



Public Health
England



NHS Breast Screening Programme Consolidated standards

April 2017

Public Health England leads the NHS Screening Programmes

About Public Health England

Public Health England (PHE) exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health.

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About PHE Screening

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

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Introduction

This document contains the national standards for the NHS Breast Screening Programme (NHSBSP). Previous standards were documented in quality assurance guidelines published for all disciplines represented in the NHSBSP. These revised standards replace all previous versions, and have an implementation date of April 2017.

The NHSBSP aims to support health professionals and commissioners in providing a high quality breast screening programme. This involves the development and regular review of quality standards against which data is collected and reported annually. The standards provide a defined set of measures that providers have to meet to ensure local programmes are safe and effective.

Quality assurance (QA) is the process of checking that these standards are met, and encouraging continuous improvement. QA covers the entire screening pathway from identification of the eligible population to be invited for screening through to referral and treatment where this is required. The pathway ends at the closure of the screening episode and it also encompasses enhanced screening of women diagnosed as being at very high risk of breast cancer.

The NHS Breast Screening Programme (NHSBSP)

The UK National Screening Committee (UK NSC) has responsibility for setting screening policy. It recommends that all eligible women aged 50 to 70 are invited to breast screening every three years. Screening aims to detect breast cancers at the earliest opportunity, maximise the success of treatment and reduce mortality from breast cancer.

The NHSBSP has responsibility for implementing this policy recommended by the UK NSC. The programme service specification (No. 24) for the NHS providers is available as part of the public health functions exercised by NHS England. See:

www.england.nhs.uk/commissioning/pub-hlth-res/

The BSP aims to ensure that there is equal access to uniform and quality assured screening across England and that women are provided with high quality information so they can make an informed choice about whether to attend breast screening.

Summary of changes to the standards

Standard	Previous standard	Revised standard	Rationale
7. Screen to result rates	>90% women screened sent result within 2 weeks (acceptable)	>95% women screened sent result within 2 weeks (acceptable)	This has been revised upwards to reflect improvements in performance (median 99.1%, interquartile range 98.1% to 99.6%).
8. Referral to assessment rate targets	Prevalent screen <10% minimum <7% target (Table A aged 50 to 52)	Prevalent screen <10% acceptable <7% achievable (Table A aged 45 to 52)	Women in the age extension cohort should be monitored from the age of 45 to 52 as they could not be excluded from the routine prevalent (first) screening cohort. For the age extension cohort aged 71 to 73, they are not included in the calculation of programme standards, as their statistics are separated from the routine screening cohort (aged 50 to 70 years). Hence, we include trial women in the prevalent screen cohort but not when monitoring the incident (subsequent) screen. The trial is not part of standard screening and we include <i>some</i> trial women in screening standards because we cannot exclude them and continue to monitor programme performance adequately.
	Incident screen <7% minimum <5% target (Table C1 aged 53 to 70)	Incident screen <7% acceptable <5% achievable (Table C1 aged 50 to 70)	
10. Time to first offered appointment for	Percentage of women who attend an assessment	The percentage of women who are offered an appointment at	The acceptable standard has been revised from attended to offered appointment as it is the services responsibility to offer an

assessment	centre within three weeks of attendance for the screening mammogram Minimum $\geq 90\%$ Target 100%	an assessment centre within three weeks of attendance for the screening mammogram Acceptable >98% Achievable 100%	appointment within the required timescale. Services may offer all women an appointment within 3 weeks of an initial screen but more than 10% may delay the appointment to a later date. This is why the standard has changed from attended to offered an appointment.
12. Benign biopsy rates	Minimum <1.5/1000 (prevalent screen) Target <1.0/1000 (prevalent) Table A aged (50 to 52) Minimum <1.0/1000 (incident screen) Target <0.75/1000 (incident screen) Table C1 aged 53 to 70	Acceptable <1.5/1000 (prevalent screen) Achievable <1.0/1000 (prevalent) Table A aged (45 to 52) Acceptable <1.0/1000 (incident screen) Achievable <0.75/1000 (incident screen) Table C1 aged 50 to 70	Age range and cohort group adjusted to allow comparability between services participating and not participating in the age extension trial (see rationale for standard 9 above).
Invasive cancer detection rates (withdrawn)	Prevalent screen $\geq 2.70/1000$ minimum $\geq 3.60/1000$ target Incident screen $\geq 3.10/1000$ minimum $\geq 4.2/1000$ target	Withdrawn and replaced with standardised detection ratios	Invasive cancer detection rates are no longer appropriate given the variability in mean age of women due to some services participating in the age extension trial.

