviewing the data it should be remembered that some women have more than one B3 lesion therefore the number of B3 lesions eligible for VAE is greater than the number of women eligible for VAE.

In England, 3065 women had B3 as the worst core biopsy result.

- 334 (10.9%) were diagnosed with malignancy (invasive or non-invasive) after VAE
- 142 (4.6%) were diagnosed with malignancy (invasive or non-invasive) after surgery
- 476 (15.5%) cancers were diagnosed overall

B3 cases can be divided into cases with and without atypia.

To be eligible for VAE, fibroepithelial and stromal lesions were excluded from cases without atypia and papilloma lesions were excluded from cases with atypia.

Excluding cases with incomplete data 2687 B3 lesions were eligible for VAE, of which

- 486 (18.1%) had surgery only
- 241 (9%) had incomplete data

Of 1503 B3 lesions without atypia eligible for VAE (fibroepithelial and stromal lesions excluded)

- 1357 (90.3%) had complete data. It is not clear why 9.7% had incomplete data.
- 1023 (75.4%) had VAE
 - 90 (6.6%) cancers (invasive cancers and DCIS/LCIS) were diagnosed
 - 33 also had surgery in addition to VAE and a further 10 cancers were diagnosed
- 334 (24.6%) had surgery and 52 cancers (3.8%) were diagnosed
- Therefore the total number of malignancies diagnosed in this group was 152 (11.2%)

Of 1184 B3 cases with atypia, eligible for VAE (papilloma lesions with atypia excluded)

- 1089 (92%) had complete data
- 937 (86%) had VAE and 212 cancers (19.4%) were diagnosed
 - 42 also had surgery in addition to VAE and 14 cancers were diagnosed

- therefore, a total of 226 cancers were diagnosed in patients who underwent VAE +/- surgery for B3 lesions with atypia
- 152 (14%) had surgery only and 59 cancers (5.4%) were diagnosed
- Therefore the total number of malignancies diagnosed in this group was 285 (26.2%)

This is an improvement compared to the previous year's data as numbers of women eligible for VAE who proceed to surgery has decreased from 23% in 2018/19 to 18% in 2019/20. Data quality has improved since last year, however it remains an issue and services should review their internal processes for entering these data onto NBSS and ensure that these are robust to provide accurate data.

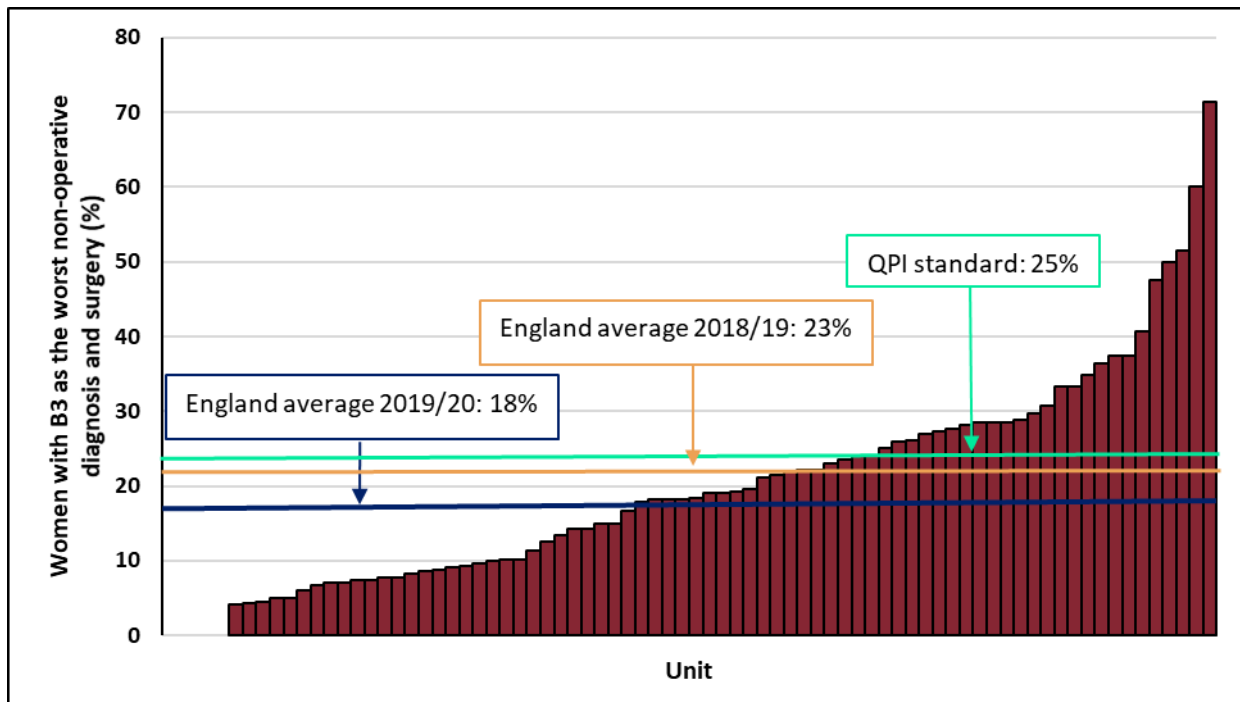
In 2019/20 there were 18 services with 25% or more patients with a B3 diagnosis, eligible for VAE who had surgery instead. 10 of those services had over 25% of eligible for VAE patients having surgery instead in 2018/19 as well, however the data quality was not good enough last year to make judgements about practice. Please note that low numbers of women with B3 as their worst non-operative diagnosis who are eligible for VAE in some units may restrict the usefulness of this data as a measure of quality.

Outlier services in QPI R1. The proportion of women with B3 as their worst non-operative diagnosis who were eligible for VAE but went on to have surgery instead

Sub-region	Unit	2019/20		2018/19	
		No.	%	No.	%
East Midlands	CNO	5/15	33	<5	13
East Midlands	KKE	11/27	41	13/24	52
East of England	DGY	15/21	71	5/16	24
London	FBH	15/40	38	12/29	41
London	GCA	15/52	29	<5	7
London	HWA	31/112	28	30/135	21
NEYH	BHL	12/32	38	8/22	25
South East	GBR	14/52	27	16/39	39
South East	GCT1	10/21	48	41/47	82
South East	GCT2	10/35	29	6/24	24
South East	HGU	33/111	30	41/104	36
South East	KHW	6/23	26	6/24	25
South East	KRG	6/12	50	<5	22
South East	JPO	8/23	35	13/29	43
South West	JSW	18/35	51	11/37	29
West Midlands	MBD	9/32	28	11/44	24
West Midlands	MCO	14/54	26	6/33	17
West Midlands	MDU	8/28	29	15/33	43
England		486/2687	18	591/2610	23

Services with less than 5 cases have been excluded.

Figure 1: Percentage of women with B3 as their worst pre-operative diagnosis, eligible for VAE who had surgery instead



Radiology QPI R2	<p>Recall to assessment at prevalent round (age 45-52): Acceptable: less than 10% recall rate Achievable: less than 7% recall rate</p>
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In England 747,331 women aged 45 to 52 and in Wales and Northern Ireland 163,220 women aged 49-52 were screened for the first time through NHSBSP in the 3-year period 2017 to 2020. Wales and Northern Ireland were not part of the AgeX trial which was being run in most services in England during this audit period and so in these countries all first screens are offered to women aged 49 to 52.

Of these 910,551 screened women, 7.0% were recalled for assessment

- 42 of 86 services met the achievable level of less than 7% in 2017 to 2020
- 2 services did not meet the acceptable level and had a recall rate more than or equal to 10%. Both services were outliers in last year’s audit (see table) .

This QPI has improved from 7 services in 2015 to 2018 and 3 services in 2016 to 2019.

Going forwards for women screened after 1 April 2021 the new acceptable level prevalent recall rate in England will be <9.0% and the achievable will be <7%.

Services can use these data to identify their performance against these forthcoming levels and proactively identify whether they are likely to present a challenge.

Outlier services in QPI R2 and their prevalent recall rate

Subregion	2017-2020		2016-19
	Unit	%	%
South West	JDO	10.9	11.2
South West	LED	10.0	10.2
UK		6.9	7.3

Services close to the 10% 'acceptable' rate

Subregion	2017-2020		2016-2019
	Unit	%	%
London	ECX	9.8	9.3
South West	LAV	9.7	10.0
UK		6.9	7.3

*Celtic countries are not part of the age extension trial and therefore only provided data for ages 50-52

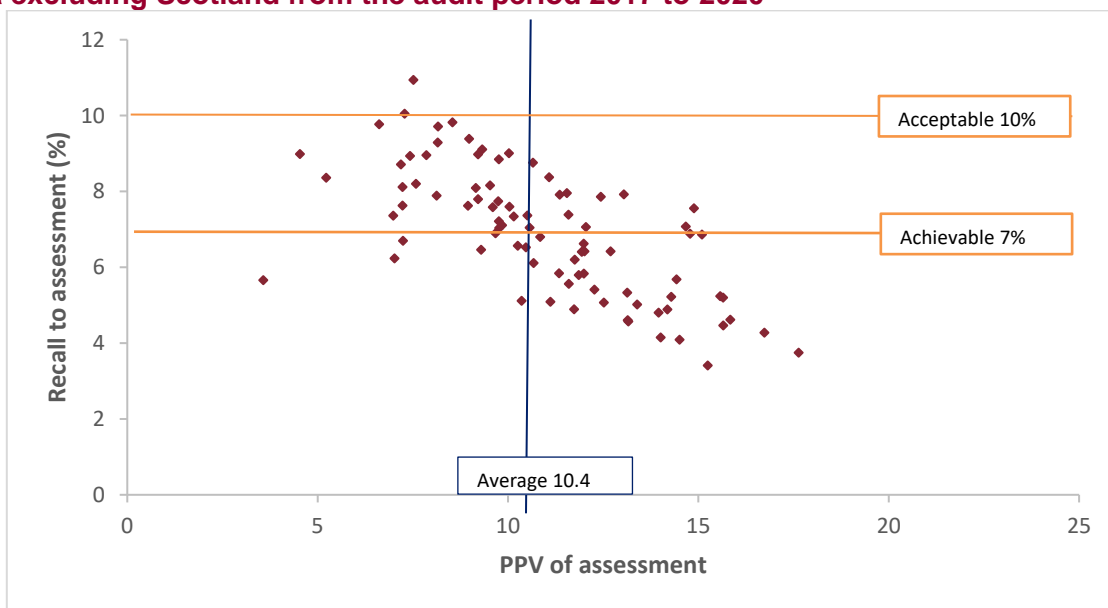
To examine the relationship between recall to assessment rates and positive predictive value (PPV) of assessment, the proportion of women recalled for assessment and diagnosed with cancer (including those with open biopsy) was explored for women aged 45 to 52 at the prevalent round (Figure 2).

- average PPV of assessment for UK excluding Scotland is 10.4%
- Both services with a high recall above the acceptable assessment rate have a PPV for assessment lower than the average
- 35 of 42 services who met the achievable target have a PPV higher than the average

There is a trend that services 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. Services 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 to assessment.

From 1 April 2021, the standards for rate of referral to assessment at the prevalent screen are <9% (acceptable level) and <7% (achievable level). New KPIs⁽⁴⁾ have been introduced to monitor PPV of referral at both the prevalent and incident screens within the NHSBSP. At the prevalent screen, the PPV standards are $\geq 8\%$ (acceptable level) and $\geq 12\%$ (achievable level). Services should reflect on current performance to assess whether improvements are likely to be required to achieve the new standards.

Figure 2: Recall to assessment rate vs PPV of assessment (prevalent round age 45 to 52), using UK data excluding Scotland from the audit period 2017 to 2020



Radiology QPI R3

Recall to assessment rate within women at very high risk of breast cancer:

Acceptable: less than 12% recall rate
 Achievable: less than 10% recall rate

Over the three-year period 2017 to 2020, 12 of the 83 services in England and Northern Ireland recalled more than, or equal to, 12% of their very high-risk women for assessment. This is a small improvement from last year when there were 15 of the 83 services that did not meet this QPI. The cancer detection rate has also increased slightly over this time period.

- the average recall rate in England and Northern Ireland is 9.0% (compared with 9.3% for 2016 to 2019); range 3.1%-17.9%
- as expected, recall rate and cancer detection rate in this high risk group is higher than for the general population
- the cancer detection rate in England and Northern Ireland is 17.0 per 1000 screened (compared with 16.8% for 2016 to 2019); range 0 to 42.7 per 1000 screened
- the cancer detection rate for all non-high risk women is 8.4 per 1000 screened

As the number of women in this QPI is small it will take time to build up robust data on which reliable analysis can be undertaken.

From 1 April 2021, new KPIs⁽⁴⁾ have been introduced to measure the rate of referral to assessment for very high risk women. The standards are <10% (acceptable level) and <7% (achievable level). Services should reflect on current performance to assess whether improvements are likely to be required to achieve the new standards.

**Outlier services for QPI R3 - Recall rates of family history patients: 3 year outliers
≥12%**

2017/20					
Sub region	Unit	Number of high risk women screened	Recall rate (%)	Cancer detection per 1000 screened	PPV of assessment
East Midlands	KMK	110	12.7	9.1	7.1
London	ECX	421	12.1	21.4	17.6
London	FBH	257	15.2	11.7	7.7
London	FLO	573	13.3	19.2	14.5
North West	NMA	255	12.5	11.8	9.4
South East	GCT2	250	16.8	32.0	19.0
South East	HWO	296	13.5	33.8	25.0
South East	JIW	82	12.2	12.2	10.0
South West	JSO	379	14.8	18.5	12.5
South West	LPL	156	12.8	19.2	15.0
West Midlands	MBS	67	17.9	14.9	8.3
West Midlands	MHW	124	13.7	40.3	29.4
England and NI		22454	9.0	17.0	18.8

Pathology

Pathology QPI P1

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 86 screening services in the UK (excluding Scotland), 11 services were outliers for this QPI; 10 of these services were outliers in the previous year's audit.

For Grade 1 tumours there was 1 low and 1 high outlier service.

For Grade 2 tumours there were 3 low and 2 high outlier services.

For Grade 3 tumours there were 3 low and 1 high outlier services.

1-year and 3-year 99.7% high and low outlier services for invasive cancer grade

Subregion	Unit	Grade 1	Grade 1	Grade 2	Grade 2	Grade 3	Grade 3
		2019/20	3-year 2017-20	2019/20	3-year 2017-20	2019/20	3-year 2017-20
		%	%	%	%	%	%
London	EBA	27.2	27.9	60.5	58.1	12.3	13.6
NEYH	ANE	34.0	32.7	42.3	45.4	22.8	21.2
NEYH	BHL	19.5	24.6	68.8	62.1	11.8	13.0
North West	NMA*	27.5	26.9	65.6	64.4	6.9	8.6
North West	PBO	31.4	29.8	44.1	46.5	24.5	23.5
North West	PMA*	17.4	20.0	55.6	54.8	25.9	24.6
South East	GCT2	39.8	35.7	42.2	49.7	17.2	14.1
South East	JBA	13.7	19.2	69.9	65.4	16.4	15.0
South West	LPL	35.5	29.1	41.9	47.6	22.6	22.6
Wales	WNM	19.7	22.5	49.6	50.3	29.9	26.6
UK		24.9	24.6	56.3	56.2	18.4	18.8

	99.7% low outlier
	99.7% high outlier

* Outlier in 2017/18 audit

Since 2014/15, there had been a steady reduction in the number of grade outliers for this QPI. This year the number of outliers has remained stable (11). Notably however, only two of the 11 outliers were also outliers last year.

Pathology QPI P2

Lymphovascular invasion

One year 99.7% high and low outlier services for lymphovascular invasion found in invasive cancers

Services should ensure the lymphovascular invasion information is collected, as this is part of the minimum dataset and may contribute to management decisions.

Excluding neoadjuvant chemotherapy cases, 6% of surgically treated invasive cancers had no information on lymphovascular invasion (LVI). This figure varied between 0% (3 services) to 47.4% of cases with no LVI information (1 service). 10 services had more than 10% and 2 services had more than 20% of cases with no LVI data recorded.

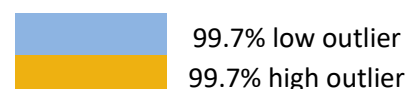
These figures represent an improvement on last years data when 13% cases had no information on LVI recorded including 19 services which had more than 10% cases with no LVI recorded and 7 services had >20% no LVI recorded.

Services with >10% of invasive cancer cases with unknown lymphovascular invasion status

Sub-region	Service	2019/20	
		No.	%
East Midlands	CLE	36	14.0
East of England	DKL	15	21.7
NEYH	ANE	93	47.4
North West	PLN	21	13.8
South East	KWI	15	16.1
South West	JBA	27	19.4
South East	JPO	12	10.8
Northern Ireland	ZNE	18	11.8
Wales	WNM	39	16.7
Wales	WSW	29	16.2
UK (excluding Scotland)		740	5.9

Outlier services and the proportion of invasive cancers with lymphovascular invasion

Sub-region	Service	2019/20	
		No.	%
East of England	FSO	10	6.6
London	ECX	46	22.1
NEYH	AGA	43	22.1
North West	PBO	10	6.0
South West	LAV	10	3.9
South West	LPL	6	5.2
West Midlands	MSH	5	3.9
Northern Ireland	ZNS	21	29.6
UK (excluding Scotland)		1628	12.9



Excluding neoadjuvant chemotherapy cases, 13% (range 4-30%) of surgically treated invasive cancers had lymphovascular invasion (LVI) present, similar to last year (12%).

The table to the left lists the services with >10% of of invasive cancers with unknown lymphovascular invasion status. Previously when this performance has been investigated the root cause has tended to be the translation of data onto NBSS. These services should investigate the entry of this data and identify opportunities to improve data ascertainment.

The table to the right lists the outlier services who lie above the 99.7% upper or below the 99.7% lower control limits for the proportion of LVI (only examining services with less than 10% of cases with unknown lymphovascular invasion status). This data is reported at breast screening service level so it is important that where relevant data at laboratory level is provided to assist in interpreting these reported high rates.

Surgery

Surgery QPI S1

Individual surgeon screening cancer caseload over a 3-year period

The Association of Breast Surgery guidelines for screening indicate that these surgeons should have an annual caseload of 10 screen detected cancers averaged over a 3-year period. This is based on published evidence ⁽⁵⁻⁸⁾ linking caseload with better patient outcomes.

Between 2017-2020, of a total of 849 surgeons, the audit data shows that 331 surgeons had an average annual caseload of less than 10 screen detected cancers. These surgeons treated 2297 women or 4% of all referrals across the UK (excluding Scotland). This represents a slight increase on previous years data. Further data is provided at a sub regional level in table 55 in Appendix 4.

It is disappointing that this QPI has not improved in line with other quality indicators in the NHSBSP. The Screening Surgical Clinical Professional Group will be examining this data further. Directors of Breast Screening also should review the surgical caseloads of the surgeons within their services to examine if the recommended annual number of cases are achieved. There may be valid reasons why this may not be the case e.g. maternity leave, illness, leavers, new starters etc.

6 surgeons had an annual average caseload of 100 or more screen detected cancers. These surgeons treated 2078 women across the UK over the three year period 2017-2020. There currently isn't a maximum limit to the annual screening caseload per surgeon. In situations of very high annual caseloads (e.g. > 100 cases annually) Directors of Breast Screening may wish to ensure that the data have been correctly attributed recognising that cases managed by an Associate Specialist should be recorded as such and also discuss how screening cases are distributed with surgical colleagues in their screening service(s).

Annual screening surgical caseload per surgeon 2017-2020

Region	Total surgeons	2017-2020		2016-2019	
		No.	%	No.	%
East Midlands	72	27	37.5	23	34.3
East of England	89	36	40.4	34	39.5
London	135	75	55.6	74	55.2
N East, Yorks & Humber	98	28	28.6	32	31.7
North West	117	50	42.7	41	38.7
South East	106	36	34.0	33	33.0
South West	101	33	32.7	30	31.9
West Midlands	82	33	40.2	39	46.4
Northern Ireland	23	6	26.1	3	14.3
Wales	26	7	26.9	10	35.7
United Kingdom	849	331	39.0	319	38.9

Proportion of women referred to consultant surgeons according to annual caseload of surgeon

Region	Total (Referred)	2017-2020		2016-2019	
		No.	%	No.	%
East Midlands	5131	252	4.9	175	3.5
East of England	5754	171	3.0	110	2.0
London	5970	463	7.8	450	6.9
N East, Yorks & Humber	8318	172	2.1	206	2.4
North West	6965	343	4.9	353	4.8
South East	8871	300	3.4	223	2.6
South West	7172	193	2.7	173	2.5
West Midlands	5114	274	5.4	422	7.9
Northern Ireland	1585	95	6.0	15	1.0
Wales	3206	34	1.1	43	1.4
UK excl. Scotland	58086	2297	4.0	2170	3.7

**Surgery QPI
S2a**

Surgical examination of axillary lymph nodes

For each screening service we assess the number of occurrences over 3 years where more than 5 nodes were removed in node negative cases. 95% high outlier services are highlighted.

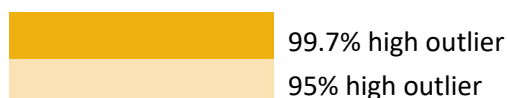
Screening surgeons should avoid unnecessary removal of excessive axillary lymph nodes as this may cause potentially preventable arm and shoulder morbidity for patients. Removing more than 5 nodes in a patient who is node negative should be an uncommon event.

This QPI calculation excludes cases receiving neo-adjuvant therapy.

During 2017 to 2020, there were 7 services who were 95% high outliers; of which 1 was higher than the 99.7% control limit. These 7 services should examine their results and review areas for possible improvement. 5 of the 7 services were also outliers in the audit of 2016 - 2019 data.

Outlier services in QPI S2a and their proportion of node negative invasive cancers with more than 5 nodes obtained

Sub-region	Unit	3-year 2017-20		2019/20		Previous 2018/19
		No.	%	No.	%	%
East of England	DNF	20/334	6.0	7/93	7.5	4.5
East of England	DSU	12/187	6.4	2/63	3.2	6.5
East of England	ELD	47/770	6.1	13/252	5.2	4.7
East of England	FCO	26/475	5.5	5/121	4.1	3.7
NEYH	ANT	27/529	5.1	6/175	3.4	7.6
North West	NMA	18/317	5.7	4/107	3.7	8.5
Northern Ireland	ZNE	19/357	5.3	4/121	3.3	9.3
UK		912/32671	2.8	274/10232	2.7	2.9



*numerator = cases with more than 5 nodes removed at surgery
denominator = node positive invasive cancers, excluding neo-adjuvant cases

Surgery QPI S2b

Surgical examination of axillary lymph nodes:

For each screening service we assess the number of occurrences over 3 years where women with non-invasive cancer have had any axillary lymph nodes removed during breast conserving surgery. 95% high outliers are highlighted.

Intentional lymph node excision in women undergoing breast conserving surgery for non-invasive cancers is unnecessary in the vast majority of, if not all, cases.

In 2017 to 2020, 6 services were 95% high outliers for this QPI; 2 services was 99.7% high outliers. For the year 2019/20, 1 of these 3 services remains a 95% high outlier. These services should audit the reason for this.

Outlier services in QPI S2b and their proportion of non-invasive cancers treated by breast conserving surgery which have had lymph nodes excised. Some services had less than 5 cases for the year 2019/20

Sub-region	Unit	3-year 2017-20				2016/19	
		No.	%	Average no. of nodes removed	Range	No.	%
East Midlands	CNN	6/23	26	1.50	1-3	4/28	14
East of England	DKL	10/35	29	1.30	1-2	5/36	14
East of England	DNF	14/79	18	1.71	1-3	12/71	17
South East	KRG	10/77	13	1.80	1-3	8/68	12
South East	JIW	5/21	24	2.20	2-3	3/25	12
South West	JSW	14/86	16	2.47	1-7	14/78	18
South West	LTB	7/42	17	1.86	1-3	5/41	12
West Midlands	MCO	18/106	17	2.06	1-6	14/133	11
UK		442/8470	5.2			434/8647	5

99.7% high outlier
95% high outlier

*numerator = number of patients with preinvasive cancer having BCS and lymph node excision, denominator = total number of patients having BCS for preinvasive disease

Surgery QPI S3

Reconstruction for non-invasive cancers

Five-year low outlier services 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, e.g. ductal carcinoma in situ (DCIS) is multifactorial. Therefore, it is not appropriate to have a target figure for this QPI. However, it is reasonable to expect most screening services to fall between 3 standard deviations of the mean figure for the UK (excluding Scotland). Outlying services are not inevitably practicing suboptimal surgery but may wish to reflect on their practice to establish the reason for their numbers and the accessibility of immediate breast reconstruction for their patients. Over the 6-year period of 2014 to 2020, 12 services were low outliers at 95% confidence level. In the most recent 3 year period of 2017 to 2020, 5 of the 12 services are outliers. Despite looking at this metric over a large number of years some of the data points are small.

Reconstruction rates following mastectomy for pure DCIS (6 years), services lower than the 95% lower control limit

Sub-region	Unit	6 year 2014/15 - 2019/20		3 year 2017/18 - 2019/20	
		No.	%	No.	%
East Midlands	CDS	48/122	39.3	21/63	33.3
NEYH	CRO	3/13	23.1	0/6	0.0
North West	NCR	6/23	26.1	2/12	16.7
Northern Ireland	ZNI	8/26	30.8	7/19	36.8
Northern Ireland	ZNS	5/19	26.3	5/19	26.3
South East	GCT1	23/61	37.7	8/24	33.3
South West	JSO	22/61	36.1	7/28	25.0
South West	LGL	16/47	34.0	4/19	21.1
South West	LPL	16/45	35.6	13/25	52.0
Wales	WNM	18/50	36.0	12/25	48.0
Wales	WSW	44/117	37.6	16/38	42.1
West Midlands	MSH	22/65	33.9	9/27	33.3
UK		2499/4938	50.6	1092/2264	48.2

99.7% low outlier
95% low outlier

Oncology

Oncology QPI O1

Radiotherapy after breast conserving surgery

One-year 95% upper control limit outliers for patients with invasive cancer treated with breast conserving surgery with no or unknown adjuvant radiotherapy, excluding patients over 65 years, with an invasive tumour size of less than 20mm and an ER+, grade 1 or 2 cancer

It remains of concern that the use of radiotherapy after breast conserving surgery for invasive early breast cancer is the only oncology QPI available. Past changes in data collection methodology led to a substantial fall in data completeness for other oncology treatments including endocrine therapy, chemotherapy and radiotherapy after mastectomy or breast conserving surgery for DCIS.

Adjuvant radiotherapy is accepted as an essential part of locoregional treatment for the majority of women with invasive breast cancers treated by breast conserving surgery. In the 86 screening services in the UK (excluding Scotland), 11 services were outliers for this QPI; 2 of which were outside the 99.7% control limit.

Services should audit the reasons for these high outliers. It should be noted that services may be served by more than one radiotherapy centre so true outlier behaviour in terms of referral to radiotherapy may be masked by the presentation of these data at this level. Breast multidisciplinary teams should, through internal audit processes, be aware of any differences in the management of women with breast cancer who are referred for onward treatment to different cancer centres. Reasons for a lack of recording of receipt of radiotherapy should be identified to help rectify the interpretational difficulty that data incompleteness creates.

Patients over 65 years with an invasive tumour size of less than 20mm, ER positive and grade 1 or 2 were excluded from this cohort as they have a very low absolute risk of local recurrence as per NICE guidelines and omission of adjuvant radiotherapy is reasonable ⁽⁹⁾.

Outlier services and their proportion of invasive cancers treated with breast conserving surgery with no or unknown adjuvant radiotherapy, excluding patients over 65 years, with an invasive tumour size of less than 20mm and an ER+, grade 1 or 2 cancer.

Subregion	Unit	2018/19		3-year 2016-19	Previous 2017/18
		No.	%	%	%
East of England	DCB	13	16.7	10.3	12.0
East of England	ELD	30	13.4	12.1	10.3
East of England	FCO	20	14.5	9.2	6.3
London	EBA	48	22.5	16.6	14.2
South East	GCT2	11	18.0	16.0	13.7
South East	HGU	36	15.4	14.2	13.1
South East	HWO	23	14.0	9.4	7.6
South East	KHW	15	19.5	18.1	14.1
South West	JSO	16	15.0	11.5	12.1
South West	JSW	18	17.5	13.3	9.3
West Midlands	MSH	13	16.5	6.7	4.1
UK		610	7.6	6.7	6.2

	99.7% high outlier
	95% high outlier

Summary table of QPI outliers

The light blue columns indicate which histopathological grade is the outlier in QPI P1

Region - Unit	Radiology			Pathology					Surgery				Oncology	Total outlier topics	
	R1	R2	R3	P1	P1 - G1	P1 - G2	P1 - G3	P2	S1	S2a	S2b	S3	O1		
East Midlands - CDN															0
East Midlands - CDS												Y			1
East Midlands - CLE															0
East Midlands - CLI															0
East Midlands - CNN											Y				1
East Midlands - CNO	Y														1
East Midlands - KKE	Y														1
East Midlands - KMK			Y												1
East Midlands - KNN															0
East of England - DCB													Y		1
East of England - DGY	Y														1
East of England - DKL											Y				1
East of England - DNF										Y	Y				2
East of England - DPT															0
East of England - DSU										Y					1
East of England - DSW															0
East of England - ELD										Y			Y		2
East of England - FCO										Y			Y		2
East of England - FEP															0
East of England - FSO								Y							1
London - EBA				Y			Y						Y		2
London - ECX			Y					Y							2
London - FBH	Y		Y												2
London - FLO			Y												1
London - GCA	Y														1
London - HWA	Y														1
NEYH - AGA								Y							1
NEYH - ANE				Y		Y									1
NEYH - ANT										Y					1
NEYH - AWC															0
NEYH - BHL	Y			Y		Y	Y								2
NEYH - BHU															0
NEYH - BLE															0
NEYH - BYO															0
NEYH - CBA															0
NEYH - CDO															0
NEYH - CRO												Y			1
NEYH - CSH															0
North West - NCH															0
North West - NCR												Y			1
North West - NLI															0
North West - NMA			Y	Y			Y			Y					3
North West - NWA															0
North West - NWI															0
North West - PBO				Y		Y		Y							2
North West - PLE															0
North West - PLN															0
North West - PMA				Y	Y										1
North West - PWI															0

An audit of screen detected breast cancers for the year of screening April 2019 to March 2020

Region - Unit	Radiology			Pathology					Surgery				Oncology	Total outlier topics	
	R1	R2	R3	P1	P1 - G1	P1 - G2	P1 - G3	P2	S1	S2a	S2b	S3	O1		
South East - GBR	Y														1
South East - GCT1	Y											Y			2
South East - GCT2	Y		Y	Y	Y								Y		4
South East - GCT3															0
South East - HGU	Y												Y		2
South East - HWO			Y										Y		2
South East - JBA				Y		Y									1
South East - JIW			Y									Y			2
South East - JPO	Y														1
South East - KHW	Y												Y		2
South East - KOX															0
South East - KRG	Y											Y			2
South East - KWI															0
South West - JDO		Y													1
South West - JSO			Y									Y	Y		3
South West - JSW	Y											Y		Y	3
South West - LAV								Y							1
South West - LCO															0
South West - LED		Y													1
South West - LGL													Y		1
South West - LPL			Y	Y		Y		Y				Y	Y		4
South West - LSO															0
South West - LTB												Y			1
West Midlands - MBD	Y														1
West Midlands - MBS			Y												1
West Midlands - MCO	Y											Y			2
West Midlands - MDU	Y														1
West Midlands - MHW			Y												1
West Midlands - MSH								Y				Y	Y		3
West Midlands - MST															0
Northern Ireland - ZNE											Y				1
Northern Ireland - ZNI												Y			1
Northern Ireland - ZNS								Y				Y			2
Northern Ireland - ZNW															0
Wales - WNM				Y			Y					Y			2
Wales - WSE															0
Wales - WSW												Y			1
UK (excl. Scotland)	18	2	12	10	2	5	4	8	0	7	8	12	11		88

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 2019 to 31 March 2020, followed up until November 2020
- the adjuvant therapy audit: women that were offered a screening appointment in the period 1 April 2018 to 31 March 2019, followed up until March 2020

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 services. 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.

Service level data

Data from 92 UK screening services were included in the 2019/20 NHSBSP & ABS Breast Screening Audit.

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 was collected from their breast screening services and submitted to SQAS for collation.

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

Publication of audit data

The NHSBSP & ABS 2019/20 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 2019 to March 2020', NHSBSP & ABS, May 2021.

Appendix 2: References

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Appendix 3: Quality Performance Indicators - outlier definitions and guidance for management

Background

The NHS Breast Screening Programme in collaboration with the Association of Breast Surgery undertake this annual audit of the of women with screen detected breast cancer. The audit covers and accordingly collects and presents back a large body of data. Each year the audit steering group identifies quality performance indicators (QPIs) for the core professional groups incorporated within the audit. This document details the use and follow up requirements of any outliers identified through this process.

Although the audit covers the UK this process applies only to providers working within England. All QPI data in this year's audit report is presented on screening service level, except QPI S1 which is presented at surgeon level.

Funnel plots are used as a method to compare individual service performance to the UK average for some QPIs. Control limits are calculated using the Wilson-score method at 95% and/or 99.7% confidence level. A '95% high outlier service' is a service whose data point lies above the 95% upper control limit in a funnel plot. A high outlier service has a significantly higher proportion/rate compared to the UK average at 95% confidence levels.

The lists of outlier services are released to the representatives of 4 disciplines -- radiology, pathology, surgery and oncology represented on the audit steering group. The representatives bring the relevant outlier list to their professional group for discussion with the primary purpose to identify any changes required in guidance.

The regional Screening QA Service (SQAS) will inform their local services/individuals when they have been identified as an outlier following the national analysis. The responsibility for action and follow up rests with the responsible provider organisation.

Radiology

R1 Women with a B3 pre-operative diagnosis to the breast that proceed to surgery

Please note:

Accurate recording of this data during this audit cycle was variable. Due to this the following outlier management process will not be invoked for outliers identified in the 2019/2020 audit report. These data provide a benchmark for improvement in future audits.

Outlier definition

More than 25% of B3 lesions suitable for VAE were referred for surgery (B3 lesions where surgery is recommended e.g. fibroepithelial lesions, papilloma with atypia and spindle cell lesions are excluded from analysis).

Rationale

Vacuum assisted excision (VAE) enables the removal of most B3 lesions without the need for open surgical biopsy. This less invasive procedure should be utilised where clinically appropriate. If a service does not have the capability to offer VAE in house, referral arrangements should be put in place¹.

Data and calculation

Data is extracted from the national breast screening system (NBSS) using a purpose built crystal report. In this year's audit report proportions are calculated using 2019/20 data.

Denominator: count of women who had B3 pre-operative diagnosis as the worst core biopsy result on the breast.

Numerator: count of women who had B3 pre-operative diagnosis as the worst core biopsy result on the breast and had an open surgical biopsy to the breast.

Statistical analysis: The data will be presented in a funnel plot relative to the mean for England. An outlier is a data point outside the 95% control limit.

How to investigate outliers

Outliers will not be investigated in this audit cycle for this QPI. The data for the QPI is gathered to establish baseline VAE activity in the UK to help the development of outlier definitions in future audits.

When robust data are available the Director of Breast Screening (DoBS) in an outlier service will be informed in writing by their local Screening QA Service (SQAS) that their performance for the audit period represents a variation that cannot be explained by chance alone.

The lead commissioner will be informed at the same time so that this item can be discussed within the appropriate programme board setting and any barriers to this aspect of the service identified and addressed.

- the screening office should provide the DoBS with a list of all cases
- the DoBS should audit all B3 lesions and confirm the accuracy of the data
- there should be analysis of why >25% of eligible B3 lesions suitable for VAE were referred for surgery
- regional SQAS staff can provide expert advice on the audit process
- this audit should be made available to SQAS and commissioners
- the programme board meeting may be a useful forum to discuss the findings and agree any action plans to ensure this KPI is met in the subsequent audit

R2 Recall for assessment rate for prevalent screen (aged 45-52) only

Outlier definition

Services where the proportion of recall for assessment rate for the prevalent (first) screen is over 10%.

Rationale

According to national standards the prevalent recall rate should ideally be less than 7% but 10% or less is acceptable. A recall rate greater than 10% will lead to an increased number of women being recalled for assessment. The aim of this quality indicator is to reduce the distress of women who are recalled for assessment but are not subsequently diagnosed with cancer. Data shows that a higher recall rate does not necessarily equate to a higher cancer detection rate.

Data and calculation

Data comes from KC62 Table A. Proportions are calculated using single year and 3 year rolling data, from:

Denominator: count of women who were aged 45 to 52 (inclusive) and were screened at their prevalent round.

Numerator: count of women who were aged 45 to 52 (inclusive), were screened at their prevalent round and had been referred to assessment clinic.

Proportions are calculated and displayed by screening service.

How to investigate outliers

The DoBS in an outlier service will be informed in writing by their local SQAS of their performance for the audit.

The lead commissioner will be informed at the same time so that this item can be discussed within the appropriate programme board setting and any barriers to this aspect of the service identified and addressed.

- the screening office should provide the screening director with a list of all cases recalled to be assessed where cancer was not diagnosed
- services with high recall rates should audit their recalls
 - regional SQAS staff can provide expert advice on the audit process
- the audit should lead to measures being put in place to reduce the number of benign lesions being recalled back for assessment.
- the DoBS or audit lead should decide how best to share this data with all film readers and ensure clear learning objectives are identified and implemented
- the programme board and lead commissioner should be informed of the audit findings and resulting action plan

This QPI should not be looked at in isolation.

R3 Recall for assessment rate in women at very high risk of breast cancer

Outlier definition

Services where the proportion of recall for assessment rate is over 12%

Rationale

To reduce the distress of women identified as being at high risk of breast cancer who are recalled for assessment but are not subsequently diagnosed with cancer

Data and calculation

Data comes from KC62 Table U. Proportions are calculated using 3 year rolling data from:

Denominator: count of high risk/family history women screened.
Numerator: count of high risk/family history women screened and referred for assessment.

Proportions are calculated and displayed by screening service.

How to investigate outliers

The DoBS in an outlier service will be informed in writing by their local SQAS of their performance for the audit.

The lead commissioner will be informed at the same time so that this item can be discussed within the appropriate programme board setting and any barriers to this aspect of the service identified and addressed.

The screening office should provide the DoBS with a list of all cases. The DoBS should audit cases recalled with a benign outcome. Regional SQAS staff can provide expert advice on the audit process.

The outcomes of the audit should be shared with all film readers and clear learning objectives identified.

The programme board and lead commissioner should be informed of the audit findings and resulting action plan.

A re-audit should be performed to ensure this has been effective in reducing recall rates.

If the audit identifies errors in the data recorded on NBSS these should be corrected as soon as possible and the method for updating NBSS for these cases reviewed and amended as indicated.

Pathology

P1 Invasive cancer grade

Outlier definition

A 99.7% high outlier service using one-year and 3-year data or a 99.7% low outlier service using one-year and 3-year data.

Rationale

Histological grade is a key factor in the decision-making process regarding optimal treatment.

Data and calculation

Data was extracted from the national breast screening system (NBSS) using the BASOX standard report.

The proportion for each grade is calculated relative to the total number of surgically treated cancers. For example, the proportion of Grade 1 invasive cancers is calculated from:

Denominator: count of surgically treated invasive cancer patients in the study period, excluding patients with a known previous breast cancer.

Numerator: count of surgically treated invasive cancer patients with Grade 1 cancer, excluding patients with a known previous breast cancer.

Proportions are calculated and displayed by screening service.

How to investigate outliers

The director of breast screening (DoBS) in an outlier service will be informed in writing by their local SQAS that their performance for the audit period represents a variation that cannot be explained by chance alone.

The lead commissioner will be informed at the same time point so that this item can be discussed within the appropriate programme board setting and any barriers to this aspect of the service identified and addressed.

The DoBS should inform the lead breast screening pathologist(s). Where the service is supported by multiple laboratories the lead in each should be informed.

The screening office should provide the laboratory/laboratories with a list of cases and the grade recorded on NBSS with identifiers that enable identification in the respective laboratory system(s).

The lead Pathologist(s) should confirm the accuracy of the final grade data recorded on NBSS as the first step. If the data are inaccurate this should be immediately reported so that the revised grading proportions can be recalculated.

If the issue persists at the data checking stage then further local investigation is required. The format of the investigation should be locally agreed and in line with the trust clinical governance requirements. Regional SQAS staff can provide expert advice on the audit process.

If the pathology service is provided by multiple laboratories, the data for each laboratory should be checked by the service to assess whether it is all or only one laboratory which is an outlier over the period. Caution should be applied when working with small numbers, data from additional time periods may be required.

All identified laboratories demonstrating this outlier data should be identified and the pathology lead for the screening service should work with lead pathologists at all relevant laboratories to agree a plan to investigate the reasons for the potential outlier status.

The plan could include reviewing grading criteria, microscope calibration and fixation processes and procedures, confirming compliance with current guidance and updating where necessary.

The programme board and lead commissioner should be informed of the audit findings and resulting action plan.

Establish whether individual consultants vary in their patterns of reporting (refer to Royal College of Pathologists' audit template on the RCPATH website as necessary).

If indicated a pathology review should include a minimum of three pathologists involved in the service (including the lead and deputy pathologist).

A review should reflect the outlier area concerned. For example, if the service is a grade 1 high outlier review all grade 1s; if the service is a low grade 1 outlier the review should include a list of grade 2 cases as these may be downgraded to grade 1.

Any changes of grade accepted by three pathologists should be discussed by the local multi-disciplinary team (MDT) to assess whether any changes to treatment regime are required. Duty of candour should be applied if indicated.

P2 Lymphovascular invasion (LVI) for invasive cancers

Outlier definition

A 99.7% high outlier service or a 99.7% low outlier service using one-year data.

Rationale

The existence of LVI may help identify who is at increased risk for axillary lymph node and distant metastasis and is a predictor of local recurrence. Therefore, it is important that this information is routinely included in reports.