<p>14. Invasive cancer standardised detection ratios</p>	<p>Prevalent screen ≥ 1.00 minimum, ≥ 1.40 target (Table A aged 50 to 70)</p> <p>Incident screen ≥ 1.00 minimum, ≥ 1.40 target (Table C1 aged 50 to 70)</p>	<p>Prevalent screen ≥ 1.00 acceptable ≥ 1.40 achievable (Table A+B aged 45 to 70)</p> <p>Incident screen ≥ 1.00 acceptable, ≥ 1.40 achievable (Table C1 aged 50 to 70)</p>	<p>Age range and cohort group adjusted to allow comparability between services participating and not participating in the age extension trial (see rationale 9 above).</p>
<p>18. Interval cancer rates</p>	<p><24 months <1.20/1000 24<36 months <1.40/1000</p>	<p><12 months 0.65/1000 12<24 months 1.40/1000 24<36 months 1.65/1000</p>	<p>The rates of interval cancers expected have increased by 25% to reflect the increase in background incidence since 1995. They have also been split into three rates for each year following the negative screen to allow greater accuracy</p>

Format of the standards

The format of the breast screening standards has been revised. Development of this format has been an iterative process, based on work with providers, users, English screening programmes and quality assurance teams. The changes were made to ensure stakeholders have access to:

- reliable and timely information about the quality of the screening programme
- data at local, regional and national level
- quality measures across the screening pathway without gaps or duplications
- a consistent approach across screening programmes

Any burden of data collection is proportionate to the benefits gained.

Previous breast screening programme standards were historically documented in Quality Assurance Guidelines published for all disciplines represented in the BSP. These revised standards have been reviewed and replace the standards which have been published in previous programme publications.

Scope and terminology - process standards

These standards enable assessment of the screening process to support continuous improvement. Data collected against the standards enables providers and commissioners to identify where improvements are needed.

Each process standard has three parts.

1. Objective: the aim of the standard.
2. Criteria: what is being assessed.
3. Performance thresholds: two thresholds ('acceptable' and 'achievable') are specified.

The thresholds, definitions and reporting levels are approved by the National Screening Data Group.

The acceptable threshold

This is the lowest level of performance which services are expected to attain in order to ensure patient safety and service effectiveness. All units are expected to exceed the

acceptable threshold and to agree service improvement plans that develop performance towards an achievable level. Programmes not meeting the acceptable threshold are expected to implement recovery plans to ensure rapid and sustained improvement.

The achievable threshold

This represents the level at which the services are likely to be running optimally. Screening services should aspire to attain and maintain performance at this level.

Example

Using a standard that assesses uptake for the BSP:

- Objective: to maximise uptake in the eligible population who are fully informed and wish to participate in the screening programme
- Criteria: the percentage of eligible women invited who attend for breast screening
- Performance threshold: the acceptable and achievable levels set for the population screened are 70% and 80% respectively

Exclusions

Certain types of standards are not included here.

Structural standards

These describe the structure of the programme and must be fully met. Examples of structural standards include:

- 'provision of information to all participants'
- 'providers will ensure that there are adequate numbers of appropriately trained staff in place to deliver the screening service in line with best practice guidelines and BSP national policy'

Structural standards are included in screening service specifications and monitored through commissioning and other quality assurance routes. The service specifications should be reviewed by providers and commissioners to ensure structural standards are met by all screening services.

Pathology and surgery

These standards cover the screening journey up to and including treatment. Moving forward, PHE does not have a remit to set standards for breast screening pathology or surgery and in future these standards will be published on the Royal

College of Pathology (RCPath) and Association of Breast Surgery (ABS) professional websites. However, in the interim until revised programme guidance is issued, some of their standards are still available on GOV.UK website. Any new publications relating to breast screening pathology and surgery will only be published on the RCPath and ABS websites. The NHSBSP will be fully consulted in the development of any proposed standards for the programme. It will acknowledge standards, following full consultation and approval by key stakeholders, where they are published on professional websites.

Assessing the screening pathway

The standards look at 10 areas to assess the whole pathway.

1. Population identification (to accurately identify the population to whom screening is offered)
2. Information (to maximise informed choice across the screening pathway)
3. Coverage/uptake (to maximise uptake in the eligible population who are informed and wish to participate in the screening programme)
4. Testing (to maximise accuracy of screening test from initial sample or examination to reporting the screening result)
5. Diagnosis (to maximise accuracy of diagnostic test)
6. Intervention and or treatment (to facilitate high quality and timely intervention in those who wish to accept)
7. Outcomes (to optimise individual and population health outcomes in the eligible population)
8. Minimising harm (to minimise potential harms in those screened and in the general population)
9. Staffing: education and training (to ensure that the screening pathway is provided by a trained and skilled workforce, with the capacity to deliver screening services as per service specification)
10. Commissioning and governance (to ensure effective commissioning and governance of the screening programme).

Reporting against standards

Standards will be reported at the intervals detailed in this document. Performance reports are produced by the NHSBSP using data from the national breast screening system (NBSS).

National reports (KC62) are produced 6 months after fiscal year end (1 April to 31 March) with a submission deadline of 30 October.

Review of NHSBSP standards

It is anticipated that standards will be reviewed in line with the service specifications every 3 years.

Other resources to support providers and commissioners

Additional NHSBSP operational guidance documents are available at:
www.gov.uk/government/collections/breast-screening-professional-guidance

Equity impact

Consideration should be given to all standards to establish whether differences in distribution of health determinants (including gender, age, ethnicity, socioeconomic status and other protected characteristics) and screening outcomes can be considered avoidable and unfair.