Data and calculation

Data was extracted from NBSS using the BASOX standard report. Proportions are calculated from:

Denominator: count of invasive cancer patients, excluding patients with a known previous breast cancer
Numerator: count of invasive cancer patients where lymphovascular invasion was found in any operation, excluding patients with a known previous breast cancer

Proportions are calculated and displayed by screening service.

How to investigate outliers

The director of breast screening (DoBS) in an outlier service will be informed in writing by their local SQAS that their performance for the audit period represents a variation that cannot be explained by chance alone.

The lead commissioner will be informed at the same time so that this item can be discussed within the appropriate programme board setting and any barriers to this aspect of the service identified and addressed.

The DoBS should inform the lead breast screening pathologist(s). Where the service is supported by multiple laboratories the lead in each should be informed.

The screening office should provide the laboratory/laboratories with a list of cases and the LVI status recorded on NBSS with identifiers that enable identification in the respective laboratory system(s).

The lead Pathologist(s) should confirm the accuracy of the final LVI data recorded on NBSS as the first step. If the data are inaccurate this should be immediately reported so that the revised proportions can be recalculated.

If the issue persists at the data checking stage then further local investigation is required. The format of the investigation should be locally agreed and in line with the trust clinical governance requirements. Regional SQAS staff can provide expert advice on the audit process. Some areas that could be explored include:

Review of laboratory processes to ensure surgical resection specimens are fixed in a timely manner including review of arrangements for transport of specimens from theatres and specimen handling/fixation on receipt. Consideration should be given to theatre scheduling, laboratory opening times, staffing levels and training.

Consideration of whether there have been any changes in laboratory service provision e.g. outsourcing which may potentially have affected fixation processes e.g. vacuum packing for transportation.

The pathology services should review their compliance with current guidance for specimen fixation protocols and update these where necessary².

Consider whether individual laboratories vary in their pattern of laboratory handling; and reporting e.g. use of immunohistochemistry.

Consider whether individual laboratories or consultants vary in their patterns of reporting including variation in use of the “possible lymphovascular invasion” category.

Consider whether variation in the use of neoadjuvant chemotherapy and the approach to pathological examination e.g. extent of block taking in this context may have a bearing on the identification and recording of lymphovascular invasion.

If a pathology review is conducted, a minimum of three pathologists should be involved (including the lead breast pathologist for the centre and the regional PCA pathologist if required).

Particular consideration should be given to the reason for outlier status and this targeted in any review (i.e. low outlier versus high outlier).

The programme board and lead commissioner should be informed of the audit findings and resulting action plan.

A slide review, if undertaken, should be performed on sections anonymised for patients' details. Review should include compliance with guidelines and assessment of the extent of sampling to include whether the approach to block taking is compliant with guidelines².

Any diagnostic discrepancies of possible clinical relevance identified at slide review should be referred to the relevant Trust management. Duty of candour should be undertaken if indicated.

If, after a slide review has been undertaken, there are changes to lymphovascular space invasion in a significant number of cases, double reporting as normal practice should be considered for a limited period.

After completion of the review of outlier status, ongoing (e.g. monthly) audit by the service for a limited period is encouraged. SQAS should be kept informed of these results.

Surgery

S1 Screening cancer caseload

Outlier definition

Consultant surgeons that had managed less than an average of 10 cases of screen detected breast cancer per year over a 3-year period

Rationale

Surgeons should have a minimum caseload to maintain/improve standards

Data and calculation

Surgeon data was extracted from NBSS using the BASOX standard report. In this analysis, the surgeon recorded as undertaking the first operation is collated for a 3-year period.

The average annual caseload is displayed for individual surgeons. Where a surgeon has operated on women from more than one screening service these are collated to give a final caseload.

The analysis counts clients and not tumours or operations. Proportions are calculated and displayed by surgeon.

How to investigate outliers

The director of breast screening (DoBS) in an outlier service will be informed in writing by their local SQAS that their performance for the audit period represents a variation that cannot be explained by chance alone.

The lead commissioner will be informed at the same time so that this item can be discussed within the appropriate programme board setting and any barriers to this aspect of the service identified and addressed.

The DoBS should inform the appropriate lead breast screening surgeon(s) to conduct the review of the outlier surgeon's data.

The screening office should provide the lead surgeon with a list of cases and the allocated responsible surgeon recorded on NBSS with identifiers that enable identification in the respective operating system(s). The GMC numbers used for the surgeons should also be provided.

The lead surgeon(s) should confirm the accuracy of the data recorded on NBSS. If the data is inaccurate this should be immediately reported so that the revised caseload can be recalculated.

If the issue persists at the data checking stage then the DoBS and the Screening Lead Surgeon should meet with the surgeon involved to discuss a remedial action plan which should be supportive and constructive. This plan should be shared with relevant trust management. Regional SQAS staff can provide expert advice.

The programme board and lead commissioner should be informed of the audit findings and remedial action.

Co-operation in this remedial action is expected from the surgeon(s) involved. Failure to co-operate should be escalated internally using internal systems and processes.

Progress on the remedial action should be assessed regularly, documented and shared with SQAS.

S2 Management of the axilla

S2a Cases with more than 5 axillary nodes obtained from node negative invasive cancers

Outlier definition

A 95% high outlier service taking more than 5 axillary lymph nodes in a node negative patient using 3-year data.

Rationale

Unnecessary removal of excessive axillary lymph nodes in patients with a node negative axilla can cause potentially avoidable morbidity.

Data and calculation

Data was extracted from NBSS using the BASOX standard report. Proportions are calculated from:

Denominator: count of invasive cancer patients with negative nodal status, excluding patients with a known previous breast cancer and patients with known neo-adjuvant therapy

Numerator: count of invasive cancer patients with negative nodal status and had more than 5 nodes obtained, excluding patients with a known previous breast cancer and patients with known neo-adjuvant therapy

Proportions are calculated and displayed by service.

How to investigate outliers

The director of breast screening (DoBS) in an outlier service will be informed in writing by their local SQAS that their performance for the audit period represents a variation that cannot be explained by chance alone.

The lead commissioner will be informed at the same time so that this item can be discussed within the appropriate programme board setting and any barriers to this aspect of the service identified and addressed.

The DoBS should confirm to SQAS copying in the relevant lead surgeon(s) that the inappropriately high node yields are not a surrogate marker for service level issues (e.g. lack of access to radio-isotope for sentinel node mapping).

In the absence of any service level issues, the DoBS should inform the appropriate lead breast screening surgeon(s) to conduct the review of the relevant cases to investigate the root cause (individual surgeon or global within the surgical department).

The screening office should provide the lead surgeon with a list of cases with more than 5 nodes obtained from node negative invasive cancers recorded on NBSS with identifiers that enable identification in the respective operating system(s). The GMC numbers used for the surgeons should also be provided.

The lead surgeon(s) should confirm the accuracy of the data recorded on NBSS as the first step. If the data are inaccurate this should be immediately reported so that the revised proportions can be recalculated.

If the issue persists at the data checking stage then the DoBS and the Screening Lead Surgeon should meet with the surgeon(s) involved to discuss a remedial action plan which should be supportive and constructive. Regional SQAS staff can provide expert advice.

The programme board and lead commissioner should be informed of the audit findings and remedial action.

Examples of remedial action may include observed surgery or retraining. This plan should be shared with relevant trust management.

Co-operation in this remedial action is expected from the surgeon(s) involved. Failure to co-operate should be escalated internally using internal systems and processes.

Progress on the remedial action should be assessed regularly, documented and shared with SQAS.

In rare cases, serious concerns may require escalation. This would be an example of a metric that could be escalated to the Care Quality Commission (CQC). This would involve the transfer of service and surgeon identifiable data but not patient identifiable data to the CQC.

S2b Cases of non-invasive cancers treated by breast conserving surgery that have any lymph nodes excised

Outlier definition

A 95% high outlier service excising axillary lymph nodes in women diagnosed with non-invasive cancer treated with breast conserving surgery using 3-year data.

Rationale

Removal of axillary lymph nodes in patients with non-invasive disease undergoing a breast conserving procedure is not indicated and can cause potentially avoidable morbidity. Surgical screening guidance recommends that in the presence of suspected invasion (e.g. mass lesion with B5a core biopsy) repeat biopsies should be performed of the suspected lesion. Proceeding directly to sentinel node biopsy is not indicated in B5a cases undergoing breast conserving surgery.

Data and calculation

Data was extracted from NBSS using the BASOX standard report. Proportions are calculated from:

Denominator: count of non-invasive cancer patients treated by breast conserving surgery, excluding patients with a known previous breast cancer
Numerator: count of non-invasive cancer patients treated by breast conserving surgery and have lymph nodes excised, excluding patients with a known previous breast cancer

Proportions are calculated and displayed by service.

How to investigate outliers

The director of breast screening (DoBS) in an outlier service will be informed in writing by their local SQAS that their performance for the audit period represents a variation that cannot be explained by chance alone.

The lead commissioner will be informed at the same time so that this item can be discussed within the appropriate programme board setting and any barriers to this aspect of the service identified and addressed.

The DoBS should inform the appropriate lead breast screening surgeon(s) to conduct the investigation.

The screening office should provide the lead surgeon with a list of cases and the allocated responsible surgeon recorded on NBSS with identifiers that enable identification in the respective operating system(s). The GMC numbers used for the surgeons should also be provided.

The lead surgeon(s) should confirm the accuracy of the data recorded on NBSS as the first step. If the data are inaccurate this should be immediately reported so that the revised proportions can be recalculated.

If the issue persists at the data checking stage then the DoBS and the Screening Lead Surgeon should meet with the surgeon involved to agree a remedial action plan. Regional SQAS staff can provide expert advice.

Examples of remedial action may include observed surgery or retraining. This plan should be shared with relevant trust management.

The programme board and lead commissioner should be informed of the audit findings and remedial action.

Co-operation in this remedial action is expected from the surgeon(s) involved. Failure to co-operate should be escalated internally using internal systems and processes.

Progress on the remedial action should be assessed regularly, documented and shared with SQAS.

In rare cases, serious concerns may require escalation. This would be an example of a metric that could be escalated to the Care Quality Commission (CQC). This would involve the transfer of service and surgeon identifiable data but not patient identifiable data to the CQC.

S3 Reconstruction after mastectomy for non-invasive cancers

Outlier definition

The decision on whether to proceed with immediate breast reconstruction following mastectomy for non-invasive cancers, e.g. ductal carcinoma in situ (DCIS) is multifactorial. Therefore, it is not appropriate to have a target figure for this QPI. However, it is reasonable to expect most screening services to fall between 3 standard deviations of the mean figure for the nation.

Rationale

NICE guidelines state that women having a mastectomy should be offered an immediate or delayed breast reconstruction, unless they have significant comorbidities that rule out reconstructive surgery.

Data and calculation

Data was extracted from NBSS using the BASOX standard report. Proportions are calculated and displayed by screening service.

Denominator: count of non-invasive cancer patients treated by mastectomy, excluding patients with a known previous breast cancer.
Numerator: count of non-invasive cancer patients treated by mastectomy and had immediate reconstruction, excluding patients with a known previous breast cancer.

How to investigate outliers

The director of breast screening (DoBS) in an outlier service will be informed in writing by their local SQAS that their performance for the audit period represents a variation that cannot be explained by chance alone.

The lead commissioner will be informed at the same time so that this item can be discussed within the appropriate programme board setting and any barriers to this aspect of the service identified and addressed.

The DoBS should confirm to SQAS, copying in the lead screening surgeon(s), that there are no service level issues preventing discussion of breast reconstruction with patients (e.g. lack of access to breast reconstruction surgeons or facilities).

In the absence of service level issues, the DoBS should inform the appropriate lead breast screening surgeon(s) to conduct the investigation.

The screening office should provide the lead surgeon with a list of cases and the allocated responsible surgeon recorded on NBSS with identifiers that enable identification in the respective operating system(s). The GMC numbers used for the surgeons should also be provided.

The lead Surgeon(s) should confirm the accuracy of the data recorded on NBSS as the first step. If the data is inaccurate this should be immediately reported so that the revised proportions can be recalculated.

The case review will involve evaluation of each patient's notes to assess if there is documented evidence that breast reconstruction was discussed with the patient, or whether a documented reason for not discussing this option is provided (e.g. co-morbidity, tumour biology). Regional SQAS staff can provide expert advice on the case review process.

The results of the case review should be discussed between the Lead Surgeon and the DoBS. There should be consideration whether there is an individual surgical element or multiple surgeons contributing to the outlier status. In the latter case the lead surgeon and the DoBS should meet with the involved surgeons.

Subsequent remedial actions may include, for example, retraining or communication skills training. This plan should be shared with relevant trust management.

Co-operation in this remedial action is expected from the surgeon(s) involved. Failure to co-operate should be escalated internally using internal systems and processes.

Progress on the remedial action should be assessed regularly, documented and shared with SQAS.

In rare cases, serious concerns may require escalation. This would be an example of a metric that could be escalated to the Care Quality Commission (CQC). This would involve the transfer of service and surgeon identifiable data but not necessarily patient identifiable data to the CQC.

Oncology

O1 No radiotherapy given after breast conserving surgery to patients with invasive cancer excluding patients aged >65 years, with T1, N0, G1/2, ER+ cancer.

Outlier definition

A 95% high outlier service using 1-year data not receiving radiotherapy following breast conserving surgery for invasive disease.

Rationale

Adjuvant radiotherapy is recommended for the majority of women with invasive breast cancers treated by breast conserving surgery.

Data and calculation

Adjuvant data collection is usually 1 year behind the main audit data collection. This allows longer follow-up time for the adjuvant treatment. For example, the 2019/20 audit report contains analysis of adjuvant data from the 2018/19 audit period with follow-up up to March 2020. The patient and tumour information were extracted from NBSS using BASOX standard report. This information was then matched to the cancer records in the Cancer Analysis System (CAS) database and adjuvant treatment data was extracted from the CAS database. Radiotherapy data comes from cancer registry, Cancer Outcomes and Services Dataset (COSD), Radiotherapy Treatment Dataset (RTDS), Cancer Waiting Times (CWT), and Hospital Episode Statistics (HES) data sets.

It is recognised that there may be discrepancies in data retrieved from COSD and CWT (representing intention to treat information) and the RTDS and HES datasets (treatment actually received)

Proportions are calculated and displayed by screening service.

Denominator: count of invasive cancer patients treated by breast conserving surgery, excluding patients >65 years of age, with T1, N0, G1/2 and ER+ cancer or patients with previous breast cancer.

Numerator: count of invasive cancer patients treated by breast conserving surgery and had no radiotherapy treatment or unknown if she had radiotherapy treatment, excluding patients >65 years of age, with T1, N0, G1/2 and ER+ cancer or patients with previous breast cancer.

How to investigate outliers

The director of breast screening (DoBS) in an outlier service will be informed in writing by their local SQAS that their performance for the audit period represents a variation that cannot be explained by chance alone.

The lead commissioner will be informed at the same time so that this item can be discussed within the appropriate programme board setting and any barriers to this aspect of the service identified and addressed.

The DoBS should inform the appropriate MDT Lead to lead the investigation.

The screening office should provide the MDT lead with a list of cases and the allocated responsible surgeon recorded on NBSS with identifiers that enable identification in the MDT recording system(s). If women who are diagnosed with screen detected breast cancer at a service are referred to more than one cancer centre for their radiotherapy then the data should be analysed to ascertain if the pattern of care is consistent at all sites.

If the service is a hub and spoke model the data should be sent to the relevant MDT leads at the spoke sites.

The MDT Lead(s) should confirm the accuracy of the data recorded on NBSS as the first step. This could be that radiotherapy was given or that the patient had a mastectomy. If the data is inaccurate this should be immediately reported so that the revised proportions can be recalculated.

The MDT lead should conduct an audit to establish why radiotherapy was not administered in cases clinically requiring this adjuvant treatment. Regional SQAS staff can provide expert advice on the audit process.

If the further investigation identifies that the level of treatment was inadequate and unjustifiable then the trust management should be informed and Duty of candour should be applied where indicated.

The results of the case review should be discussed by the relevant MDT. Changes to local protocols should be agreed as indicated.

After changes to internal protocols, ongoing (e.g. monthly) audit by the MDT for 12 months is required.

Progress should be assessed regularly, documented and shared with SQAS and commissioners via the programme boards.

In rare cases, serious concerns may require escalation. This would be an example of a metric that could be escalated to the Care Quality Commission (CQC). This would involve the transfer of service and trust level data but not necessarily patient identifiable data to the CQC.

References

1. **Clinical guidance for breast cancer screening assessment**, NHSBSP publication number 49, Nov 2016
2. **Royal College of Pathologists Cancer Datasets and Tissue Pathways Guidance**.
3. The Royal College of Radiologists. **Guidance on screening and symptomatic breast imaging, fourth edition**. London: The Royal College of Radiologists, 2019. Ref No. BFCR(19)9

Appendix 4: Main audit data tables (1 - 91)

DATA FROM THE 2019/20 AUDIT OF SCREEN-DETECTED BREAST CANCERS IN WOMEN ALL AGES FOR THE PERIOD 1 APRIL 2019 – 31 MARCH 2020

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	1428	81	772	44	5	0	328	19	0	0	1761				
East of England	1517	82	798	43	20	1	319	17	0	0	1856	100	230268	1.5	6.6	3.5
London	1568	76	708	34	27	1	478	23	2	0	2075	100	268266	1.9	5.8	2.6
N East, Yorks & Humber	2206	81	1161	42	20	1	508	19	0	0	2734	100	341062	1.5	6.5	3.4
North West	1764	79	875	39	17	1	459	20	1	0	2241	100	273202	1.7	6.5	3.2
South East	2334	78	1138	38	30	1	644	21	1	0	3009	100	338923	2.0	6.9	3.4
South West	1816	78	978	42	31	1	491	21	0	0	2338	100	261261	2.0	7.0	3.7
West Midlands	1417	80	695	39	12	1	335	19	1	0	1765	100	203158	1.7	7.0	3.4
England	14050	79	7125	40	162	1	3562	20	5	0	17779	100	2123603	1.8	6.6	3.4
Northern Ireland	429	83	221	43	1	0	89	17	1	0	520	100	64334	1.4	6.7	3.4
Scotland	1423	84	466	28	13	1	248	15	2	0	1686	100	205784	1.3	6.9	2.3
Wales	873	83	439	42	7	1	169	16	0	0	1049	100	120437	1.5	7.2	3.6
UK	16775	79.8	8251	39	183	0.9	4068	19.3	8	0	21034	100	2514158	1.7	6.7	3.3

Sub-region	<50		50-64		65-70		71-75		76+		Total	>70	
	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%
	East Midlands	89	5	922	52	499	28	176	10	75		4	1761
East of England	58	3	1017	55	507	27	165	9	109	6	1856	274	15
London	108	5	1291	62	494	24	134	6	48	2	2075	182	9
N East, Yorks & Humber	95	3	1602	59	689	25	248	9	100	4	2734	348	13
North West	106	5	1232	55	614	27	220	10	69	3	2241	289	13
South East	136	5	1664	55	818	27	273	9	118	4	3009	391	13
South West	110	5	1244	53	652	28	242	10	90	4	2338	332	14
West Midlands	95	5	972	55	471	27	162	9	65	4	1765	227	13
England	797	4	9944	56	4744	27	1620	9	674	4	17779	2294	13
Northern Ireland	7	1	309	59	154	30	37	7	13	3	520	50	10
Scotland	0	0	1039	62	475	28	119	7	53	3	1686	172	0
Wales	17	2	609	58	296	28	78	8	49	5	1049	127	12
UK	821	4	11901	57	5669	27	1854	9	789	4	21034	2643	13

Sub-region	Total cases	Total pt matched**	% matched	Had previous cancers		No previous cancers	
				No.	%	No.	%
				East Midlands	1761	1754	100
East of England	1856	1820	98	250	14	1570	86
London	2075	2009	97	219	11	1790	89
NEYH	2734	2630	96	413	16	2216	84
North West	2241	2235	100	323	14	1912	86
South East	3009	2943	98	389	13	2554	87
South West	2338	2319	99	352	15	1967	85
West Midlands	1765	1744	99	277	16	1467	84
England	17779	17454	98	2465	14	14988	86
Northern Ireland	520	505	97	61	12	444	88
UK	18299	17959	98	2526	14	15432	86

* Wales and Scotland did not supply previous cancer data in 19/20. All Wales cases are included in the analysis.

Sub-region	Total matched	Total previous cancers	Invasive/micro-invasive					Non-invasive	
			Breast	Gynaecological	Bowel	Haematological	Other	Breast	Other
East Midlands	1754	242	82	26	16	8	43	21	55
East of England	1820	250	94	29	14	8	28	22	54
London	2009	219	87	23	7	9	31	19	53
NEYH	2630	413	154	44	12	12	52	37	124
North West	2235	323	119	59	15	12	48	26	74
South East	2943	389	144	44	19	27	43	36	94
South West	2319	352	106	40	20	19	40	31	95
West Midlands	1744	277	87	32	19	13	38	22	84
England	17454	2465	873	297	122	108	323	214	633
Northern Ireland	505	61	25	6	6	3	3	18	1
England & Northern Ireland	17959	2526	898	303	128	111	326	232	634
% of previous cancers		100	36	12	5	4	13	9	25
% of matched	100	14	5	2	1	1	2	1	4

** Matched with NCRS cancer data by NHS number and date of birth

* Wales and Scotland did not supply previous cancer data in 19/20. All Wales cases are included in the analysis.

Sub-region	Total cancers	C5 only		C5 & B5		B5 only		E5*		B5 & E5		Positive axillary biopsy only		Pre-operative diagnosis		No Pre-operative diagnosis	
		No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
East Midlands	1660	0	0	1	0	1601	96	34	2	9	1	2	0	1647	99	13	1
East of England	1741	0	0	0	0	1688	97	30	2	4	0	1	0	1723	99	18	1
London	1970	1	0	2	0	1887	96	42	2	4	0	1	0	1937	98	33	2
N East, Yorks & Humber	2546	0	0	7	0	2465	97	51	2	4	0	0	0	2527	99	19	1
North West	2098	0	0	2	0	2049	98	17	1	9	0	0	0	2077	99	21	1
South East	2830	0	0	1	0	2740	97	48	2	2	0	1	0	2792	99	38	1
South West	2207	0	0	1	0	2131	97	38	2	4	0	0	0	2174	99	33	1
West Midlands	1657	0	0	1	0	1606	97	29	2	5	0	0	0	1641	99	16	1
England	16709	1	0	15	0	16167	97	289	2	41	0	5	0	16518	99	191	1
Northern Ireland	495	2	0	224	45	259	52	4	1	1	0	0	0	491	99	4	1
Scotland	1686	0	0	8	0	1659	98	0	0	0	0	0	0	1667	99	19	1
Wales	1049	0	0	0	0	1042	99	0	0	0	0	0	0	1042	99	7	1
UK	19939	3	0	247	1	19127	96	293	1	42	0	5	0	19718	99	221	1

*E5 relates to cancers identified at VA

Sub-region	Total cancers	C5 only		C5 & B5		B5 only		E5*		B5 & E5		Positive axillary biopsy only		Pre-operative diagnosis		No Pre-operative diagnosis	
		No	%	No	%	No	%	No	%	No	%	%	%	No	%	No	%
East Midlands	1349	0	0	1	0	1330	99	4	0	6	0	2	0	1343	100	6	0
East of England	1414	0	0	0	0	1404	99	3	0	2	0	1	0	1410	100	4	0
London	1486	1	0	2	0	1467	99	7	0	4	0	1	0	1482	100	4	0
N East, Yorks & Humber	2050	0	0	6	0	2024	99	11	1	1	0	0	0	2042	100	8	0
North West	1643	0	0	2	0	1626	99	3	0	6	0	0	0	1637	100	6	0
South East	2184	0	0	1	0	2165	99	8	0	0	0	1	0	2175	100	9	0
South West	1712	0	0	1	0	1695	99	6	0	3	0	0	0	1705	100	7	0
West Midlands	1323	0	0	1	0	1314	99	4	0	2	0	0	0	1321	100	2	0
England	13161	1	0	14	0	13025	99	46	0	24	0	5	0	13115	100	46	0
Northern Ireland	407	2	0	210	52	191	47	2	0	1	0	0	0	406	100	1	0
Scotland	1423	0	0	8	1	1409	99	0	0	0	0	0	0	1417	100	6	0
Wales	873	0	0	0	0	869	100	0	0	0	0	0	0	869	100	4	0
UK	15864	3	0	232	1	15494	98	48	0	25	0	5	0	15807	100	57	0

*E5 relates to cancers identified at VAE

Sub-region	Total cancers	C5 only		C5 & B5		B5 only		E5 only		B5 & E5		Positive axillary biopsy only		Pre-operative diagnosis		No Pre-operative diagnosis	
		No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
East Midlands	307	0	0	0	0	267	87	30	10	3	1	0	0	300	98	7	2
East of England	307	0	0	0	0	267	87	26	8	2	1	0	0	295	96	12	4
London	458	0	0	0	0	395	86	35	8	0	0	0	0	430	94	28	6
N East, Yorks & Humber	477	0	0	1	0	422	88	40	8	3	1	0	0	466	98	11	2
North West	438	0	0	0	0	408	93	12	3	3	1	0	0	423	97	15	3
South East	616	0	0	0	0	547	89	39	6	1	0	0	0	587	95	29	5
South West	465	0	0	0	0	408	88	31	7	0	0	0	0	439	94	26	6
West Midlands	322	0	0	0	0	281	87	25	8	3	1	0	0	309	96	13	4
England	3390	0	0	1	0	2995	88	238	7	15	0	0	0	3249	96	141	4
Northern Ireland	86	0	0	13	15	68	79	2	2	0	0	0	0	83	97	3	3
Scotland	248	0	0	0	0	237	96	0	0	0	0	0	0	237	96	11	4
Wales	169	0	0	0	0	166	98	0	0	0	0	0	0	166	98	3	2
UK	3893	0	0	14	0	3466	89	240	6	15	0	0	0	3735	96	158	4

*E5 relates to cancers identified at VAE

Region	Total Cancers with B5	Core biopsy or VAB only						VAE only	
		B5a (Non-invasive)		B5b (Invasive)		B5c (Micro-invasive, not assessable or unknown)		E5	
		No.	%	No.	%	No.	%	No.	%
East Midlands	1611	348	22	1247	77	5	0.3	0	0.0
East of England	1692	338	20	1337	79	12	0.7	0	0.0
London	1893	511	27	1366	72	9	0.5	3	0.1
N East, Yorks & Humber	2476	548	22	1907	77	12	0.5	1	0.0
North West	2060	518	25	1519	74	11	0.5	1	0.0
South East	2743	713	26	2024	74	3	0.1	1	0.0
South West	2136	534	25	1581	74	14	0.7	1	0.0
West Midlands	1612	375	23	1220	76	11	0.7	0	0.0
England	16223	3885	24	12201	75	77	0.5	7	0.0
Northern Ireland	484	99	20	385	80	0	0.0		
Scotland	1667	291	17	1376	83	0	0.0		
Wales	1042	221	21	819	79	2	0.2		
UK	17749	4205	24	13405	76	79	0.4		

There is no VAE data for Northern Ireland or Wales, this data was taken from the assessment audit which was England only.

Region	Total cancers with B5	WBN/VAB & VAE					
		B5a/E5 (Non-invasive)		B5b/E5 (Invasive)		B5C/E5 (Micro-invasive, not assessable or unknown)	
		No.	%	No.	%	No.	%
East Midlands	1611	5	0.3	6	0.4	0	0
East of England	1692	3	0.2	2	0.1	0	0
London	1893	1	0.1	3	0.2	0	0
N East, Yorks & Humber	2476	4	0.2	4	0.2	0	0
North West	2060	4	0.2	7	0.3	0	0
South East	2743	2	0.1	0	0.0	0	0
South West	2136	3	0.1	3	0.1	0	0
West Midlands	1612	3	0.2	3	0.2	0	0
England	16223	25	0.2	28	0.2	0	0.0

There is no VAE data for Northern Ireland, Wales or Scotland, this data was taken from the assessment audit which was England only.

Sub-region	Invasive		Micro-invasive		Non-invasive		Benign		Unknown		Total with surgery	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	63	19	4	1	253	77	10	3	0	0	330	100
East of England	50	15	17	5	252	78	6	2	0	0	325	100
London	79	17	22	5	338	73	26	6	0	0	465	100
N East, Yorks & Humber	94	18	18	3	377	73	28	5	0	0	517	100
North West	76	16	14	3	372	77	24	5	0	0	486	100
South East	117	18	28	4	498	75	25	4	0	0	668	100
South West	68	14	28	6	365	75	24	5	0	0	485	100
West Midlands	67	19	11	3	250	73	16	5	0	0	344	100
England	614	17	142	4	2705	75	159	4	0	0	3620	100
Northern Ireland	17	17	1	1	74	76	6	6	0	0	98	100
Scotland	41	15	7	3	121	45	2	1	100	37	271	100
Wales	49	23	7	3	152	72	4	2	0	0	212	100
UK	721	17	157	4	3052	73	171	4	100	2	4201	100

Sub-region	Invasive		Micro-invasive		Non-invasive		Benign		Unknown		Total with surgery	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	1204	98	0	0	8	1	11	1	3	0	1226	100
East of England	1252	96	2	0	22	2	22	2	2	0	1300	100
London	1241	96	0	0	29	2	26	2	2	0	1298	100
N East, Yorks & Humber	1840	98	1	0	18	1	24	1	3	0	1886	100
North West	1448	96	1	0	24	2	38	3	0	0	1511	100
South East	1909	96	3	0	29	1	37	2	6	0	1984	100
South West	1537	97	3	0	21	1	24	2	2	0	1587	100
West Midlands	1166	96	0	0	18	1	25	2	3	0	1212	100
England	11597	97	10	0	169	1	207	2	21	0	12004	100
Northern Ireland	370	98	0	0	3	1	5	1	0	0	378	100
Scotland	786	64	1	0	4	0	0	0	435	35	1226	100
Wales	775	97	0	0	7	1	13	2	0	0	795	100
UK	13528	94	11	0	183	1	225	2	456	3	14403	100

All services should investigate every case of discordance between the diagnostic core biopsy and excised surgical specimen

Sub-region	0		1		2		3+		Unknown		Total		Repeat (2+) visit	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
East Midlands	0	0	1319	79	280	17	61	4	0	0	1660	100	341	21
East of England	0	0	1537	88	187	11	17	1	0	0	1741	100	204	12
London	0	0	1716	87	232	12	22	1	0	0	1970	100	254	13
N East, Yorks & Humber	0	0	2215	87	295	12	36	1	0	0	2546	100	331	13
North West	0	0	1723	82	337	16	38	2	0	0	2098	100	375	18
South East	0	0	2450	87	351	12	29	1	0	0	2830	100	380	13
South West	0	0	1776	80	360	16	71	3	0	0	2207	100	431	20
West Midlands	0	0	1381	83	248	15	28	2	0	0	1657	100	276	17
England	0	0	14117	84	2290	14	302	2	0	0	16709	100	2592	16
Northern Ireland	0	0	454	92	40	8	1	0	0	0	495	100	41	8
Scotland	0	0	1394	83	191	11	101	6	0	0	1686	100	292	17
Wales	0	0	949	90	89	8	11	1	0	0	1049	100	100	10
UK	0	0	16914	85	2610	13	415	2	0	0	19939	100	3025	15

Sub-region	1		2		3+		Total		First core/cyt/VAE at 2+ visit	
	No	%	No	%	No	%	No	%	No	%
East Midlands	1541	93	114	7	2	0	1657	100	116	7
East of England	1705	98	35	2	0	0	1740	100	35	2
London	1889	96	79	4	0	0	1968	100	79	4
N East, Yorks & Humber	2475	97	67	3	2	0	2544	100	69	3
North West	1999	95	97	5	0	0	2096	100	97	5
South East	2739	97	90	3	0	0	2829	100	90	3
South West	2071	94	134	6	2	0	2207	100	136	6
West Midlands	1611	97	46	3	0	0	1657	100	46	3
England	16030	96	662	4	6	0	16698	100	668	4
Northern Ireland	490	99	5	1	0	0	495	100	5	1
Wales	1037	99	11	1	0	0	1048	100	11	1
UK excl Scotland	17557	96	678	4	6	0	18241	100	684	4

No data for Scotland

Sub-region	Invasive					Non-Invasive					Overall				
	1		2+		Total	1		2+		Total	1		2+		Total
	No	%	No	%		No	%	No	%		No	%	No	%	
East Midlands	1239	92	102	8	1341	218	73	82	27	300	1461	89	184	11	1645
East of England	1341	95	68	5	1409	236	80	59	20	295	1594	93	128	7	1722
London	1411	95	70	5	1481	361	84	69	16	430	1795	93	141	7	1936
N East, Yorks & Humber	1937	95	105	5	2042	388	83	78	17	466	2341	93	186	7	2527
North West	1515	93	122	7	1637	342	81	81	19	423	1871	90	206	10	2077
South East	2062	95	112	5	2174	487	83	100	17	587	2574	92	217	8	2791
South West	1559	91	146	9	1705	343	78	96	22	438	1928	89	246	11	2174
West Midlands	1236	94	85	6	1321	242	78	67	22	309	1487	91	154	9	1641
England	12300	94	810	6	13110	2617	81	632	19	3248	15051	91	1462	9	16513
Northern Ireland	389	96	17	4	406	72	87	11	13	83	461	94	30	6	491
Wales	834	96	35	4	869	132	80	34	20	166	971	93	71	7	1042
UK excl. Scotland	13523	94	862	6	14385	2821	81	677	19	3497	16483	91	1563	9	18046

No data for Scotland

Table 15: Worst core/cytology biopsy results of the first non-operative needle biopsy visit for non-invasive cancers with a non-operative diagnosis

Sub-region	C5, B5, E5 or a combination thereof		C4, B4, E4 or a combination thereof		C3, B3, E3 or a combination thereof		C2, B2, E2 or a combination thereof		C1, B1, E1 or a combination thereof		Total
	No	%	No	%	No	%	No	%	No	%	
East Midlands	255	85	10	3	30	10	2	1	3	1	300
East of England	251	85	9	3	26	9	3	1	6	2	295
London	380	88	2	0	39	9	4	1	5	1	430
N East, Yorks & Humber	409	88	5	1	40	9	6	1	6	1	466
North West	378	89	10	2	27	6	4	1	4	1	423
South East	516	88	16	3	44	7	3	1	8	1	587
South West	378	86	23	5	28	6	6	1	4	1	439
West Midlands	267	86	8	3	27	9	2	1	5	2	309
England	2834	87	83	3	261	8	30	1	41	1	3249
Northern Ireland	79	95	0	0	3	4	0	0	1	1	83
Scotland	237	100	0	0	0	0	0	0	0	0	237
Wales	144	87	2	1	14	8	1	1	5	3	166
UK	3057	87	85	2	278	8	31	1	47	1	3498

Table 16: Any further visits after core/cytology/vacuum biopsy result

Sub-region	Invasive					Non-Invasive					Overall				
	Further visit		No further visit		Total	Further visit		No further visit		Total	Further visit		No further visit		Total
	No	%	No	%		No	%	No	%		No	%	No	%	
East Midlands	57	4	1290	96	1347	13	4	293	96	306	70	4	1587	96	1657
East of England	37	3	1376	97	1413	5	2	302	98	307	42	2	1698	98	1740
London	28	2	1457	98	1485	16	4	441	96	457	44	2	1924	98	1968
N East, Yorks & Humber	74	4	1976	96	2050	17	4	458	96	475	91	4	2453	96	2544
North West	71	4	1571	96	1642	19	4	418	96	437	90	4	2006	96	2096
South East	59	3	2124	97	2183	20	3	596	97	616	79	3	2750	97	2829
South West	67	4	1645	96	1712	14	3	451	97	465	82	4	2125	96	2207
West Midlands	64	5	1259	95	1323	21	7	301	93	322	85	5	1572	95	1657
England	457	3	12698	97	13155	125	4	3260	96	3385	583	3	16115	97	16698
Northern Ireland	6	1	401	99	407	0	0	86	100	86	6	1	489	99	495
Scotland	218	15	1205	85	1423	70	28	178	72	248	292	17	1394	83	1686
Wales	13	1	860	99	873	5	3	163	96	168	18	2	1030	98	1048
UK	476	3	13959	97	14435	130	4	3509	96	3639	607	3	17634	97	18241

Table 17: Status of diagnostic open biopsies

Sub-region	Benign biopsy rate		Malignant biopsy rate
	Prevalent	Incident	
East Midlands	0.56	0.21	0.06
East of England	0.62	0.20	0.08
London	0.60	0.27	0.12
N East, Yorks & Humber	0.53	0.16	0.06
North West	0.45	0.19	0.08
South East	0.80	0.27	0.11
South West	0.54	0.20	0.13
West Midlands	0.45	0.19	0.06
England	0.60	0.22	0.09
Northern Ireland	0.53	0.26	0.06
Wales	0.73	0.09	0.06
UK excl. Scotland	0.61	0.21	0.09

Sub-region	Total malignant open biopsies	Invasive		Micro-invasive		Non-invasive		Status unknown	
		No.	%	No.	%	No.	%	No.	%
		East Midlands	13	6	46	0	0	7	54
East of England	18	4	22	2	11	12	67	0	0
London	33	4	12	1	3	28	85	0	0
N East, Yorks & Humber	19	8	42	0	0	11	58	0	0
North West	21	6	29	0	0	15	71	0	0
South East	38	9	24	0	0	29	76	0	0
South West	33	7	21	0	0	26	79	0	0
West Midlands	16	2	13	0	0	13	81	1	6
England	191	46	24	3	2	141	74	1	1
Northern Ireland	4	1	25	0	0	3	75	0	0
Scotland	19	6	32	0	0	11	58	2	11
Wales	7	4	57	0	0	3	43	0	0
UK	221	57	26	3	1	158	71	3	1

Sub-region	Total malignant open biopsies	No non-operative procedures		Cytology only		Core biopsy/VAB only		Both cytology and core biopsy/VAB		VAE and other non-op biopsy	
		No.	%	No.	%	No.	%	No.	%	No.	%
		East Midlands	6	0	0	1	17	5	83	0	0
East of England	4	0	0	0	0	4	100	0	0	0	0
London	4	0	0	0	0	4	100	0	0	0	0
N East, Yorks & Humber	8	0	0	0	0	8	100	0	0	0	0
North West	6	1	17	1	17	4	67	0	0	0	0
South East	9	0	0	0	0	8	89	0	0	1	11
South West	7	0	0	0	0	7	100	0	0	0	0
West Midlands	2	0	0	0	0	2	100	0	0	0	0
England	46	1	2	2	4	42	91	0	0	1	2
Northern Ireland	1	0	0	0	0	0	0	1	100	0	0
Scotland	6	0	0	0	0	6	100	0	0	0	0
Wales	4	0	0	0	0	4	100	0	0	0	0
UK	57	1	2	2	4	52	91	1	2	1	2

Sub-region	Total malignant open biopsies	No non-operative procedures		Cytology only		Core biopsy/VAB only		Both cytology and core biopsy/VAB		VAE and other non-op biopsy	
		No.	%	No.	%	No.	%	No.	%	No.	%
		East Midlands	7	1	14	0	0	3	43	1	14
East of England	14	0	0	0	0	14	100	0	0	0	0
London	29	1	3	0	0	23	79	3	10	2	7
N East, Yorks & Humber	11	2	18	0	0	8	73	0	0	1	9
North West	15	1	7	0	0	13	87	0	0	1	7
South East	29	0	0	0	0	26	90	1	3	2	7
South West	26	0	0	0	0	25	96	0	0	1	4
West Midlands	13	0	0	0	0	12	92	1	8	0	0
England	144	5	3	0	0	124	86	6	4	9	6
Northern Ireland	3	0	0	0	0	2	67	1	33	0	0
Scotland	11	0	0	0	0	11	100	0	0	0	0
Wales	3	1	33	0	0	2	67	0	0	0	0
UK	161	6	4	0	0	139	86	7	4	9	6

Sub-region	Total	No Non-operative diagnosis		C4, B4, E4 or a combination thereof		C3, B3, E3 or a combination thereof		C2, B2, E2 or a combination thereof		C1, B1, E1 or a combination thereof	
		No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	6	0	0	2	33	4	67	0	0	0	0
East of England	4	0	0	0	0	4	100	0	0	0	0
London	4	0	0	1	25	3	75	0	0	0	0
N East, Yorks & Humber	8	0	0	4	50	3	38	1	13	0	0
North West	6	1	17	4	67	1	17	0	0	0	0
South East	9	0	0	3	33	5	56	1	11	0	0
South West	7	0	0	4	57	3	43	0	0	0	0
West Midlands	2	0	0	1	50	1	50	0	0	0	0
England	46	1	2	19	41	24	52	2	4	0	0
Northern Ireland	1	0	0	0	0	1	100	0	0	0	0
Scotland	6	0	0	2	33	3	50	1	17	0	0
Wales	4	0	0	0	0	3	75	1	25	0	0
UK	57	1	2	21	37	31	54	4	7	0	0

Sub-region	Total malignant open biopsies	No non-operative procedures		C4, B4 or both		C3, B3 or both		C2, B2 or both		C1, B1 or both	
		No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	7	1	14	1	14	4	57	1	14	0	0
East of England	14	0	0	7	50	7	50	0	0	0	0
London	29	1	3	4	14	24	83	0	0	0	0
N East, Yorks & Humber	11	2	18	1	9	7	64	1	9	0	0
North West	15	1	7	7	47	6	40	1	7	0	0
South East	29	0	0	10	34	18	62	0	0	1	3
South West	26	0	0	17	65	9	35	0	0	0	0
West Midlands	13	0	0	6	46	7	54	0	0	0	0
England	144	5	3	53	37	82	57	3	2	1	1
Northern Ireland	3	0	0	0	0	3	100	0	0	0	0
Scotland	11	0	0	4	36	6	55	0	0	1	9
Wales	3	1	33	0	0	2	67	0	0	0	0
UK	161	6	4	57	35	93	58	3	2	2	1