Review at a local level of performance by population group may indicate inequity in women entering and or completing the screening pathway, or accessing services within optimal timescales. The NHS England 'Equality Delivery System' (<http://www.england.nhs.uk/about/equality/equality-hub/eds/>) and PHE's 'Health Equity Assessment Tool' (HEAT) (phenet.phe.gov.uk/Our-Organisation/Directorates/Health-and-Wellbeing/Health-Equity/Pages/Health-Equity-Assessment-Tool.aspx) can be used by local services to help consider how to improve equity.

The NHSBSP standards

BSP Standard 1	Coverage: eligible population identified and invited
Rationale	This standard is needed to ensure that the eligible population previously invited aged 53 to 70 has been adequately identified and invited by the screening programme.
Objective	To maximise timely attendance within 36 months of screening in the eligible population.
Criteria	The proportion of women eligible for screening who have had a test with a recorded result at least once in the previous 36 months.
Definitions	<p>Numerator: number of eligible women aged 53 to 70 registered with a GP with a screening test result recorded in the past 36 months Denominator: number of eligible women aged 53 to 70 registered with a GP (Both within defined period expressed as a percentage.)</p> <p>Women who are ineligible for screening due to having had a bilateral mastectomy, women who are ceased from the programme based on a 'best interests' decision under the Mental Capacity Act 2005 or women who make an informed choice to remove themselves from the screening programme will be removed from the numerator and denominator.</p> <p>There are a number of categories of women in the eligible age range who are not registered with a GP and subsequently not called for screening as they are not on the Breast Screening Select (BS-Select) database. Screening units have a responsibility to maximise coverage of eligible women in their target population and should therefore be accessible to women in this category through self-referral and GP referral .</p>
Performance thresholds	Acceptable: $\geq 70\%$ Achievable: $\geq 80\%$
Mitigations	<p>All screening programmes should have the outcomes of women recorded and finalised within 6 months of their screening episode. If this is not done, it will adversely impact on rates of coverage.</p> <p>Screening services may have large numbers of women populating screening batches (for example with confederated GP groups) which may mean that closing screening episodes within the required 6 month interval is difficult.</p>

	<p>Some patient treatment regimens may expand beyond 6 months (for example where neo-adjuvant therapies administered) which will mean some patient episodes will not be closed within 6 months.</p> <p>If screening programmes have any screening slippage (all women not invited within 36 months of their previous screen), it will adversely impact on rates of coverage. Further, it will invalidate many performance measures which are based on a 36 month screening interval.</p>
Reporting	<p>Reporting focus: Local Authority, General Practice and Clinical Commissioning Group levels available</p> <p>Data source: Breast Screening Select</p> <p>Responsible for submission: Exeter, NHS Digital</p> <p>Monthly and annual reporting schedules (6 months in arrears)</p>

BSP Standard 2	Maximising effectiveness of the screening programme: uptake rates
Rationale	The expected effectiveness of the breast screening programme in reducing breast cancer mortality requires uptake to be maximised.
Objective	To maximise uptake in the eligible population who are fully informed and wish to participate in the screening programme.
Criteria	The percentage of eligible women invited who attend for screening.
Definitions	<p>Numerator: total eligible women with technically adequate screen (within 6 months of date of first offered appointment)</p> <p>Denominator: total eligible women with date of first offered appointment within the period</p> <p>(Both within defined period expressed as a percentage.)</p> <p>The uptake standard counts appointments not women. If a woman is invited more than once during a year, she will have more than one screening episode counted during the period. Second timed appointments are not counted as a second screening episode.</p> <p>The standard relates to uptake at all screens. However, uptake can be calculated at the prevalent (Table A, 45 to 52) and incident screens (Table C1 50 to 70) for information.</p>
Performance thresholds	<p>Acceptable: $\geq 70\%$</p> <p>Achievable: $\geq 80\%$</p>
Mitigations	Not applicable
Reporting	<p>Reporting focus: screening service</p> <p>Data source: NBSS (KC62 report: Tables A-C2 aged 50 to 70)</p> <p>Responsible for submission: screening service</p> <p>Data on this indicator will only be accurate 6 months after the end of</p>

	<p>the reporting period. Care should be taken when reviewing provisional quarterly data due to the proportion of open episodes where women have yet to attend an appointment.</p> <p>Quarterly (provisional data) produced 4 weeks in arrears. Annually (definitive data) produced 6 months in arrears.</p>
Equity impact	<p>Hard to reach and vulnerable groups may be the least likely to attend. Programmes should work to ensure that their local population demographics are known and that all women have equal opportunity to make an informed choice and have access to the service via local health promotion initiatives. Analyses of uptake rates by GP screening practice are recommended.</p>