Sub-region	Unknown cytonuclear grade		Unknown size		Unknown cytonuclear grade and/or size		Total with surgery
	No.	%	No.	%	No.	%	No.
East Midlands	2	1	14	5	16	5	293
East of England	0	0	11	4	11	4	282
London	5	1	29	7	31	7	417
N East, Yorks & Humber	4	1	34	8	34	8	440
North West	2	0	25	6	25	6	418
South East	8	1	26	5	27	5	573
South West	2	0	27	6	28	6	441
West Midlands	0	0	17	6	17	6	296
England	23	1	183	6	189	6	3160
Northern Ireland	0	0	6	7	6	7	85
Scotland	107	46	111	47	112	48	234
Wales	0	0	8	5	8	5	160
UK	130	3.6	308	8	315	9	3639

Sub-region	<15mm		15-≤40mm		>40 mm		Size not assessable		Size unknown		Total non-invasive with surgery	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	94	32	112	38	69	24	4	1	14	5	293	100
East of England	104	37	117	41	47	17	3	1	11	4	282	100
London	126	30	168	40	82	20	12	3	29	7	417	100
N East, Yorks & Humber	162	37	170	39	70	16	4	1	34	8	440	100
North West	149	36	185	44	55	13	4	1	25	6	418	100
South East	185	32	245	43	95	17	22	4	26	5	573	100
South West	160	36	167	38	77	17	10	2	27	6	441	100
West Midlands	108	36	118	40	48	16	5	2	17	6	296	100
England	1088	34	1282	41	543	17	64	2	183	6	3160	100
Northern Ireland	27	32	39	46	13	15	0	0	6	7	85	100
Scotland	40	17	55	23	28	12	0	0	111	47	234	100
Wales	49	31	72	45	29	18	2	1	8	5	160	100
UK	1204	33	1448	40	613	17	66	2	308	8	3639	100

Sub-region	High		Intermediate		Low		Not assessable		Unknown		Total non-invasive with surgery	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	165	56	90	31	32	11	4	1	2	1	293	100
East of England	200	71	66	23	13	5	3	1	0	0	282	100
London	222	53	142	34	36	9	12	3	5	1	417	100
N East, Yorks & Humber	279	63	131	30	22	5	4	1	4	1	440	100
North West	270	65	105	25	36	9	5	1	2	0	418	100
South East	321	56	171	30	51	9	22	4	8	1	573	100
South West	283	64	124	28	22	5	10	2	2	0	441	100
West Midlands	183	62	92	31	16	5	5	2	0	0	296	100
England	1923	61	921	29	228	7	65	2	23	1	3160	100
Northern Ireland	49	58	29	34	7	8	0	0	0	0	85	100
Scotland	91	38	33	14	3	1	0	0	107	46	234	100
Wales	88	55	49	31	21	13	2	1	0	0	160	100
UK	2151	59	1032	28	259	7	67	2	130	4	3639	100

Sub-region	<10mm		10- <15mm		15- ≤20mm		>20- ≤35mm		>35- ≤50mm		>50mm		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	346	27	386	30	281	22	196	15	44	3	38	3	7	1	1298	100
East of England	361	26	379	28	326	24	213	16	41	3	29	2	15	1	1364	100
London	360	26	304	22	313	22	282	20	75	5	39	3	19	1	1392	100
N East, Yorks & Humber	536	27	548	27	433	22	355	18	62	3	47	2	21	1	2002	100
North West	392	24	429	27	393	25	258	16	57	4	55	3	20	1	1604	100
South East	495	23	575	27	494	23	374	18	100	5	57	3	25	1	2120	100
South West	461	28	451	27	369	22	283	17	51	3	40	2	19	1	1674	100
West Midlands	322	25	324	25	296	23	236	18	64	5	31	2	16	1	1289	100
England	3273	26	3396	27	2905	23	2197	17	494	4	336	3	142	1	12743	100
Northern Ireland	103	26	108	27	74	19	67	17	23	6	17	4	8	2	400	100
Scotland	230	17	236	18	183	14	128	10	33	2	23	2	483	37	1283	100
Wales	226	27	213	25	182	21	155	18	33	4	20	2	20	2	849	100
UK	3832	25	3953	26	3344	22	2547	17	583	4	396	3	620	4	15275	100

Table 27: Whole size of surgically treated invasive breast cancers

Sub-region	<10mm		10- <15mm		15- ≤20mm		>20- ≤35mm		>35- ≤50mm		>50mm		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	219	17	316	24	291	22	272	21	74	6	75	6	51	4	1298	100
East of England	209	15	319	23	322	24	279	20	79	6	64	5	92	7	1364	100
London	181	13	241	17	285	20	350	25	133	10	109	8	93	7	1392	100
N East, Yorks & Humber	303	15	463	23	443	22	453	23	144	7	121	6	75	4	2002	100
North West	235	15	353	22	415	26	324	20	98	6	91	6	88	5	1604	100
South East	262	12	471	22	500	24	491	23	155	7	123	6	118	6	2120	100
South West	273	16	349	21	387	23	405	24	102	6	79	5	79	5	1674	100
West Midlands	189	15	257	20	297	23	289	22	118	9	76	6	63	5	1289	100
England	1871	15	2769	22	2940	23	2863	22	903	7	738	6	659	5	12743	100
Northern Ireland	57	14	94	24	88	22	90	23	30	8	36	9	5	1	400	100
Scotland	137	10	195	15	182	14	176	13	57	4	44	3	492	40	1283	100
Wales	134	16	142	17	195	23	204	24	69	8	53	6	52	6	849	100
UK	2199	14	3200	21	3405	22	3333	22	1059	7	871	6	1208	8	15275	100

Table 28: Grade of surgically treated invasive cancers

Sub-region	Grade 1		Grade 2		Grade 3		Not assessable		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	310	24	755	58	232	18	0	0	1	0	1298	100
East of England	357	26	741	54	259	19	4	0	3	0	1364	100
London	344	25	813	58	231	17	1	0	3	0	1392	100
N East, Yorks & Humber	459	23	1172	59	366	18	4	0	1	0	2002	100
North West	394	25	917	57	288	18	2	0	3	0	1604	100
South East	533	25	1206	57	366	17	12	1	3	0	2120	100
South West	455	27	893	53	314	19	7	0	5	0	1674	100
West Midlands	314	24	721	56	248	19	4	0	2	0	1289	100
England	3166	25	7218	57	2304	18	34	0	21	0	12743	100
Northern Ireland	100	25	213	53	87	22	0	0	0	0	400	100
Scotland	167	13	493	37	166	13	0	0	457	36	1283	100
Wales	214	25	446	53	187	22	0	0	2	0	849	100
UK	3647	24	8370	55	2744	18	34	0	480	3	15275	100

Table 29: Data completeness for surgically treated invasive cancers (excluding cases with neo-adjuvant therapy)

Sub-region	Unknown invasive size		Unknown nodal status		Unknown grade		Unknown NPI*		Total invasive
	No.	%	No.	%	No.	%	No.	%	
East Midlands	7	0.6	9	0.8	1	0.1	16	1.4	1162
East of England	11	0.9	16	1.3	3	0.3	28	2.4	1191
London	16	1.3	16	1.3	1	0.1	31	2.5	1231
N East, Yorks & Humber	16	0.9	21	1.1	1	0.1	38	2.1	1850
North West	17	1.2	13	0.9	3	0.2	32	2.2	1455
South East	21	1.1	19	1.0	3	0.2	45	2.4	1911
South West	17	1.1	20	1.3	3	0.2	41	2.7	1518
West Midlands	14	1.2	10	0.9	1	0.1	26	2.3	1134
England	119	1.0	124	1.1	16	0.1	257	2.2	11452
Northern Ireland	6	1.6	4	1.0	0	0.0	10	2.6	381
Scotland	401	34.3	429	36.7	407	34.8	440	37.6	1169
Wales	5	0.6	16	2.1	2	0.3	21	2.7	774
UK	531	3.9	573	4.2	425	3.1	728	5.3	13776

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

Sub-region	EPG		GPG		MPG1		MPG2		PPG		Total with known NPI	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	227	20	479	42	286	25	112	10	42	4	1146	100
East of England	286	25	444	38	271	23	117	10	45	4	1163	100
London	253	21	488	41	287	24	116	10	56	5	1200	100
N East, Yorks & Humber	345	19	745	41	441	24	182	10	99	5	1812	100
North West	291	20	600	42	334	23	131	9	67	5	1423	100
South East	385	21	740	40	480	26	175	9	86	5	1866	100
South West	351	24	579	39	343	23	157	11	47	3	1477	100
West Midlands	222	20	435	39	279	25	119	11	53	5	1108	100
England	2360	21	4510	40	2721	24	1109	10	495	4	11195	100
Northern Ireland	76	20	125	34	115	31	35	9	20	5	371	100
Scotland	126	17	304	42	176	24	87	12	36	5	729	100
Wales	157	21	287	38	186	25	82	11	41	5	753	100
UK	2719	21	5226	40	3198	25	1313	10	592	5	13048	100

Sub-region	Positive		Negative		Not done or Unknown		Total
	No.	%	No.	%	No.	%	
East Midlands	1212	90	131	10	6	0	1349
East of England	1297	92	117	8	0	0	1414
London	1357	91	123	8	6	0	1486
N East, Yorks & Humber	1840	90	203	10	7	0	2050
North West	1497	91	143	9	3	0	1643
South East	1998	91	181	8	5	0	2184
South West	1559	91	148	9	5	0	1712
West Midlands	1209	91	112	8	2	0	1323
England	11969	91	1158	9	34	0	13161
Northern Ireland	370	91	37	9	0	0	407
Scotland	1264	89	142	10	17	1	1423
Wales	774	89	94	11	5	1	873
UK	14377	91	1431	9	56	0.4	15864

Sub-region	Positive		Negative		Not done or Unknown		Total
	No.	%	No.	%	No.	%	
East Midlands	602	45	187	14	560	42	1349
East of England	943	67	239	17	232	16	1414
London	1032	69	226	15	228	15	1486
N East, Yorks & Humber	771	38	298	15	981	48	2050
North West	1186	72	289	18	168	10	1643
South East	1804	83	365	17	15	1	2184
South West	588	34	184	11	940	55	1712
West Midlands	1045	79	245	19	33	2	1323
England	7971	61	2033	15	3157	24	13161
Northern Ireland	324	80	76	19	7	2	407
Scotland	1099	77	305	21	19	1	1423
Wales	389	45	162	19	322	37	873
UK	9783	62	2576	16	3505	22	15864

Sub-region	Positive		Negative		Not done or Unknown		Total
	No.	%	No.	%	No.	%	
East Midlands	11	8	89	68	31	24	131
East of England	7	6	105	90	5	4	117
London	3	2	112	91	8	7	123
N East, Yorks & Humber	4	2	180	89	19	9	203
North West	4	3	122	85	17	12	143
South East	9	5	170	94	2	1	181
South West	9	6	99	67	40	27	148
West Midlands	8	7	104	93	0	0	112
England	55	5	981	85	122	11	1158
Northern Ireland	6	16	31	84	0	0	37
Scotland	4	3	138	97	0	0	142
Wales	2	2	84	89	8	9	94
UK	67	5	1234	86	130	9	1431

Sub-region	Positive		Negative		Borderline		Not done or Unknown		Total
	No.	%	No.	%	No.	%	No.	%	
East Midlands	129	10	1208	90	2	0	10	1	1349
East of England	141	10	1218	86	4	0	51	4	1414
London	190	13	1275	86	12	1	9	1	1486
N East, Yorks & Humber	225	11	1799	88	5	0	21	1	2050
North West	175	11	1457	89	2	0	9	1	1643
South East	216	10	1932	88	13	1	23	1	2184
South West	188	11	1499	88	5	0	20	1	1712
West Midlands	135	10	1173	89	3	0	12	1	1323
England	1399	11	11561	88	46	0	155	1	13161
Northern Ireland	41	10	347	85	18	4	1	0	407
Scotland	137	10	1247	88	13	1	26	2	1423
Wales	92	11	768	88	6	1	7	1	873
UK	1669	11	13923	88	83	1	189	1	15864

Sub-region	Total HER2 unknown/not done	<10mm invasive size		Grade 1		Negative nodal status	
		No	%	No	%	No	%
East Midlands	10	2	20	1	10	5	50
East of England	51	13	25	17	33	27	53
London	9	4	44	3	33	4	44
N East, Yorks & Humber	21	8	38	5	24	12	57
North West	9	6	67	3	33	7	78
South East	23	17	74	5	22	21	91
South West	20	10	50	4	20	11	55
West Midlands	12	7	58	7	58	8	67
England	155	67	43	45	29	95	61
Northern Ireland	1	0	0	0	0	0	0
Scotland	26	7	27	2	8	12	46
Wales	7	1	14	1	14	2	29
UK	189	75	40	48	25	109	58

Sub-region	Positive		Negative		Not done or Unknown		Total
	No.	%	No.	%	No.	%	
East Midlands	31	10	11	4	269	86	311
East of England	62	19	10	3	255	78	327
London	186	39	29	6	268	55	483
N East, Yorks & Humber	135	27	36	7	325	66	496
North West	216	48	66	15	172	38	454
South East	311	48	61	9	273	42	645
South West	274	55	52	11	169	34	495
West Midlands	65	20	10	3	258	77	333
England	1280	36	275	8	1989	56	3544
Northern Ireland	20	23	4	5	63	72	87
Scotland	4	2	0	0	257	98	261
Wales	15	9	7	4	154	88	176
UK	1319	32	286	7	2463	61	4068

Sub-region	Conservation surgery		Mastectomy		No surgery		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	217	71	76	25	14	5	0	0	307	100
East of England	225	73	57	19	25	8	0	0	307	100
London	330	72	87	19	41	9	0	0	458	100
N East, Yorks & Humber	358	75	82	17	37	8	0	0	477	100
North West	346	79	72	16	20	5	0	0	438	100
South East	469	76	104	17	43	7	0	0	616	100
South West	363	78	78	17	24	5	0	0	465	100
West Midlands	235	73	61	19	26	8	0	0	322	100
England	2543	75	617	18	230	7	0	0	3390	100
Northern Ireland	69	80	16	19	1	1	0	0	86	100
Scotland	185	75	45	18	14	6	4	2	248	100
Wales	124	73	36	21	9	5	0	0	169	100
UK	2921	75	714	18	254	7	4	0	3893	100

Sub-region	Conservation surgery		Mastectomy		No surgery		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	3	75	1	25	0	0	0	0	4	100
East of England	14	70	6	30	0	0	0	0	20	100
London	16	64	9	36	0	0	0	0	25	100
N East, Yorks & Humber	15	79	4	21	0	0	0	0	19	100
North West	10	63	6	38	0	0	0	0	16	100
South East	22	76	7	24	0	0	0	0	29	100
South West	21	70	8	27	1	3	0	0	30	100
West Midlands	7	64	4	36	0	0	0	0	11	100
England	108	70	45	29	1	1	0	0	154	100
Northern Ireland	0	0	1	100	0	0	0	0	1	100
Scotland	6	46	5	38	2	15	0	0	13	100
Wales	5	71	2	29	0	0	0	0	7	100
UK	119	68	53	30	3	2	0	0	175	100

Sub-region	Conservation surgery		Mastectomy		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%
East Midlands	21	30	48	70	0	0	69	100
East of England	18	38	29	62	0	0	47	100
London	32	39	50	61	0	0	82	100
N East, Yorks & Humber	32	46	38	54	0	0	70	100
North West	14	25	41	75	0	0	55	100
South East	36	38	59	62	0	0	95	100
South West	27	35	50	65	0	0	77	100
West Midlands	15	31	33	69	0	0	48	100
England	195	36	348	64	0	0	543	100
Northern Ireland	4	31	9	69	0	0	13	100
Scotland	9	32	19	68	0	0	28	100
Wales	9	31	20	69	0	0	29	100
UK	217	35	396	65	0	0	613	100

Sub-region	Conservation surgery		Mastectomy		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%
East Midlands	14	30	33	70	0	0	47	100
East of England	17	39	27	61	0	0	44	100
London	23	38	37	62	0	0	60	100
N East, Yorks & Humber	25	43	33	57	0	0	58	100
North West	12	27	33	73	0	0	45	100
South East	27	38	44	62	0	0	71	100
South West	25	36	44	64	0	0	69	100
West Midlands	13	35	24	65	0	0	37	100
England	156	36	275	64	0	0	431	100
Northern Ireland	3	33	6	67	0	0	9	100
Scotland	8	36	14	64	0	0	22	100
Wales	7	35	13	65	0	0	20	100
UK	174	36	308	64	0	0	482	100

Sub-region	Conservation surgery		Mastectomy		No Surgery		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	1037	77	261	19	51	4	0	0	1349	100
East of England	1143	81	221	16	50	4	0	0	1414	100
London	1106	74	286	19	94	6	0	0	1486	100
N East, Yorks & Humber	1709	83	293	14	48	2	0	0	2050	100
North West	1336	81	268	16	39	2	0	0	1643	100
South East	1774	81	346	16	64	3	0	0	2184	100
South West	1433	84	241	14	38	2	0	0	1712	100
West Midlands	1078	81	211	16	34	3	0	0	1323	100
England	10616	81	2127	16	418	3	0	0	13161	100
Northern Ireland	336	83	64	16	7	2	0	0	407	100
Scotland	1121	79	151	11	140	10	11	1	1423	100
Wales	659	75	190	22	24	3	0	0	873	100
UK	12732	80	2532	16	589	4	11	0	15864	100

Sub-region	<15mm		15-≤20mm		>20-≤35mm		>35-≤50mm		>50mm	
	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	78	11	57	20	63	32	27	61	33	87
East of England	72	10	43	13	47	22	30	73	25	86
London	84	13	47	15	78	28	39	52	32	82
N East, Yorks & Humber	99	9	48	11	81	23	30	48	32	68
North West	78	10	41	10	68	26	29	51	47	85
South East	95	9	61	12	96	26	45	45	44	77
South West	87	10	40	11	61	22	26	51	25	63
West Midlands	70	11	28	9	59	25	32	50	21	68
England	663	10	365	13	553	25	258	52	259	77
Northern Ireland	14	7	6	8	16	24	13	57	13	76
Scotland	40	9	19	10	24	19	11	34	15	65
Wales	74	17	36	20	42	27	16	48	17	85
UK	791	10	426	13	635	25	298	51	304	77

Sub-region	<15mm		15-≤20mm		>20-≤35mm		>35-≤50mm		>50mm	
	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	28	5	40	14	73	27	41	55	63	84
East of England	24	5	21	7	50	18	46	58	54	84
London	16	4	28	10	66	19	53	40	87	80
N East, Yorks & Humber	30	4	33	7	80	18	53	37	85	70
North West	30	5	38	9	58	18	41	42	77	85
South East	35	5	40	8	90	18	70	45	82	67
South West	25	4	31	8	73	18	39	38	55	70
West Midlands	22	5	20	7	54	19	40	34	50	66
England	210	5	251	9	544	19	383	42	553	75
Northern Ireland	5	3	7	8	14	16	14	47	23	64
Scotland	14	4	14	8	26	15	24	43	25	57
Wales	35	13	27	14	42	21	26	38	46	87
UK	264	5	299	9	626	19	447	42	647	74

Sub-region	Whole Size <15mm		Whole size 15-≤20mm		Whole size >20-≤35mm		Whole size >35-≤50mm		Whole size >50mm	
	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	28	5	5	7	15	23	13	50	14	78
East of England	24	5	1	1	12	24	11	50	21	88
London	16	4	10	13	14	18	12	41	23	72
N East, Yorks & Humber	30	4	7	6	18	19	11	28	31	74
North West	30	5	10	10	8	12	7	30	20	77
South East	35	5	10	7	12	12	14	52	21	57
South West	25	4	10	8	16	18	7	24	23	82
West Midlands	22	5	5	6	11	20	9	31	18	67
England	210	5	58	7	106	18	84	37	171	73
Northern Ireland	5	3	1	3	3	14	0	0	5	50
Scotland	14	4	6	13	6	14	7	64	5	45
Wales	34	13	7	11	8	15	6	35	14	100
UK	263	5	72	8	123	17	97	38	195	72

Sub-region	Immediate reconstruction		No immediate reconstruction		Unknown		Total mastectomies	
	No.	%	No.	%	No.	%	No.	%
East Midlands	67	20	271	80	0	0	338	100
East of England	98	35	185	65	1	0	284	100
London	208	54	174	46	0	0	382	100
N East, Yorks & Humber	104	27	275	73	0	0	379	100
North West	99	29	245	71	2	1	346	100
South East	124	27	328	72	5	1	457	100
South West	82	25	245	75	0	0	327	100
West Midlands	76	28	200	72	0	0	276	100
England	858	31	1923	69	8	0	2789	100
Northern Ireland	17	21	64	79	0	0	81	100
Scotland	38	19	138	69	25	12	201	95
Wales	42	18	186	82	0	0	228	100
UK	955	29	2311	70	33	1	3299	100

Sub-region	Had treatment		Did not have treatment		Unknown		Total
	No.	%	No.	%	No.	%	
East Midlands	182	11	1478	89	0	0	1660
East of England	220	13	1521	87	0	0	1741
London	207	11	1763	89	0	0	1970
N East, Yorks & Humber	194	8	2352	92	0	0	2546
North West	189	9	1909	91	0	0	2098
South East	249	9	2581	91	0	0	2830
South West	194	9	2013	91	0	0	2207
West Midlands	203	12	1454	88	0	0	1657
England	1638	10	15071	90	0	0	16709
Northern Ireland	20	4	475	96	0	0	495
Scotland	180	11	179	11	1327	79	1686
Wales	94	9	955	91	0	0	1049
UK	1932	10	16680	84	1327	7	19939

Sub-region	Had treatment		Did not have treatment		Unknown		Total
	No.	%	No.	%	No.	%	
East Midlands	123	7	1537	93	0	0	1660
East of England	150	9	1591	91	0	0	1741
London	122	6	1848	94	0	0	1970
N East, Yorks & Humber	123	5	2423	95	0	0	2546
North West	122	6	1976	94	0	0	2098
South East	150	5	2680	95	0	0	2830
South West	124	6	2083	94	0	0	2207
West Midlands	141	9	1516	91	0	0	1657
England	1055	6	15654	94	0	0	16709
Northern Ireland	12	2	483	98	0	0	495
Scotland	9	1	350	21	1327	79	1686
Wales	66	6	983	94	0	0	1049
UK	1142	6	17470	88	1327	7	19939

Sub-region	Had treatment		Did not have treatment		Unknown		Total
	No.	%	No.	%	No.	%	
East Midlands	65	5	1284	95	0	0	1349
East of England	76	5	1338	95	0	0	1414
London	92	6	1394	94	0	0	1486
N East, Yorks & Humber	74	4	1976	96	0	0	2050
North West	71	4	1572	96	0	0	1643
South East	105	5	2079	95	0	0	2184
South West	78	5	1634	95	0	0	1712
West Midlands	68	5	1255	95	0	0	1323
England	629	5	12532	95	0	0	13161
Northern Ireland	8	2	399	98	0	0	407
Scotland	57	4	244	17	1122	79	1423
Wales	28	3	845	97	0	0	873
UK	722	5	14020	88	1122	7	15864

Sub-region	Had treatment		Did not have treatment		Unknown		Total
	No.	%	No.	%	No.	%	
East Midlands	2	0	1658	100	0	0	1660
East of England	9	1	1732	99	0	0	1741
London	12	1	1958	99	0	0	1970
N East, Yorks & Humber	2	0	2544	100	0	0	2546
North West	13	1	2085	99	0	0	2098
South East	18	1	2812	99	0	0	2830
South West	16	1	2191	99	0	0	2207
West Midlands	10	1	1647	99	0	0	1657
England	82	0	16627	100	0	0	16709
Northern Ireland	0	0	495	100	0	0	495
Scotland	113	7	246	15	1327	79	1686
Wales	6	1	1043	99	0	0	1049
UK	201	1	18411	92	1327	7	19939

Sub-region	Total surgeons	<10 cases		10-29 cases		30-49 cases		50-79 cases		80-99 cases		100+ cases		Median
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
East Midlands	60	15	25	19	32	16	27	9	15	1	2	0	0	26
East of England	68	19	28	21	31	18	26	9	13	0	0	1	1	23
London	109	53	49	30	28	16	15	9	8	0	0	1	1	9
N East, Yorks & Humber	83	16	19	26	31	23	28	15	18	3	4	0	0	28
North West	95	27	28	32	34	31	33	4	4	1	1	0	0	21
South East	90	18	20	27	30	25	28	14	16	4	4	2	2	28
South West	75	15	20	23	31	22	29	15	20	0	0	0	0	29
West Midlands	65	16	25	26	40	15	23	8	12	0	0	0	0	26
England	645	179	28	204	32	166	26	83	13	9	1	4	1	23
Northern Ireland	19	1	5	9	47	8	42	1	5	0	0	0	0	26
Scotland	60	19	32	12	20	21	35	8	13	0	0	0	0	27
Wales	20	3	15	2	10	4	20	8	40	2	10	1	5	52
UK	744	202	27	227	31	199	27	100	13	11	1	5	1	24

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

Table 51: Proportion of women referred to consultant surgeons according to annual caseload of surgeon (2019/20)

Sub-region	Total (referred)	<10 cases		10-29 cases		30-49 cases		50-79 cases		80-99 cases		100+ cases	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
		East Midlands	1705	50	3	443	26	597	35	535	31	80	5
East of England	1811	53	3	425	23	708	39	522	29	0	0	103	6
London	1908	155	8	537	28	577	30	527	28	0	0	112	6
N East, Yorks & Humber	2640	46	2	525	20	883	33	918	35	268	10	0	0
North West	2184	82	4	576	26	1192	55	254	12	80	4	0	0
South East	2892	57	2	498	17	922	32	830	29	346	12	239	8
South West	2272	47	2	468	21	875	39	882	39	0	0	0	0
West Midlands	1695	63	4	576	34	567	33	489	29	0	0	0	0
England	17107	553	3	4048	24	6321	37	4957	29	774	5	454	3
Northern Ireland	521	2	0	173	33	292	56	54	10	0	0	0	0
Scotland	1583	75	5	220	14	792	50	496	31	0	0	0	0
Wales	1055	9	1	55	5	160	15	515	49	185	18	131	12
UK	20266	639	3	4496	22	7565	37	6022	30	959	5	585	3

Table 52: Explanations for surgeons with screening caseload less than 10 cases (2019/20)

Sub-region	All surgeons screening caseload <10	Surgeon from another region		Symptomatic caseload >30 pa*		Joined NHSBSP		Left NHSBSP		Plastic surgeon		Private practice		No information/data errors	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
		East Midlands	15	5	33	1	7	1	7	2	13	1	7	0	0
East of England	19	2	11	4	21	1	5	0	0	3	16	2	11	4	21
London	55	5	9	4	7	3	5	0	0	19	35	13	24	9	16
N East, Yorks & Humber	16	6	38	0	0	2	13	0	0	2	13	1	6	2	13
North West	27	11	41	1	4	1	4	3	11	1	4	3	11	2	7
South East	19	3	16	3	16	1	5	1	5	2	11	5	26	1	5
South West	15	3	20	2	13	1	7	1	7	1	7	2	13	1	7
West Midlands	16	0	0	0	0	4	25	1	6	3	19	1	6	6	38
England	182	35	19	15	8	14	8	8	4	32	18	27	15	29	16
Northern Ireland	1	0	0	0	0	0	0	0	0	0	0	0	0	1	100
Scotland	19	0	0	0	0	0	0	0	0	0	0	0	0	19	100
Wales	3	0	0	0	0	0	0	0	0	0	0	0	0	3	100
UK	205	35	17	15	7	14	7	8	4	32	16	27	13	52	25

*pa= per annum

Table 53: Annual screening surgical caseload per surgeon (2017/18-2019/20)

Sub-region	Total surgeons	<10 cases		10-29 cases		30-49 cases		50-79 cases		80-99 cases		100+ cases		3 years median
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
		East Midlands	72	27	37	15	21	23	32	7	10	0	0	
East of England	89	36	40	21	24	26	29	4	4	2	2	0	0	54
London	135	75	55	33	24	19	14	7	5	1	1	0	0	18
N East, Yorks & Humber	98	28	28	25	26	33	34	9	9	1	1	2	2	82
North West	117	50	42	36	31	24	21	6	5	1	1	0	0	56
South East	106	36	34	29	27	20	19	16	15	2	2	3	3	64
South West	101	33	32	33	33	21	21	14	14	0	0	0	0	59
West Midlands	82	33	40	25	30	17	21	6	7	1	1	0	0	51
England	800	318	39	217	27	183	23	69	9	8	1	5	1	54
Northern Ireland	23	6	26	10	43	5	22	2	9	0	0	0	0	72
Wales	26	7	26	1	4	7	27	10	38	0	0	1	4	127
UK excl. Scotland	849	331	39	228	27	195	23	81	10	8	1	6	1	55

*No data were submitted from Scotland for 16/17, 17/18 and 18/19 audit.

Table 54: Proportion of women referred to consultant surgeons according to annual caseload of surgeon (2017/18-2019/20)

	Total (referred)	<10 cases		10-29 cases		30-49 cases		50-79 cases		80-99 cases		100+ cases	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
		East Midlands	5131	252	4.9	984	19	2570	50	1325	26	0	0
East of England	5754	171	3.0	1267	22	3039	53	736	13	541	9	0	0
London	5970	463	7.8	1759	29	2179	36	1271	21	298	5	0	0
N East, Yorks & Humber	8318	172	2.1	1580	19	4006	48	1656	20	291	3	613	7
North West	6965	343	4.9	2470	35	2740	39	1162	17	250	4	0	0
South East	8871	300	3.4	1748	20	2396	27	2824	32	494	6	1109	13
South West	7172	193	2.7	1949	27	2509	33	2521	35	0	0	0	0
West Midlands	5114	274	5.4	1556	30	1922	49	1111	22	251	5	0	0
England	53295	2168	4.1	13313	25	21361	4	12606	24	2125	4	1722	3
Northern Ireland	1585	95	6.0	602	38	540	34	348	22	0	0	0	0
Wales	3206	34	1.1	54	2	828	26	1934	60	0	0	356	11
UK excl. Scotland	58086	2297	4.0	13969	24	22729	39	14888	26	2125	4	2078	4

*No data were submitted from Scotland for 16/17, 17/18 and 18/19 audit

Table 55: Explanations for surgeons with screening caseload less than 10 cases per annual (2017/18-2019/20)

Sub-region	Number surgeons screening caseload <10	Surgeon from another region		Symptomatic caseload >30 pa*		Joined NHSBSP		Left NHSBSP		Plastic surgeon		Private practice		No information/data errors	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
		East Midlands	37	20	54	1	3	2	5	1	3	1	3	3	8
East of England	51	18	35	2	4	1	2	3	6	6	12	5	10	10	20
London	86	16	19	4	5	2	2	2	2	22	26	16	19	18	21
N East, Yorks & Humber	35	16	46	3	9	5	14	2	6	2	6	1	3	3	9
North West	44	8	18	3	7	1	2	5	11	6	14	6	14	9	20
South East	40	15	38	4	10	1	3	1	3	6	15	4	10	5	13
South West	35	13	37	3	9	2	6	0	0	5	14	3	9	7	20
West Midlands	33	8	24	1	3	4	12	1	3	7	21	3	9	9	27
England	361	114	32	21	6	18	5	15	4	55	15	41	11	69	19
Northern Ireland	1	0	0	0	0	0	0	0	0	1	100	0	0	0	0
Wales	11	1	9	1	9	3	27	1	9	2	18	1	9	1	9
UK excl. Scotland	373	115	30.8	22	6	21	6	16	4	58	16	42	11	70	19

*pa= per annum

Table 56: Repeat operations (>1 op) for surgically treated invasive and non/micro-invasive cancers

Sub-region	Invasive			Non/micro-invasive		
	Total	No	%	Total	No	%
East Midlands	1298	185	14	297	51	17
East of England	1364	226	17	302	57	19
London	1392	222	16	442	70	16
N East, Yorks & Humber	2002	292	15	459	75	16
North West	1604	245	15	434	73	17
South East	2120	408	19	602	140	23
South West	1674	281	17	470	101	21
West Midlands	1289	205	16	307	49	16
England	12743	2064	16	3313	616	19
Northern Ireland	400	70	18	86	13	15
Scotland	1283	396	31	245	101	41
Wales	849	169	20	167	42	25
UK	15275	2699	18	3811	772	20

Sub-region	Invasive			Non/micro-invasive		
	Total	No	%	Total	No	%
East Midlands	5	5	100	7	3	43
East of England	4	3	75	14	2	14
London	4	3	75	29	7	24
N East, Yorks & Humber	7	5	71	8	1	13
North West	6	4	67	14	4	29
South East	9	9	100	29	9	31
South West	7	4	57	26	10	38
West Midlands	2	1	50	12	1	8
England	44	34	77	139	37	27
Northern Ireland	1	1	100	3	1	33
Scotland	5	5	100	11	2	18
Wales	4	2	50	3	3	100
UK	54	42	78	156	43	28

Sub-region	1		2		3		4+		Unknown		Total cancers		Repeat 2+ ops	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
East Midlands	900	85	144	14	7	1	2	0	0	0	1053	100	153	15
East of England	989	85	166	14	8	1	1	0	0	0	1164	100	175	15
London	939	84	170	15	11	1	3	0	0	0	1123	100	184	16
N East, Yorks & Humber	1483	85	242	14	21	1	2	0	0	0	1748	100	265	15
North West	1146	84	199	15	12	1	2	0	0	0	1359	100	213	16
South East	1442	80	326	18	35	2	8	0	0	0	1811	100	369	20
South West	1200	82	239	16	16	1	3	0	0	0	1458	100	258	18
West Midlands	915	83	160	15	23	2	1	0	0	0	1099	100	184	17
England	9014	83	1646	15	133	1	22	0	0	0	10815	100	1801	17
Northern Ireland	281	81	59	17	5	1	0	0	0	0	345	100	64	19
Scotland	757	71	267	25	38	4	11	1	0	0	1073	100	316	29
Wales	525	77	133	20	19	3	1	0	0	0	678	100	153	23
UK	100577	82	2105	16	195	2	34	0	0	0	12911	100	2334	18

Sub-region	1		2		3		4+		Unknown		Total cancers		Repeat 2+ ops	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
East Midlands	178	79	42	19	3	1	2	1	0	0	225	100	47	21
East of England	189	79	42	18	7	3	0	0	0	0	238	100	49	21
London	272	83	48	15	7	2	1	0	0	0	328	100	56	17
N East, Yorks & Humber	306	82	58	16	9	2	1	0	0	0	374	100	68	18
North West	286	81	56	16	11	3	1	0	0	0	354	100	68	19
South East	363	75	100	21	18	4	6	1	0	0	487	100	124	25
South West	287	76	73	19	13	3	3	1	0	0	376	100	89	24
West Midlands	196	82	40	17	3	1	1	0	0	0	240	100	44	18
England	2077	79	459	18	71	3	15	1	0	0	2622	100	545	21
Northern Ireland	59	83	9	13	3	4	0	0	0	0	71	100	12	17
Scotland	102	55	63	34	13	7	6	3	0	0	184	100	82	45
Wales	94	71	35	27	2	2	1	1	0	0	132	100	38	29
UK	2332	78	566	19	89	3	22	1	0	0	3009	100	677	22

Sub-region	1		2		3+		Unknown		Total		Repeat (2+) rate	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	1084	88	133	11	9	1	0	0	1226	100	142	12
East of England	1107	85	184	14	9	1	0	0	1300	100	193	15
London	1115	86	174	13	9	1	0	0	1298	100	183	14
N East, Yorks & Humber	1649	87	221	12	16	1	0	0	1886	100	237	13
North West	1312	87	188	12	11	1	0	0	1511	100	199	13
South East	1659	84	289	15	36	2	0	0	1984	100	325	16
South West	1356	85	214	13	17	1	0	0	1587	100	231	15
West Midlands	1046	86	148	12	18	1	0	0	1212	100	166	14
England	10328	86	1551	13	125	1	0	0	12004	100	1676	14
Northern Ireland	318	84	55	15	5	1	0	0	378	100	60	16
Scotland	847	69	317	26	57	4	16	1	1237	100	374	30
Wales	665	84	116	15	14	2	0	0	795	100	130	16
UK	12158	84	2039	14	201	1	16	0	14414	100	2240	16

Sub-region	1		2		3+		Unknown		Total		Repeat (2+) rate	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	25	40	37	59	1	2	0	0	63	100	38	60
East of England	22	44	27	54	1	2	0	0	50	100	28	56
London	45	57	29	37	5	6	0	0	79	100	34	43
N East, Yorks & Humber	49	52	40	43	5	5	0	0	94	100	45	48
North West	35	46	38	50	3	4	0	0	76	100	41	54
South East	49	42	61	52	7	6	0	0	117	100	68	58
South West	27	40	40	59	1	1	0	0	68	100	41	60
West Midlands	31	46	30	45	6	9	0	0	67	100	36	54
England	283	46	302	49	29	5	0	0	614	100	331	54
Northern Ireland	8	47	9	53	0	0	0	0	17	100	9	53
Scotland	24	59	17	41	0	0	0	0	41	100	17	41
Wales	13	27	30	61	6	12	0	0	49	100	36	73
UK	328	45	358	50	35	5	0	0	721	100	393	55

Sub-region	1		2		3+		Unknown		Total		Repeat (2+) rate	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	223	84	39	15	5	2	0	0	267	100	44	16
East of England	222	81	46	17	7	3	0	0	275	100	53	19
London	325	84	53	14	8	2	0	0	386	100	61	16
N East, Yorks & Humber	352	83	62	15	9	2	0	0	423	100	71	17
North West	342	83	57	14	11	3	0	0	410	100	68	17
South East	427	77	100	18	24	4	0	0	551	100	124	23
South West	331	79	71	17	15	4	0	0	417	100	86	21
West Midlands	231	83	43	16	3	1	0	0	277	100	46	17
England	2453	82	471	16	82	3	0	0	3006	100	553	18
Northern Ireland	69	85	9	11	3	4	0	0	81	100	12	15
Scotland	133	57	80	34	19	8	2	1	234	100	99	42
Wales	124	76	36	22	3	2	0	0	163	100	39	24
UK	2779	80	596	17	107	3	2	0	3484	100	703	20

Sub-region	All cancers with initial BCS (with non-op diagnosis)	Repeat BCS	
		No	%
East Midlands	1278	133	10
East of England	1402	136	10
London	1451	165	11
N East, Yorks & Humber	2122	226	11
North West	1714	197	11
South East	2298	341	15
South West	1834	245	13
West Midlands	1339	139	10
England	13438	1582	12
Northern Ireland	417	42	10
Scotland	1257	360	29
Wales	810	137	17
UK	15922	2121	13

Sub-region	All cancers with initial BCS (with non-op diagnosis)	Converted to Mx	
		No	%
East Midlands	1278	33	3
East of England	1402	38	3
London	1451	32	2
N East, Yorks & Humber	2122	55	3
North West	1714	38	2
South East	2298	77	3
South West	1834	50	3
West Midlands	1339	35	3
England	13438	358	3
Northern Ireland	417	15	4
Scotland	1257	6	0
Wales	810	28	3
UK	15922	407	3

Sub-region	Total cases with surgery to the breast	Complete margin data	% complete margin data	Not complete margin data
East Midlands	1563	1395	89	168
East of England	1634	1558	95	76
London	1777	1659	93	118
N East, Yorks & Humber	2396	2348	98	48
North West	1974	1894	96	80
South East	2651	2535	96	116
South West	2091	2013	96	78
West Midlands	1549	1526	99	23
England	15635	14928	95	707
Northern Ireland	475	467	98	8
Wales	999	880	88	119
UK excl. Scotland	17109	16275	95	834

No data for Scotland

Sub-region	Total cases with surgery	Margin clear		Margin not clear		Margin unknown	
		No.	%	No.	%	No.	%
East Midlands	1228	1214	99	10	1	4	0
East of England	1355	1330	98	21	2	4	0
London	1401	1394	100	7	0	0	0
N East, Yorks & Humber	2022	1990	98	29	1	3	0
North West	1638	1575	96	58	4	5	0
South East	2203	2149	98	49	2	5	0
South West	1770	1732	98	37	2	1	0
West Midlands	1285	1271	99	14	1	0	0
England	12902	12655	98	225	2	22	0
Northern Ireland	395	393	99	2	1	0	0
Wales	774	758	98	16	2	0	0
UK excl. Scotland	14071	13806	98	243	2	22	0

No data for Scotland

Sub-region	Total cases with surgery	Margin clear		Margin not clear		Margin unknown	
		No.	%	No.	%	No.	%
East Midlands	335	324	97	11	3	0	0
East of England	279	274	98	3	1	2	1
London	376	373	99	3	1	0	0
N East, Yorks & Humber	374	356	95	14	4	4	1
North West	336	324	96	12	4	0	0
South East	448	433	97	14	3	1	0
South West	321	300	93	21	7	0	0
West Midlands	264	253	96	10	4	1	0
England	2733	2637	96	88	3	8	0
Northern Ireland	80	79	99	1	1	0	0
Wales	225	220	98	5	2	0	0
UK excl. Scotland	3038	2936	97	94	3	8	0

No data for Scotland

Sub-region	Had axillary ultrasound		Did not have axillary ultrasound		Unknown		Total
	No.	%	No.	%	No.	%	
East Midlands	1332	99	17	1	0	0	1349
East of England	1397	99	17	1	0	0	1414
London	1479	100	5	0	2	0	1486
N East, Yorks & Humber	2018	98	32	2	0	0	2050
North West	1635	100	8	0	0	0	1643
South East	2180	100	3	0	1	0	2184
South West	1692	99	19	1	1	0	1712
West Midlands	1319	100	4	0	0	0	1323
England	13052	99	105	1	4	0	13161
Northern Ireland	396	97	11	3	0	0	407
Wales	692	79	180	21	1	0	873
UK excl. Scotland	14140	98	296	2	5	0	14441