BSP Standard 3	Uptake: maintaining screening round length
Rationale	Delivering and maintaining round length is important to help achieve the desired mortality reduction. This is achieved by detecting incident screen cancers as early as possible and minimising interval cancers (cancers presenting in between screening episodes) and reducing the negative consequences of inviting women too frequently.
Objective	To ensure that women are recalled for screening at 36 month intervals.
Criteria	The percentage of eligible women whose date of first offered appointment is within 36 months of their previous screen. Women being screening for the first time will not be included in screening round length statistics.
Definitions	<p>Numerator: number of eligible women aged 50-70yrs with date of first offered appointment within 36 months of their previous screen within the report period</p> <p>Denominator: total number of eligible women (50-70 yrs) screened (Both within defined period expressed as a percentage.)</p> <p>This excludes self and GP referrals.</p>
Performance thresholds	<p>Acceptable: $\geq 90\%$</p> <p>Achievable: 100%</p>
Mitigations	Breast Screening select was introduced in July 2016. This has replaced the National Health Applications and Infrastructure Services system (NHAIS) to facilitate call and recall. The transition away from NHAIS has resulted in the removal of area code as a method to select screening batches and GP out code has taken its place (this is available on the spine). This could cause screening slippage at some services as the cohort definition has now been changed. This effect could be felt for the 36 months following implementation.
Reporting	<p>Reporting focus: screening service</p> <p>Data source: NBSS</p>

	Responsible for submission: screening service Monthly and quarterly (produced 4 weeks in arrears).
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BSP Standard 4	Test and minimising harm: repeat examination rate
Rationale	Sometimes images need to be repeated if the quality of the first image is not adequate for diagnostic reporting. This involves repeating the mammogram and there is a balance between radiation dose and image quality. Services should aim to deliver the optimum image quality with as low a radiation dose as possible. The number of repeat examinations is monitored to ensure good quality practice.
Objective	To minimise the number of women undergoing repeat examinations to minimise anxiety and exposure to radiation.
Criteria	The proportion of repeat examinations (due to technical recalls or technical repeats) by service (also recommended by practitioner).
Definitions	Numerator: total number of women requiring repeat examinations Denominator: total number of women attending screening (Both within defined period expressed as a percentage.) The measure is calculated with the trainee mammographers. Repeat mammography rates may be higher for trainee mammographers (radiographers and assistant practitioners) than trained staff. It is advisable to calculate the rates both including and excluding trainees.
Performance thresholds	Acceptable: <3% Achievable: <2%
Mitigations	Not applicable
Reporting	Reporting focus: screening service Data source: NBSS Responsible for submission: screening service Monthly and quarterly (produced 4 weeks in arrears).

BSP Standard 5	Minimising harm: recording appropriate radiation dose
Rationale	To ensure that the radiation dose from the mammograms used for screening and assessment is as low as possible. To ensure the minimum harm to women from the radiation used whilst providing sufficient image quality for cancer detection.
Objective	To limit the amount of radiation dose to the glandular tissues of the breast from mammograms.
Criteria	Mean glandular dose (MGD) per view for a standard breast in clinical settings.
Definitions	The method of estimating the mean glandular dose to a standard breast using a 45mm thick Perspex (PMMA) phantom is described in

	<p>'Commissioning and routine testing of full field digital mammography systems' (NHSBSP Equipment Report 0604): www.gov.uk/government/publications/breast-screening-digital-mammography-commissioning</p>
Performance thresholds	Acceptable: $\leq 2.5\text{mGy}$
Mitigations	Not applicable
Reporting	<p>Reporting focus: screening service digital mammography (2-D) equipment Data source: screening service physics survey report Responsible for submission: screening unit physics service The MGD to the standard breast for each mammography system used in the NHSBSP is measured by a medical physics service routinely every 6 months and after major changes to the equipment, and reported through the Quality Control system.</p>

BSP Standard 6	Minimising harm and diagnosis: image quality																			
Rationale	This standard is to ensure the technical image quality of mammograms used for screening and assessment is sufficient to achieve the objectives of cancer detection.																			
Objective	To maximise the numbers of cancers detected.																			
Criteria	Threshold gold thickness measured using the CDMAM test object.																			
Definitions	<p>The method of measuring threshold gold thickness is described in 'Commissioning and routine testing of full field digital mammography systems' (NHSBSP Equipment Report 0604): www.gov.uk/government/publications/breast-screening-digital-mammography-commissioning Software is provided by the NHSBSP to automate the analysis of CDMAM images for 0.1 to 1.0 mm detail sizes.</p>																			
Performance thresholds	<table border="1"> <thead> <tr> <th></th> <th colspan="2">Threshold gold thickness (μm)*</th> </tr> <tr> <th>Diameter of detail (mm)</th> <th>Minimum acceptable value</th> <th>Achievable Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>≤ 0.091</td> <td>≤ 0.056</td> </tr> <tr> <td>0.5</td> <td>≤ 0.150</td> <td>≤ 0.103</td> </tr> <tr> <td>0.25</td> <td>≤ 0.352</td> <td>≤ 0.244</td> </tr> <tr> <td>0.1</td> <td>≤ 1.68</td> <td>≤ 1.10</td> </tr> </tbody> </table> <p>* Lower values of threshold gold thickness indicate better image quality</p>			Threshold gold thickness (μm)*		Diameter of detail (mm)	Minimum acceptable value	Achievable Value	1	≤ 0.091	≤ 0.056	0.5	≤ 0.150	≤ 0.103	0.25	≤ 0.352	≤ 0.244	0.1	≤ 1.68	≤ 1.10
	Threshold gold thickness (μm)*																			
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0.5	≤ 0.150	≤ 0.103																		
0.25	≤ 0.352	≤ 0.244																		
0.1	≤ 1.68	≤ 1.10																		

Mitigations	If a measurement appears to be above the standard, the CDMAM test object should be considered as there is some variability in measurement between test objects.
Reporting	Reporting focus: screening service digital mammography (2-D) equipment Data source: screening service physics survey report Responsible for submission: screening unit physics service The image quality for each mammography system used in the NHSBSP is measured by a medical physics service every 6 months and reported through the Quality Control system.