No data for Scotland

Sub-region	Normal		Abnormal		Total
	No.	%	No.	%	
	East Midlands	1135	85	197	
East of England	1205	86	192	14	1397
London	1262	85	217	15	1479
N East, Yorks & Humber	1671	83	347	17	2018
North West	1399	86	236	14	1635
South East	1930	89	250	11	2180
South West	1507	89	185	11	1692
West Midlands	1117	85	202	15	1319
England	11226	86	1826	14	13052
Northern Ireland	300	76	96	24	396
Wales	557	80	135	20	692
UK excl. Scotland	12083	85	2057	15	14140

No data for Scotland

Sub-region	Had axillary biopsy		Did not have axillary biopsy		Unknown		Total
	No.	%	No.	%	No.	%	
	East Midlands	172	87	25	13	0	
East of England	180	94	11	6	1	1	192
London	212	98	5	2	0	0	217
N East, Yorks & Humber	330	95	17	5	0	0	347
North West	192	81	43	18	1	0	236
South East	221	88	29	12	0	0	250
South West	174	94	10	5	1	1	185
West Midlands	195	97	7	3	0	0	202
England	1676	92	147	8	3	0	1826
Northern Ireland	88	92	8	8	0	0	96
Wales	133	99	2	1	0	0	135
UK excl. Scotland	1897	92	157	8	3	0	2057

No data for Scotland

Sub-region	C1/B1		C2/B2		C3/B3		C4/B4		C5/B5		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	
	East Midlands	9	5	72	42	0	0	1	1	90	
East of England	22	12	65	36	5	3	2	1	86	48	180
London	13	6	86	41	3	1	4	2	106	50	212
N East, Yorks & Humber	12	4	150	45	0	0	3	1	165	50	330
North West	15	8	97	51	2	1	4	2	74	39	192
South East	11	5	87	39	1	0	2	1	120	54	221
South West	26	15	63	36	2	1	1	1	82	47	174
West Midlands	11	6	79	41	0	0	0	0	105	54	195
England	119	7	699	42	13	1	17	1	828	49	1676
Northern Ireland	4	5	57	65	1	1	0	0	26	30	88
Wales	3	2	65	49	2	2	0	0	63	47	133
UK excl. Scotland	126	7	821	43	16	1	17	1	917	48	1897

No data for Scotland

Sub-region	C1/B1		C2/B2		C3/B3		C4/B4		C5/B5		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	
East Midlands	1	33	0	0	0	0	0	0	2	67	3
East of England	0	0	1	25	0	0	1	25	2	50	4
London	0	-	0	-	0	-	0	-	0	-	0
N East, Yorks & Humber	0	0	4	80	0	0	0	0	1	20	5
North West	0	0	3	75	0	0	0	0	1	25	4
South East	0	0	3	33	0	0	0	0	6	67	9
South West	0	0	3	60	0	0	0	0	2	40	5
West Midlands	3	60	0	0	0	0	0	0	2	40	5
England	4	11	14	40	0	0	1	3	16	46	35
Northern Ireland	0	-	0	-	0	-	0	-	0	-	0
Wales	0	-	0	-	0	-	0	-	0	-	0
UK excl. Scotland	4	11	14	40	0	0	1	3	16	46	35

No data for Scotland

Sub-region	C1/B1		C2/B2		C3/B3		C4/B4		C5/B5	
	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	2	25	12	18	0	-	0	-	56	93
East of England	5	29	9	17	2	50	3	100	48	98
London	6	55	12	17	0	0	2	100	40	91
N East, Yorks & Humber	2	20	29	22	0	-	2	100	115	99
North West	3	23	14	16	0	0	4	100	44	88
South East	1	10	14	19	0	0	0	0	66	88
South West	7	32	12	20	1	100	0	-	43	93
West Midlands	3	25	12	17	0	-	0	-	60	94
England	29	27	114	16	3	23	11	85	472	83
Northern Ireland	2	67	4	7	0	0	0	-	18	90
Wales	1	33	10	18	0	0	0	-	45	100
UK excl. Scotland	32	29	128	18	3	23	11	85	535	94

Denominator is all invasive cancers with an abnormal axillary biopsy result and at least one surgery to the axilla. Excluded cases with neo-adjuvant therapy. No data for Scotland

Sub-region	Total with positive nodal status	Had positive pre-op ax assessment	
		No	%
East Midlands	209	56	27
East of England	199	48	24
London	179	40	22
N East, Yorks & Humber	376	115	31
North West	258	44	17
South East	371	66	18
South West	235	43	18
West Midlands	208	60	29
England	2035	472	23
Northern Ireland	62	18	29
Wales	134	45	34
UK excl Scotland	2231	535	26

*Excluded cases with neo-adjuvant therapy. No data for Scotland

Sub-region	Total without/unknown pre-op ax	Positive nodal status	
		No	%
East Midlands	1021	139	14
East of England	1050	132	13
London	1086	119	11
N East, Yorks & Humber	1571	228	15
North West	1287	193	15
South East	1732	290	17
South West	1368	172	13
West Midlands	981	133	14
England	10096	1406	14
Northern Ireland	298	38	13
Wales	654	78	12
UK excl. Scotland	11048	1522	14

*Excluded cases with neo-adjuvant therapy. No data for Scotland

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	2	1	12	6	0	0	0	0	56	27	209
East of England	5	3	9	5	2	1	3	2	48	24	199
London	6	3	12	7	0	0	2	1	40	22	179
N East, Yorks & Humber	2	1	29	8	0	0	2	1	115	31	376
North West	3	1	14	5	0	0	4	2	44	17	258
South East	1	0	14	4	0	0	0	0	66	18	371
South West	7	3	12	5	1	0	0	0	43	18	235
West Midlands	3	1	12	6	0	0	0	0	60	29	208
England	29	1	114	6	3	0	11	1	472	23	2035
Northern Ireland	2	3	4	6	0	0	0	0	18	29	62
Wales	1	1	10	7	0	0	0	0	45	34	134
UK excl. Scotland	32	1	128	6	3	0	11	0	535	24	2231

The denominator is all invasive cancers with axillary ultrasound and positive nodes at surgery. Excluded cases with neo-adjuvant therapy. No data for Scotland

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	1298	1288	99	0	0	10	1	0	0
East of England	1364	1347	99	0	0	17	1	0	0
London	1392	1376	99	0	0	16	1	0	0
N East, Yorks & Humber	2002	1978	99	0	0	24	1	0	0
North West	1604	1591	99	0	0	13	1	0	0
South East	2120	2100	99	0	0	20	1	0	0
South West	1674	1653	99	0	0	21	1	0	0
West Midlands	1289	1279	99	0	0	10	1	0	0
England	12743	12612	99	0	0	131	1	0	0
Northern Ireland	400	396	99	0	0	4	1	0	0
Wales	849	830	98	0	0	19	2	0	0
UK excl. Scotland	13992	13838	99	0	0	154	1	0	0

No data for Scotland

Table 78: Sentinel lymph node primary axillary procedure undertaken for invasive cancers with axillary surgery

Sub-region	With SLNB		Without SLNB		Unknown nodal procedure type		Total	
	No.	%	No.	%	No.	%	No.	%
East Midlands	1173	91	117	9	0	0	1290	100
East of England	1237	92	111	8	0	0	1348	100
London	1282	93	95	7	0	0	1377	100
N East, Yorks & Humber	1790	90	191	10	0	0	1981	100
North West	1489	94	102	6	0	0	1591	100
South East	1953	93	147	7	0	0	2100	100
South West	1565	95	88	5	0	0	1653	100
West Midlands	1163	91	118	9	0	0	1281	100
England	11652	92	969	8	0	0	12621	100
Northern Ireland	345	87	51	13	0	0	396	100
Wales	769	92	64	8	0	0	833	100
UK excl. Scotland	12766	92	1084	8	0	0	13850	100

No data for Scotland

Table 79: Nodal status of invasive cancers with known status

Sub-region	Total known nodal status	Positive		Negative	
		No.	%	No.	%
East Midlands	1288	243	19	1045	81
East of England	1347	236	18	1111	82
London	1376	222	16	1154	84
N East, Yorks & Humber	1978	411	21	1567	79
North West	1591	289	18	1302	82
South East	2100	412	20	1688	80
South West	1653	264	16	1389	84
West Midlands	1279	241	19	1038	81
England	12612	2318	18	10294	82
Northern Ireland	396	70	18	326	82
Wales	830	149	18	681	82
UK excl. Scotland	13838	2537	18	11301	82

No data for Scotland

Table 80: Number of nodes taken for invasive cases where SLNB was not undertaken

Sub-region	Total with axillary surgery	0 node obtained		1,2,3 nodes obtained		≥4nodes obtained		Unknown	
		No.	%	No.	%	No.	%	No.	%
East Midlands	117	0	0	9	8	108	92	0	0
East of England	111	1	1	9	8	101	91	0	0
London	95	0	0	2	2	93	98	0	0
N East, Yorks & Humber	191	0	0	12	6	179	94	0	0
North West	102	0	0	8	8	94	92	0	0
South East	147	0	0	12	8	135	92	0	0
South West	88	0	0	3	3	85	97	0	0
West Midlands	118	0	0	6	5	112	95	0	0
England	969	1	0	61	6	907	94	0	0
Northern Ireland	51	0	0	7	14	44	86	0	0
Wales	64	0	0	0	0	64	100	0	0
UK excl. Scotland	1084	1	0	68	6	1015	94	0	0

No data for Scotland

Table 81: Nodal status of invasive cancers with/without SLNB

Sub-region	With SLNB				Without SLNB			
	Positive		Negative		Positive		Negative	
	No.	%	No.	%	No.	%	No.	%
East Midlands	175	15	996	85	68	58	49	42
East of England	158	13	1079	87	78	70	32	29
London	145	11	1136	89	77	81	18	19
N East, Yorks & Humber	269	15	1518	85	142	74	49	26
North West	223	15	1266	85	66	65	36	35
South East	304	16	1646	84	108	73	42	29
South West	195	12	1370	88	69	78	19	22
West Midlands	158	14	1003	86	83	70	35	30
England	1627	14	10014	86	691	71	280	29
Northern Ireland	40	12	305	88	30	59	21	41
Wales	96	12	670	87	53	83	11	17
UK excl. Scotland	1763	14	10989	86	774	71	312	29

No data for Scotland

Table 82: Number of nodes obtained for invasive cancers with positive nodal status determined from SLNB

Sub-region	1-<4 nodes obtained					4+ nodes obtained				
	1 Ax op		2+ Ax ops		Total	1 Ax op		2+ Ax ops		Total
	No.	%	No.	%		No.	%	No.	%	
East Midlands	97	100	0	0	97	29	37	49	63	78
East of England	72	100	0	0	72	22	26	64	74	86
London	70	99	1	1	71	19	26	55	74	74
N East, Yorks & Humber	153	100	0	0	153	52	45	64	55	116
North West	120	100	0	0	120	31	30	72	70	103
South East	149	99	2	1	151	80	52	73	48	153
South West	104	100	0	0	104	37	41	54	59	91
West Midlands	76	100	0	0	76	23	28	59	72	82
England	841	100	3	0	844	293	37	490	63	783
Northern Ireland	13	93	1	7	14	7	27	19	73	26
Wales	47	100	0	0	47	22	45	27	55	49
UK excl. Scotland	901	100	4	0	905	322	38	536	62	858

No data for Scotland

Table 83: Status of invasive cases with <4 nodes obtained

Sub-region	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	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	1288	951	73.8	97	7.5	0	0.0	845	66	9	0.7	0	0
East of England	1347	984	73.1	72	5.3	0	0.0	903	67	9	0.7	0	0
London	1376	1081	78.6	71	5.2	0	0.0	1008	73	2	0.1	0	0
N East, Yorks & Humber	1978	1502	75.9	153	7.7	0	0.0	1337	68	12	0.6	0	0
North West	1591	1204	75.7	120	7.5	2	0.1	1076	68	6	0.4	0	0
South East	2100	1623	77.3	151	7.2	1	0.0	1460	70	11	0.5	0	0
South West	1653	1310	79.2	104	6.3	1	0.1	1203	73	2	0.1	0	0
West Midlands	1279	967	75.6	76	5.9	1	0.1	885	69	5	0.4	0	0
England	12612	9622	76.3	844	6.7	5	0.0	8717	69	56	0.4	0	0
Northern Ireland	396	287	72.5	14	3.5	1	0.3	266	67	6	1.5	0	0
Wales	830	661	79.6	47	5.7	0	0.0	614	74	0	0.0	0	0
UK excl. Scotland	13838	10570	76	905	6.5	6	0.0	9597	69	62	0.4	0	0

No data for Scotland

Sub-region	Total non-invasive cancers	Nodal status known		Nodes obtained but status unknown		No nodes obtained		Unknown if nodes obtained	
		No.	%	No.	%	No.	%	No.	%
East Midlands	293	70	24	0	0	223	76	0	0
East of England	282	77	27	0	0	205	73	0	0
London	417	100	24	0	0	317	76	0	0
N East, Yorks & Humber	440	96	22	0	0	344	78	0	0
North West	418	82	20	0	0	336	80	0	0
South East	573	118	21	0	0	455	79	0	0
South West	441	93	21	0	0	348	79	0	0
West Midlands	296	68	23	0	0	228	77	0	0
England	3160	704	22	0	0	2456	78	0	0
Northern Ireland	85	17	20	0	0	68	80	0	0
Wales	160	35	22	0	0	125	78	0	0
UK excl. Scotland	3405	756	22	0	0	2649	78	0	0

No data for Scotland

Sub-region	Conservation with known nodal status		Total Conservation	Mastectomy with known nodal status		Total mastectomy
	No.	%		No.	%	
East Midlands	10	5	217	60	79	76
East of England	24	11	225	53	93	57
London	21	6	330	79	91	87
N East, Yorks & Humber	15	4	358	81	99	82
North West	13	4	346	69	96	72
South East	20	4	469	98	94	104
South West	23	6	363	70	90	78
West Midlands	10	4	235	58	95	61
England	136	5	2543	568	92	617
Northern Ireland	3	4	69	14	88	16
Wales	5	4	124	30	83	36
UK excl. Scotland	144	5	2736	612	91	669

No data for Scotland

Sub-region	Total known nodal status	Positive		Negative	
		No.	%	No.	%
East Midlands	70	0	0	70	100
East of England	77	1	1	76	99
London	100	1	1	99	99
N East, Yorks & Humber	96	5	5	91	95
North West	82	0	0	82	100
South East	118	1	1	117	99
South West	93	1	1	92	99
West Midlands	68	0	0	68	100
England	704	9	1	695	99
Northern Ireland	17	0	0	17	100
Wales	35	0	0	35	100
UK excl. Scotland	756	9	1	747	99

No data for Scotland

Table 87: Sentinel lymph node procedure for non-invasive cancers with a mastectomy and known nodal status

Sub-region	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				
	No.	%	No.	%	No.	%	No.	%	No.	%			
East Midlands	60	79	0	0	0	0.0	0	0.0	0	0.0	76	60	100
East of England	52	91	1	2	0	0.0	0	0.0	0	0.0	57	53	98
London	78	90	0	0	1	1.1	0	0.0	0	0.0	87	79	99
N East, Yorks & Humber	77	94	2	2	2	2.4	0	0.0	0	0.0	82	81	95
North West	66	92	2	3	0	0.0	0	0.0	1	1.4	72	69	96
South East	93	89	4	4	1	1.0	0	0.0	0	0.0	104	98	95
South West	68	87	0	0	2	2.6	0	0.0	0	0.0	78	70	97
West Midlands	56	92	2	3	0	0.0	0	0.0	0	0.0	61	58	97
England	550	89	11	2	6	1.0	0	0.0	1	0.2	617	568	97
Northern Ireland	13	81	1	6	0	0.0	0	0.0	0	0.0	16	14	93
Wales	30	83	0	0	0	0.0	0	0.0	0	0.0	36	30	100
UK excl. Scotland	593	89	12	2	6	0.9	0	0.0	1	0.1	669	612	97

No data for Scotland

Table 88: Sentinel lymph node procedure for non-invasive cancers with BCS and known nodal status

Sub-region	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				
	No.	%	No.	%	No.	%	No.	%	No.	%			
East Midlands	10	5	0	0	0	0.0	0	0.0	0	0.0	217	10	100
East of England	23	10	0	0	0	0.0	0	0.0	1	0.4	225	24	96
London	20	6	0	0	0	0.0	0	0.0	1	0.3	330	21	95
N East, Yorks & Humber	14	4	0	0	0	0.0	0	0.0	1	0.3	358	15	93
North West	12	3	1	0	0	0.0	0	0.0	0	0.0	346	13	92
South East	19	4	1	0	0	0.0	0	0.0	0	0.0	469	20	95
South West	21	6	0	0	0	0.0	0	0.0	2	0.6	363	23	91
West Midlands	10	4	0	0	0	0.0	0	0.0	0	0.0	235	10	100
England	129	5	2	0	0	0.0	0	0.0	5	0.2	2543	136	95
Northern Ireland	3	4	0	0	0	0.0	0	0.0	0	0.0	69	3	100
Wales	5	4	0	0	0	0.0	0	0.0	0	0.0	124	5	100
UK excl. Scotland	137	5	2	0	0	0.0	0	0.0	5	0.2	2736	144	95

No data for Scotland

Table 89: Mean, median & maximum number of nodes obtained (non-invasive cancers)

Sub-region	Total known nodal status	Conservation			Mastectomy		
		Mean	Median	Maximum	Mean	Median	Maximum
East Midlands	70	2	2	4	2	2	7
East of England	77	2	1	3	2	2	7
London	100	3	2	11	3	2	20
N East, Yorks & Humber	96	2	2	4	3	2	10
North West	82	2	1	4	2	2	5
South East	118	2	1	4	3	2	10
South West	93	2	2	3	2	2	15
West Midlands	68	2	1	4	3	2	7
England	704	2	2	13	2	2	23
Northern Ireland	17	2	2	2	3	2.5	11
Wales	35	2	2	2	2	2	4
UK excl. Scotland	756	2	2	11	2	2	20

No data for Scotland

Sub-region	B5b						B5a					
	Total B5b	% had Ax	Ax in 1st op		Ax in later op		Total B5a	% had Ax	Ax in 1st op		Ax in later op	
			No.	%	No.	%			No.	%	No.	%
East Midlands	1226	100	1224	100	0	0	63	90	22	35	35	56
East of England	1300	100	1294	100	0	0	50	88	24	48	20	40
London	1298	100	1291	99	1	0	79	94	49	62	25	32
N East, Yorks & Humber	1886	100	1877	100	0	0	94	88	45	48	38	40
North West	1511	100	1508	100	1	0	76	87	33	43	33	43
South East	1984	100	1976	100	2	0	117	88	43	37	60	51
South West	1587	99	1575	99	2	0	68	87	25	37	34	50
West Midlands	1212	100	1209	100	0	0	67	93	28	42	34	51
England	12004	100	11954	100	6	0	614	89	269	44	279	45
Northern Ireland	378	100	378	100	0	0	17	76	5	29	8	47
Wales	795	98	782	98	1	0	49	96	17	35	30	61
UK excl. Scotland	13177	100	13114	100	7	0	680	89	291	43	317	47

No data for Scotland

Sub-region	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
	No	%	No	%			
East Midlands	49	20	2	1	243	51	96
East of England	64	27	2	1	236	66	97
London	56	25	1	0	222	57	98
N East, Yorks & Humber	64	16	4	1	411	68	94
North West	72	25	0	0	289	72	100
South East	75	18	1	0	412	76	99
South West	54	20	0	0	264	54	100
West Midlands	59	24	0	0	241	59	100
England	493	21	10	0	2318	503	98
Northern Ireland	20	29	2	3	70	22	91
Wales	27	18	1	1	149	28	96
UK excl. Scotland	540	21	13	1	2537	553	98

No data for Scotland

Appendix 5: Adjuvant therapy data tables (92 – 117)

ADJUVANT THERAPY AUDIT WITH TUMOUR DATA FROM THE PREVIOUS YEARS (2018/19) AUDIT OF SCREEN-DETECTED BREAST CANCERS

Please note: Laterality of previous cancers has not been taken into account in this analysis.