BSP Standard 7	Minimising harm: receipt of screening results
Rationale	It is essential that women receive the results of screening in a timely manner.
Objective	To minimise anxiety for women who are awaiting the results of screening.
Criteria	The proportion of women who are sent their result within 2 weeks of an adequate screen.
Definitions	Numerator: total adequately screened women sent results within 2 weeks Denominator: total adequately screened women sent results (Both within defined period expressed as a percentage.)
Performance thresholds	Acceptable: $\geq 95\%$ Achievable: 100%
Mitigations	Not applicable
Reporting	Reporting focus: screening service Data source: NBSS Responsible for submission: screening service Monthly and quarterly (produced 4 weeks in arrears).

BSP Standard 8	Minimising harm: referral to assessment rates
Rationale	High specificity assessment rates should be examined together with cancer detection rates to ensure that both screening specificity and sensitivity are maximised. Those responsible for interpreting the images from breast screening need to ensure that they are recalling the right women with abnormalities which require further investigation, whilst not recalling too many women where no abnormalities are subsequently found.
Objective	To minimise the number of women screened who are referred for further tests, whilst trying to minimise false negative rates.
Criteria	The proportion of eligible women with a technically adequate screen

	who are referred for assessment.
Definitions	Numerator: number of adequately screened women referred for assessment Denominator: total number of eligible women with a technically adequate screen (Both within defined period expressed as a percentage.)
Performance thresholds	Acceptable: < 10% (prevalent screen) < 7% (incident screen) Achievable: <7% (prevalent screen), <5% (incident screen)
Mitigations	Screening services may not always seek to reduce recall rates depending on levels of cancer detection. Where particularly high cancer detection rates are found it may not always be feasible to reduce referral for assessment rates. New image readers are expected to have higher rates of referral on average than experienced readers.
Reporting	Reporting focus: screening service Data source: NBSS (KC62 report) Responsible for submission: screening service Quarterly (6 weeks in arrears), and annually (definitive data) 6 months in arrears. Prevalent screen includes women aged 45 to 52 (from KC62 Table A). Incident screen includes women aged 50 to 70 (from KC62 Table C1).

BSP Standard 9	Minimising harm: short-term recall rates
Rationale	Every effort should be made to obtain a definitive diagnosis at initial assessment. Short-term recall should be used only in exceptional circumstances and with informed consent, as it is associated with significant anxiety.
Objective	To minimise the number of women who are recalled for further tests one year after previous assessment.
Criteria	The percentage of women screened who are placed on short term recall.
Definitions	Numerator: number of eligible women screened given short-term recall appointment Denominator: number of eligible women adequately screened (Both within defined period expressed as a percentage.)
Performance thresholds	Acceptable: <0.25% Achievable: <0.12% There are rare occurrences when a short term recall may be justified but women should not receive more than one short term recall outcome within a normal 3 yearly screening episode.
Mitigations	Not applicable

Reporting	<p>Reporting focus: screening service Data source: NBSS (KC62, table T, aged 50 to 70) Responsible for submission: screening service Quarterly (6 weeks in arrears), and annually (definitive data) 6 months in arrears.</p>
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BSP Standard 10	Minimising harm: time to first offered appointment for assessment
Rationale	It is important to minimise anxiety in women who need to attend for further screening tests to obtain a definitive malignant, benign or normal diagnosis
Objective	To minimise the interval from the screening mammogram to assessment.
Criteria	The percentage of women who are offered an appointment at an assessment centre within three weeks of attendance for the screening mammogram.
Definitions	<p>Numerator: number of eligible women whose first offered appointment for assessment is within 3 weeks of an initial adequate screen Denominator: number of eligible women referred for assessment (Both within defined period expressed as a percentage.)</p> <p>Cancellations to attend assessment by the patient do not impact on the first offered appointment date. Cancellations by the service to a later assessment date will extend the waiting time.</p> <p>It is useful to examine this standard in conjunction with the time from screening mammogram to actual attendance at assessment to ensure that actual waiting times are being minimised</p>
Performance thresholds	<p>Acceptable: >98% Achievable: 100%</p>
Mitigations	Not applicable
Reporting	<p>Reporting focus: screening service Data source: NBSS Responsible for submission: screening service Monthly and quarterly (6 weeks in areas).</p>

BSP standard 11	Minimising harm: number of assessment visits to obtain a definitive diagnosis
Rationale	It is important to reduce anxiety in women by aiming to minimise the number of assessment visits required in order to obtain a definitive diagnosis. An early non-operative diagnosis of malignancy is highly desirable as it allows informed pre-treatment counselling of the patient and facilitates one-stage treatment thus ensuring that anxiety is minimised.
Objective	The number of diagnostic assessment visits needed to achieve a definitive outcome should be as low as possible.
Criteria	The minimum standard is that 95% of women should require no more than 3 separate visits for diagnostic assessment (including visits to receive results). The number of visits will depend on the structure of the assessment process; however no more than 2 needle biopsy procedures carried out on separate occasions should normally be needed to achieve a non-operative diagnosis.
Definitions	Numerator: number of women with ≤ 3 visits for diagnostic assessment and results appointments Denominator: number of eligible women attending assessment (Both within defined period expressed as a percentage).
Performance thresholds	Acceptable: $\geq 95\%$
Mitigations	In some circumstances, repeated visits may be necessary where difficult to diagnose lesions are found to be multi-focal or the multi disciplinary team (MDT) requires further investigations to be undertaken. Some services may not have the resources to allow all investigations to be undertaken in one visit. This may lead to more than 2 visits for further diagnostic tests on occasion.
Reporting	Reporting focus: screening service Data source: NBSS Responsible for submission: screening service Annually as part of the Association of Breast Surgery (ABS) audit

BSP Standard 12	Minimising harm: benign biopsies rates
Rationale	To minimise unnecessary surgery. The number of open surgical biopsies performed as a result of screening that prove to be benign should be as low as possible given high rates of non-operative diagnosis in the programme.
Objective	To minimise the number of unnecessary operative procedures.
Criteria	To minimise the rate of surgical benign biopsies.

Definitions	Numerator: number of surgical biopsies with a benign or normal histological outcome Denominator: number of eligible women with a technically adequate screen (Both within defined period expressed as a rate per 1000 screened).
Performance thresholds	Acceptable: < 1.5/1000 (prevalent screen) < 1.0/1000 (incident screen) Achievable: <1/1000 (prevalent screen), <0.75/1000 (incident screen)
Mitigations	Lack of availability or access to vacuum assisted biopsy could impact on the number of women referred onwards to open surgical biopsy.
Reporting	Reporting focus: screening service Data source: NBSS (KC62) Responsible for submission: screening service 6 monthly (provisional data), annually (definitive data) 6 months in arrears. Prevalent screen includes women aged 45 to 52 (from KC62 Table A). Incident screen includes women aged 50 to 70 (from KC62 Table C1).

BSP Standard 13	Diagnose: rates of non-operative diagnosis
Rationale	It is important to minimise the number of operative procedures and to enable treatment planning in advance of surgery.
Objective	To ensure that the majority of cancers (both palpable and impalpable) receive a non-operative tissue diagnosis of cancer.
Criteria	The number of women who have a non-operative diagnosis of cancer by needle histology or cytology after a maximum of 2 visits expressed as a proportion of all women screened diagnosed with breast cancer.
Definitions	Numerator: number of women with non-operative diagnosis (within 2 visits to assessment) Denominator: number of women diagnosed with breast cancer (Both within defined period expressed as a percentage.)
Performance thresholds	Acceptable: ≥90% (invasive disease), ≥85% (non-invasive disease) Achievable: ≥ 95% (invasive disease), ≥ 90% (non-invasive disease)
Mitigations	Services should report non-invasive diagnosis rates both with and without lobular carcinoma in situ (LCIS) as this will impact on non-operative diagnosis rates achievable.
Reporting	Reporting focus: screening service Data source: NBSS (KC62, table T, 50 to 70) and Association of Breast Surgery audit for information on non-invasive rates with/without LCIS (annually) Responsible for submission: screening service Bi-annually (provisional data), annually (definitive data) 6 months in arrears.

BSP Standard 14	Diagnose: age standardised detection ratios (SDRs) for invasive cancers
Rationale	It is important to compare cancer detection between screening services with differing mean ages of screening populations, as the age of women screened is a major determinant of cancer detection rates. This is corrected for by using a standardised detection ratio (SDR). This allows the observed invasive cancers to be compared to the expected number of invasive cancers, given the age distribution of the population screened.
Objective	To maximise the numbers of invasive cancers detected.
Criteria	The SDR is the ratio of the observed number of invasive cancers to the expected number in the eligible population invited and screened.
Definitions	<p>Numerator: number of women with invasive cancer in eligible women screened</p> <p>Denominator: the expected number of invasive cancers in eligible women screened (Both within defined period.)</p> <p>The expected number of cancers is based on applying criteria from the Swedish Two Counties randomised control trial which is used as a comparator of performance.</p>
Performance thresholds	<p>Acceptable: 1.00</p> <p>Achievable: 1.40</p>
Mitigations	<p>The reporting breast screening service may refer women for treatment to alternative providers. Sometimes it can be difficult to obtain the pathology and treatment details accurately for entry onto NBSS which may mean that cancers are under-reported by the host service where the woman was initially screened.</p> <p>The ability of a screening service to maintain screening round length standards over the period should be analysed. Round lengths shorter than 36 months or longer than 36 months may have an impact on rates of cancer detection.</p>
Reporting	<p>Reporting focus: screening service</p> <p>Data source: NBSS</p> <p>Responsible for submission: screening service</p> <p>Bi-annually (provisional data), annually (6 months in arrears: definitive data).</p> <p>Prevalent screen includes women aged 45 to 70 (from KC62 Table A + B).</p> <p>Incident screen includes women aged 50 to 70 (from KC62 Table C1).</p>