Sub-region	Total submitted cases	Total pt matched	% matched	Had previous cancers		No previous cancers	
				No.	%	No.	%
East Midlands	1840	1837	100	263	14	1574	86
East of England	2214	2174	98	314	14	1860	86
London	2211	2146	97	253	12	1893	88
N East, York's & Humber	3076	2999	97	484	16	2515	84
North West	2458	2453	100	333	14	2120	86
South East	3296	3261	99	477	15	2784	85
South West	2582	2573	100	356	14	2217	86
West Midlands	1909	1900	100	264	14	1636	86
England	19586	19343	99	2744	14	16599	86

Celtic countries did not provide previous cancer data in 2018/19

Sub-region	Total matched	Total previous cancers	Invasive/micro-invasive*					Non-invasive*	
			Breast	Gynaecological	Bowel	Haematological	Other	Breast	Other
East Midlands	1837	263	94	35	10	14	32	22	84
East of England	2174	314	114	32	14	12	44	43	89
London	2146	253	79	33	14	12	35	35	66
N East, York's & Humber	2999	484	169	45	26	24	53	43	153
North West	2453	333	122	50	15	13	45	23	90
South East	3261	477	169	52	31	21	70	45	133
South West	2573	356	112	37	22	18	39	43	124
West Midlands	1900	264	85	30	14	7	35	25	82
England	19343	2744	944	314	146	121	353	279	821
% of previous cancers		100	34	11	5	4	13	10	30
% of matched	100	14	5	2	1	1	2	1	4

* a patient can have more than one previous cancer. Of the gynaecological cancers, 61 were ovarian cancer.
Celtic countries did not provide previous cancer data in 2018/19

Sub-region	Women with previous breast cancers	Had RT		Had CT		Had ET	
		No.	%	No.	%	No.	%
East Midlands	113	44	39	14	12	32	28
East of England	153	54	35	20	13	45	29
London	113	38	34	12	11	13	12
N East, York's & Humber	210	83	40	26	12	84	40
North West	143	50	35	24	17	20	14
South East	209	71	34	27	13	36	17
South West	153	56	37	20	13	54	35
West Midlands	110	44	40	14	13	24	22
England	1204	440	37	157	13	308	26
Northern Ireland	10	5	50	3	30	10	100
UK excl. Scotland & Wales	1214	445	37	160	13	318	26

Please see table 96 for data completeness statistics

Sub-region	Total Cancers	No data supplied		Excluded cases		Total Eligible		Complete data*	
		No.	%	No.	%	No.	%	No.	%
East Midlands	1840	5	0	112	6	1724	94	127	7
East of England	2214	17	1	151	7	2046	92	106	5
London	2211	47	2	110	5	2054	93	38	2
N East, York's & Humber	3076	26	1	206	7	2844	92	224	7
North West	2458	16	1	142	6	2300	94	71	3
South East	3296	20	1	203	6	3073	93	94	3
South West	2582	15	1	150	6	2417	94	165	6
West Midlands	1909	17	1	107	6	1785	94	52	3
England	19586	163	1	1181	6	18243	93	877	4
Northern Ireland	527	33	6	10	2	484	92	477	91
Wales	1076	0	0	0	0	1076	100	1055	98
UK excl. Scotland	21189	172	1	1191	6	19803	93	2409	11

* cases which are eligible and with complete RT, CT and HT data. Patients with a previous breast cancer were excluded.

Sub-region	Total Eligible	Complete RT		Complete CT		Complete ET		Complete RT, CT & ET	
		No.	%	No.	%	No.	%	No.	%
East Midlands	1724	1336	77	366	21	684	40	127	7
East of England	2046	1491	73	360	18	826	40	106	5
London	2054	1359	66	388	19	324	16	38	2
N East, York's & Humber	2844	2153	76	555	20	1533	54	224	8
North West	2300	1535	67	585	25	423	18	71	3
South East	3073	2069	67	548	18	779	25	94	3
South West	2417	1647	68	479	20	1096	45	165	7
West Midlands	1785	1384	78	350	20	447	25	52	3
England	18243	12974	71	3631	20	6112	34	877	5
Northern Ireland	484	484	100	479	99	482	100	477	99
Wales	1076	1057	98	1060	99	1059	98	1055	98
UK excl. Scotland	19803	14515	73	5170	26	7653	39	2409	12

Sub-region	Invasive							Non-invasive						
	RT		No RT		Unknown RT		Invasive total	RT		No RT		Unknown RT		Non-invasive total
	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	
East Midlands	1135	83	0	0	232	17	1367	194	56	0	0	152	44	346
East of England	1289	76	0	0	409	24	1698	184	58	0	0	135	42	319
London	1114	73	0	0	417	27	1531	235	47	0	0	268	53	503
N East, York's & Humber	1853	82	0	0	403	18	2256	280	50	0	0	280	50	560
North West	1346	74	0	0	468	26	1814	183	39	0	0	286	61	469
South East	1784	74	0	0	626	26	2410	271	42	0	0	371	58	642
South West	1431	75	0	0	483	25	1914	206	43	0	0	273	57	479
West Midlands	1204	84	0	0	231	16	1435	172	51	0	0	163	49	335
England	11156	77	0	0	3269	23	14425	1725	47	0	0	1928	53	3653
Northern Ireland	332	86	52	14	0	0	384	61	61	39	39	0	0	100
Wales	688	78	188	21	11	1	887	92	50	85	46	8	4	185
UK excl. Scotland	12176	78	240	2	3280	21	15696	1878	48	124	3	1936	49	3938

Sub-region	Overall							
	RT		No RT		Unknown RT		Overall total	
	No.	%	No.	%	No.	%		
East Midlands	1336	77	0	0	388	23	1724	
East of England	1491	73	0	0	555	27	2046	
London	1359	66	0	0	695	34	2054	
N East, York's & Humber	2153	76	0	0	691	24	2844	
North West	1535	67	0	0	765	33	2300	
South East	2069	67	0	0	1004	33	3073	
South West	1647	68	0	0	770	32	2417	
West Midlands	1384	78	0	0	401	22	1785	
England	12974	71	0	0	5269	29	18243	
Northern Ireland	372	79	98	21	2	0	472	
Wales	782	73	275	26	19	2	1076	
UK excl. Scotland	14149	71	366	2	5288	27	19803	

Sub-region	Invasive							Micro/non-invasive						
	CT		No CT		Unknown CT		Invasive total	CT		No CT		Unknown CT		Micro/non-invasive total
	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	
East Midlands	363	27	0	0	1004	73	1367	3	1	0	0	354	99	357
East of England	356	21	0	0	1342	79	1698	4	1	0	0	341	99	345
London	384	25	0	0	1147	75	1531	4	1	0	0	519	99	523
N East, York's & Humber	551	24	0	0	1705	76	2256	4	1	0	0	583	99	587
North West	583	32	0	0	1231	68	1814	2	0	0	0	483	100	485
South East	543	23	0	0	1867	77	2410	5	1	0	0	657	99	662
South West	472	25	0	0	1442	75	1914	7	1	0	0	496	99	503
West Midlands	347	24	0	0	1088	76	1435	3	1	0	0	347	99	350
England	3599	25	0	0	10826	75	14425	32	1	0	0	3780	99	3812
Northern Ireland	120	31	259	67	5	1	384	1	1	99	99	0	0	100
Wales	202	23	675	76	10	1	887	1	1	182	96	6	3	189
UK excl. Scotland	3921	25	934	6	10841	69	15696	34	1	281	7	3786	92	4101

Sub-region	Overall						Overall total
	CT		No CT		Unknown CT		
	No.	%	No.	%	No.	%	
East Midlands	366	21	0	0	1358	79	1724
East of England	360	18	0	0	1686	82	2046
London	388	19	0	0	1666	81	2054
N East, York's & Humber	555	20	0	0	2289	80	2844
North West	585	25	0	0	1715	75	2300
South East	548	18	0	0	2525	82	3073
South West	479	20	0	0	1938	80	2417
West Midlands	350	20	0	0	1435	80	1785
England	3631	20	0	0	14612	80	18243
Northern Ireland	121	25	358	74	5	1	484
Wales	203	19	857	80	16	1	1076
UK excl. Scotland	3955	20	1215	6	14633	74	19803

Sub-region	Invasive							Micro/non-invasive						
	ET		No ET		Unknown ET		Invasive total	ET		No ET		Unknown ET		Micro/non-invasive total
	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	
East Midlands	679	50	0	0	688	50	1367	5	1	0	0	352	99	357
East of England	813	48	0	0	885	52	1698	12	3	0	0	333	97	345
London	313	20	0	0	1218	80	1531	11	2	0	0	512	98	523
N East, York's & Humber	1500	66	0	0	756	34	2256	33	6	0	0	554	94	587
North West	402	22	0	0	1412	78	1814	21	4	0	0	464	96	485
South East	754	31	0	0	1656	69	2410	25	4	0	0	637	96	662
South West	1035	54	0	0	879	46	1914	61	12	0	0	442	88	503
West Midlands	443	31	0	0	992	69	1435	4	1	0	0	346	99	350
England	5939	41	0	0	8486	59	14425	172	5	0	0	3640	95	3812
Northern Ireland	339	88	44	11	1	0	384	3	3	96	96	1	1	100
Wales	788	89	88	10	11	1	887	7	4	176	93	6	3	189
UK excl. Scotland	7066	45	132	1	8498	54	15696	182	4	272	7	3647	89	4101

More Unknown ET cases due to incomplete data from the cancer registry

Sub-region	Overall						Overall total
	ET		No ET		Unknown ET		
	No.	%	No.	%	No.	%	
East Midlands	684	40	0	0	1040	60	1724
East of England	826	40	0	0	1220	60	2046
London	324	16	0	0	1730	84	2054
N East, York's & Humber	1533	54	0	0	1311	46	2844
North West	423	18	0	0	1877	82	2300
South East	779	25	0	0	2294	75	3073
South West	1096	45	0	0	1321	55	2417
West Midlands	447	25	0	0	1338	75	1785
England	6112	34	0	0	12131	66	18243
Northern Ireland	342	71	140	29	2	0	484
Wales	795	74	264	25	17	2	1076
UK excl. Scotland	7249	37	404	2	12150	61	19803

Sub-region	≤ 14 days		≤ 30 days		≤ 60 days		≤ 90 days		≤ 120 days		≤ 200 days		Median	Total No.
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
East Midlands	0	0	3	0	243	30	752	91	805	98	818	100	65	822
East of England	0	0	16	2	412	42	897	92	953	98	968	100	63	971
London	1	0	4	1	460	59	728	93	766	98	781	100	57	784
N East, York's & Humber	0	0	0	0	641	46	1308	94	1384	99	1396	100	62	1397
North West	0	0	17	2	512	61	778	93	819	98	831	99	56	836
South East	0	0	3	0	389	30	1156	90	1261	98	1282	100	68	1286
South West	0	0	1	0	318	32	888	88	985	98	1003	100	66	1004
West Midlands	0	0	0	0	185	21	724	81	879	98	891	100	73	895
England	1	0	44	1	3160	40	7231	90	7852	98	7970	100	64	7995
Northern Ireland	1	0	6	3	116	53	201	92	209	95	215	98	59	219
Wales	0	0	0	0	138	31	402	90	440	98	446	100	67	447
UK excl. Scotland	2	0	50	1	3414	39	7834	90	8501	98	8631	100	64	8661

Sub-region	≤ 14 days		≤ 30 days		≤ 60 days		≤ 90 days		≤ 120 days		≤ 200 days		Median	Total No.
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
East Midlands	0	0	1	1	58	30	182	94	191	99	193	100	65	193
East of England	0	0	4	2	80	44	169	94	178	99	180	100	62	180
London	1	0	1	0	150	66	210	93	217	96	226	100	57	227
N East, York's & Humber	0	0	0	0	125	45	266	95	274	98	278	99	62	280
North West	0	0	4	2	114	63	169	93	176	97	179	99	56	181
South East	0	0	0	0	80	30	243	91	264	99	266	99	68	268
South West	0	0	0	0	68	34	174	86	196	97	200	99	65	202
West Midlands	0	0	0	0	41	24	145	86	167	99	169	100	73	169
England	1	0	10	1	716	42	1558	92	1663	98	1691	99	63	1700
Northern Ireland	0	0	1	2	34	61	54	96	55	98	56	100	56	56
Wales	0	0	0	0	37	44	80	95	83	99	84	100	62	84
UK excl. Scotland	1	0	11	1	787	43	1692	92	1801	98	1831	100	63	1840

Sub-region	≤ 14 days		≤ 30 days		≤ 60 days		≤ 90 days		≤ 120 days		≤ 200 days		Median	Total No.
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
East Midlands	0	0	0	0	3	0	199	24	593	72	801	97	104	824
East of England	0	0	0	0	18	2	281	29	720	74	954	97	101	979
London	0	0	0	0	12	2	231	29	582	73	761	95	102	799
N East, York's & Humber	0	0	0	0	9	1	399	28	1063	76	1366	98	103	1401
North West	0	0	0	0	35	4	337	40	645	77	811	97	98	839
South East	0	0	3	0	15	1	171	13	742	57	1260	97	117	1305
South West	1	0	5	0	12	1	181	18	683	67	987	97	109	1016
West Midlands	0	0	1	0	4	0	137	15	510	57	863	96	116	898
England	1	0	9	0	108	1	1936	24	5538	69	7803	97	106	8061
Northern Ireland	0	0	1	0	13	6	97	44	177	81	213	97	94	219
Wales	0	0	0	0	1	0	125	28	335	75	436	98	103	447
UK excl. Scotland	1	0	10	0	122	1	2158	25	6050	69	8452	97	106	8727

Sub-region	≤ 14 days		≤ 30 days		≤ 60 days		≤ 90 days		≤ 120 days		≤ 200 days		Median	Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.
East Midlands	0	0	0	0	0	0	31	16	128	66	191	99	111	193
East of England	0	0	0	0	4	2	45	25	128	71	175	97	106	181
London	0	0	0	0	2	1	60	26	156	67	221	95	104.5	232
N East, York's & Humber	0	0	0	0	1	0	68	24	184	66	270	96	104	280
North West	0	0	0	0	4	2	61	34	127	70	176	97	100	182
South East	0	0	0	0	0	0	26	10	130	48	250	93	122	269
South West	0	0	0	0	0	0	26	13	118	58	194	96	115	202
West Midlands	0	0	0	0	1	1	23	13	79	46	166	97	124	171
England	0	0	0	0	12	1	340	20	1050	61	1643	96	111	1710
Northern Ireland	0	0	0	0	4	7	22	39	47	84	55	98	98.5	56
Wales	0	0	0	0	0	0	22	26	58	69	81	96	107	84
UK excl. Scotland	0	0	0	0	16	1	384	21	1155	62	1779	96	111	1850

Sub-region	Median	First quartile	Third quartile
East Midlands	65	58	76
East of England	63	54	72
London	57	49	68
N East, York's & Humber	62	54	72
North West	56	47	69
South East	68	57	79
South West	66	57	78
West Midlands	73	62	87
England	64	55	76
Northern Ireland	59	50	70
Wales	67	57	77
UK excl. Scotland	64	55	76

Sub-region	Within 52 days		Total invasive with BCS
	No	%	
East Midlands	85	11	792
East of England	205	22	933
London	276	37	756
N East, York's & Humber	277	20	1354
North West	339	42	812
South East	198	16	1234
South West	124	13	977
West Midlands	73	9	831
England	1577	21	7689
Northern Ireland	67	32	210
Wales	50	12	431
UK excl. Scotland	1694	20	8330

Sub-region	Invasive		Micro-invasive		Non-invasive		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	1367	79	11	1	346	20	0	0	1724	100
East of England	1698	83	26	1	319	16	3	0	2046	100
London	1531	75	20	1	503	24	0	0	2054	100
N East, York's & Humber	2256	79	27	1	560	20	1	0	2844	100
North West	1814	79	16	1	469	20	1	0	2300	100
South East	2410	78	20	1	642	21	1	0	3073	100
South West	1914	79	24	1	479	20	0	0	2417	100
West Midlands	1435	80	15	1	335	19	0	0	1785	100
England	14425	79	159	1	3653	20	6	0	18243	100
Northern Ireland	384	79	0	0	100	21	0	0	484	100
Wales	887	82	4	0	185	17	0	0	1076	100
UK excl. Scotland	15696	79	163	1	3938	20	6	0	19803	100

Sub-region	Conservation surgery		Mastectomy		No Surgery		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	1078	79	248	18	41	3	0	0	1367	100
East of England	1375	81	250	15	73	4	0	0	1698	100
London	1159	76	272	18	100	7	0	0	1531	100
N East, York's & Humber	1843	82	353	16	60	3	0	0	2256	100
North West	1437	79	336	19	41	2	0	0	1814	100
South East	1970	82	363	15	77	3	0	0	2410	100
South West	1594	83	274	14	46	2	0	0	1914	100
West Midlands	1119	78	280	20	36	3	0	0	1435	100
England	11575	80	2376	16	474	3	0	0	14425	100
Northern Ireland	311	81	67	17	6	2	0	0	384	100
Wales	677	76	194	22	16	2	0	0	887	100
UK excl. Scotland	12563	80	2637	17	496	3	0	0	15696	100

Sub-region	Radiotherapy		No/unknown radiotherapy		Total	
	No.	%	No.	%	No.	%
East Midlands	1033	96	45	4	1078	100
East of England	1174	85	201	15	1375	100
London	993	86	166	14	1159	100
N East, York's & Humber	1730	94	113	6	1843	100
North West	1229	86	208	14	1437	100
South East	1634	83	336	17	1970	100
South West	1324	83	270	17	1594	100
West Midlands	1059	95	60	5	1119	100
England	10176	88	1399	12	11575	100
Northern Ireland	304	98	7	2	311	100
Wales	634	94	43	6	677	100
UK excl. Scotland	11114	88	1449	12	12563	100

Sub-region	Radiotherapy		No/unknown radiotherapy		Total	
	No.	%	No.	%	No.	%
East Midlands	192	75	63	25	255	100
East of England	180	74	64	26	244	100
London	226	62	138	38	364	100
N East, York's & Humber	279	70	122	30	401	100
North West	180	54	156	46	336	100
South East	268	52	244	48	512	100
South West	205	53	181	47	386	100
West Midlands	163	69	72	31	235	100
England	1693	62	1040	38	2733	100
Northern Ireland	60	76	19	24	79	100
Wales	92	67	45	33	137	100
UK excl. Scotland	1845	63	1104	37	2949	100

Sub-region	High		Intermediate		Low		Not assessable		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	14	22	29	46	15	24	5	8	0	0	63	100
East of England	14	22	22	34	17	27	10	16	1	2	64	100
London	33	24	65	47	30	22	8	6	2	1	138	100
N East, York's & Humber	24	20	62	51	28	23	7	6	1	1	122	100
North West	41	26	72	46	32	21	10	6	1	1	156	100
South East	68	28	111	45	39	16	22	9	4	2	244	100
South West	52	29	92	51	25	14	12	7	0	0	181	100
West Midlands	14	19	34	47	22	31	2	3	0	0	72	100
England	260	25	487	47	208	20	76	7	9	1	1040	100
Northern Ireland	0	0	5	26	8	42	4	21	2	11	19	100
Wales	11	24	22	49	12	27	0	0	0	0	45	100
UK excl. Scotland	271	25	514	47	228	21	80	7	11	1	1104	100

Sub-region	<15mm		15-≤40mm		>40mm		Not assessable		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	38	60	13	21	0	0	5	8	7	11	63	100
East of England	31	48	12	19	2	3	10	16	9	14	64	100
London	66	48	34	25	3	2	8	6	27	20	138	100
N East, York's & Humber	65	53	28	23	3	2	7	6	19	16	122	100
North West	81	52	34	22	2	1	9	6	30	19	156	100
South East	128	52	74	30	3	1	21	9	18	7	244	100
South West	102	56	42	23	4	2	12	7	21	12	181	100
West Midlands	42	58	16	22	3	4	2	3	9	13	72	100
England	553	53	253	24	20	2	74	7	140	13	1040	100
Northern Ireland	9	47	1	5	0	0	4	21	5	26	19	100
Wales	30	67	9	20	1	2	0	0	5	11	45	100
UK excl. Scotland	592	54	263	24	21	2	78	7	150	14	1104	100

Sub-region	ER Positive		ER Negative		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%
East Midlands	1264	73	115	7	345	20	1724	100
East of England	1618	79	123	6	305	15	2046	100
London	1591	77	160	8	303	15	2054	100
N East, York's & Humber	2173	76	227	8	444	16	2844	100
North West	1923	84	192	8	185	8	2300	100
South East	2470	80	219	7	384	12	3073	100
South West	2030	84	175	7	212	9	2417	100
West Midlands	1341	75	130	7	314	18	1785	100
England	14410	79	1341	7	2492	14	18243	100
Northern Ireland	353	73	39	8	92	19	484	100
Wales	818	76	90	8	168	16	1076	100
UK excl. Scotland	15581	79	1470	7	2752	14	19803	100

Sub-region	Invasive		Micro-invasive		Non-invasive		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
East Midlands	1252	99	2	0	10	1	0	0	1264	100
East of England	1577	97	8	0	32	2	1	0	1618	100
London	1396	88	11	1	184	12	0	0	1591	100
N East, York's & Humber	2048	94	8	0	117	5	0	0	2173	100
North West	1658	86	3	0	262	14	0	0	1923	100
South East	2226	90	10	0	234	9	0	0	2470	100
South West	1784	88	16	1	230	11	0	0	2030	100
West Midlands	1310	98	5	0	26	2	0	0	1341	100
England	13251	92	63	0	1095	8	1	0	14410	100
Northern Ireland	348	99	0	0	5	1	0	0	353	100
Wales	804	98	2	0	12	1	0	0	818	100
UK excl. Scotland	14403	92	65	0	1112	7	1	0	15581	100

Sub-region	CT		No CT		Unknown CT		Total
	No.	%	No.	%	No.	%	
East Midlands	159	59	0	0	109	41	268
East of England	135	47	0	0	151	53	286
London	147	51	0	0	140	49	287
N East, York's & Humber	218	51	0	0	209	49	427
North West	183	59	0	0	128	41	311
South East	213	49	0	0	220	51	433
South West	181	57	0	0	138	43	319
West Midlands	135	52	0	0	124	48	259
England	1371	53	0	0	1219	47	2590
Northern Ireland	42	60	28	40	0	0	70
Wales	81	56	62	43	1	1	144
UK excl. Scotland	1494	53	90	3	1220	44	2804