BSP Standard 15	Diagnose: small cancer age standardised detection ratios (invasive cancers)
Rationale	To achieve a significant reduction in breast cancer mortality it is of significant importance that small invasive breast cancers (< 15 mm diameter) are detected.
Objective	To maximise the numbers of small cancers detected.
Criteria	The SDR is the ratio of the observed number of invasive cancers to the expected number in the eligible population invited and screened. Small cancers (<15mm in diameter) are expected to be 55% of the expected overall number of invasive cancers.
Definitions	Numerator: number of women with invasive cancer diagnosed <15mm in diameter Denominator: the expected number of invasive cancers diagnosed <15mm in diameter (Both within a defined period.)
Performance thresholds	Acceptable: 1.00 Achievable: 1.40
Mitigations	The size distribution of all invasive cancers should be examined to establish whether there is any 'rounding up' of cancers measuring between 14mm and 15mm by pathologists. If this is shown, it may reduce the numbers of small cancers detected. Host screening services may refer women for treatment to alternative providers. Sometimes it can be difficult to obtain the pathology and treatment details accurately for entry onto NBSS which may mean that cancers may be under-reported by the host service where the woman was initially screened. Ability of a screening service to maintain screening round length standards over the period should be analysed. Round lengths shorter than 36 months or longer than 36 months may have an impact on rates of cancer detection.
Reporting	Reporting focus: screening service Data source: NBSS (KC62,) Responsible for submission: screening service Bi-annually (provisional data), annually (definitive data) 6 months in arrears. All screens aged 45 to 70 (from KC62 Tables A+B+C1).

BSP Standard 16	Diagnose: non-invasive cancer detection rates
Rationale	Detection of non-invasive cancer at screening (predominantly ductal carcinoma in situ (DCIS)), particularly high grade types, is assumed to be a factor contributing to long-term reduction in mortality. No firm scientific evidence currently exists to confirm this. The majority of DCIS detected at screening is of the high-risk type. It is believed to be good practice to detect and treat DCIS.
Objective	To ensure that the detection rate of non-invasive cancer is maximised

	(particularly high grade disease).
Criteria	The rate of cancers detected that are non-invasive (<i>in situ</i>) carcinoma.
Definitions	Numerator: number of women with non and micro-invasive cancers Denominator: number of eligible women with a technically adequate screen.(Both within defined period expressed as a rate per 1000 screened.)
Performance thresholds	Acceptable: $\geq 0.5/1000$ (prevalent screen), $\geq 0.6/1000$ (incident screen) Achievable: Not applicable Some experts have argued that detection of this stage of breast carcinoma may represent over diagnosis (detecting disease which would never become clinically apparent or threaten life) and causes anxiety and physical harm (unnecessary surgery). Others suggest that detection of DCIS is important because it is a precursor of invasive carcinoma. Until the Sloane Study can give definitive evidence, programme advice is to maximise detection of non-invasive cancer (particularly high grade disease).
Mitigations	Not applicable
Reporting	Reporting focus: screening service Data source: NBSS (KC62) Responsible for submission: screening service Bi-annually (provisional data), annually (definitive data) 6 months in arrears. Prevalent screen includes women aged 45 to 70 (from KC62 Table A). Incident screen includes women aged 50 to 70 (from KC62 Table C1).

BSP Standard 17	Diagnose: staging of the axilla
Rationale	It is important to allow planning for appropriate patient management at the earliest opportunity if suspected or diagnosed cancer has spread to the axilla.
Objective	To ensure adequate staging of the axilla in patients with invasive breast cancer.
Criteria	Patients treated surgically for early invasive breast cancer should have an axillary staging procedure carried out if metastatic nodal metastasis is not confirmed non-operatively.
Definitions	Numerator: number of women with invasive breast cancer with an axillary staging procedure Denominator: number of women with invasive breast cancer (Both within defined period expressed as a percentage.)
Performance thresholds	Acceptable: $>90\%$ Achievable: 100%
Mitigations	Not applicable
Reporting	Reporting focus: screening service Data source: NBSS

	Responsible for submission: screening service Annually all ages as part of the Association of Breast Surgery (ABS) audit.
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BSP Standard 18	Outcomes: rates of interval cancers
Rationale	Cancers that are detected between screens (interval cancers) decrease the likelihood of reducing mortality in the eligible screening population.
Objective	To minimise the number of interval cancers presenting between screening episodes.
Criteria	The number of interval cancers per 1000 women screened.
Definitions	Numerator: number of women eligible for screening presenting with interval cancers within 36 months of a previous screen Denominator: total number of eligible women screened (Number of women screened within a screening year and interval cancers arising within 36 months of the specified period expressed as a rate per 1000 screened.)
Performance thresholds	<p>Acceptable:</p> <ul style="list-style-type: none"> • <0.65/1000 diagnosed <12 months of the previous screen • <1.40/1000 diagnosed between 12 and <24 months of the previous screen • <1.65/1000 diagnosed between 24 and <36 months of the previous screen <p>Achievable: Not applicable</p> <p>Analysis of interval cancer data should take place at screening service level aggregating several years' performance. The number of interval cancers occurring in individual screening units each year is relatively small and analysis of them is likely to be meaningful only when several years' data are available.</p> <p>Interval cancers should be examined alongside other screening data (such as SDRs) when considering the performance of a breast screening programme. Failure to achieve interval cancer targets may coincide with high rates of cancer detection and may reflect higher than expected rates of cancer prevalence in the underlying population or failure to meet screening round length targets.</p> <p>Ability of a screening service to maintain screening round length standards over the period should be analysed as round lengths shorter than the target of 36 months or longer than the target 36 months may have an impact on rates of interval cancer detection.</p>
Mitigations	Not applicable

Reporting	Reporting focus: screening service Data source: NBSS & Screening Histories Information Management system (SHIM) Responsible for submission: screening service Annual audit for women aged 47 to 73 at screening.
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Appendix 1: glossary

Term	Definition
Axilla	The axilla is a pyramidal space between the upper lateral part of the chest and the medial side of the arm. More commonly known as the armpit.
Benign surgical biopsy	A surgical diagnostic biopsy where the outcome is normal or not malignant.
Breast Screening Select	A national database which holds details of all eligible women for screening. It is used by services to call and recall women to screening appointments. It has replaced the functionality of the NHAIS system for call/recall.
CDMAM test object	A device used by medical physicists to measure mammographic image quality. It consists of an array of gold disks of different sizes and thicknesses.
Coverage	Coverage is defined as the percentage of women in the population who are eligible for screening at a particular point in time who have had a test with a recorded result at least once within the screening round (past 36 months).
Data source	Where data are produced.
Denominator	The part of a fraction that is below the line and that functions as the divisor of the numerator.
Eligible screening population	<p>Women between the ages of 50 to 70 and registered with a GP are eligible for screening. Women who are ineligible for screening due to having had a bilateral mastectomy, women who are ceased from the programme based on a 'best interests' decision under the Mental Capacity Act 2005 or women who make an informed choice to remove themselves from the screening programme will be removed from the numerator and denominator.</p> <p>Women aged over 70 are eligible to be screened if they self-refer.</p> <p>There are a number of categories of women in the eligible age range who are not registered with a GP and subsequently not called for screening as they are not on the Breast Screening Select database. Screening units have a responsibility to maximise coverage of eligible women in their target population and should therefore be accessible to women in this category through self-referral and GP referral (for example diplomats, UK residents temporarily working abroad, missionaries, armed forces personnel and residents of long stay hospitals).</p>
Impalpable	An abnormality in the breast which cannot be felt by hand and can be seen on mammography.

Incident screen	Screening of women previously screened within the NHS breast screening programme who have been screened within the last 5 years (table C1 in KC62 statistical return).
Interval cancer	Breast cancers diagnosed in the interval between scheduled screening episodes (36 months) in women who have been screened and issued with a normal screening result.
Invasive cancer	A malignant tumour which has spread to invade cells outside of the milk duct walls and into the surrounding breast.
Mean glandular dose	The X-ray energy deposited in the glandular tissue of a breast, or in a block of Perspex used as a model for the breast.
Non-invasive cancer (including ductal carcinoma in situ (DCIS))	An early form of carcinoma. These are cancerous cells but they have not started to grow outside of the milk duct walls.
Numerator	The part of a fraction that is above the line and signifies the number to be divided by the denominator.
Palpable	An abnormality in the breasts which can be felt by hand.
Prevalent screen	Screening of women never previously screened within the NHS breast screening programme. Within the standards it relates to women's first ever screening appointment (table A in KC62 statistical return).
Reporting focus	This is the granularity at which the data is produced for example individual, service or local authority level.
Sensitivity	The ability to correctly detect disease in the eligible screening population who have the disease.
Screening round length	The 36 month period by which all eligible women should receive their next screening invitation following a previous screen.
Short term recall	A second invitation to attend an assessment clinic at less than the routine (36 months) screening interval. This is usually one year after the initial screening appointment.
Specificity	The ability to correctly exclude disease in the eligible screening population who do not have the disease.
Standard breast	The standard breast is a 45mm thickness of Perspex, used as a model to measure the mean glandular dose to an equivalent average breast (53mm thick).
Standardised detection ratio (SDR)	The ratio of the observed number of invasive cancers to the expected number. The calculation is based on applying criteria from the Swedish Two Counties randomised control trial which is used as the comparator for performance. An SDR of 1 equates to parity with this trial.
Threshold gold thickness	The smallest thickness of the gold disks, of a specified size, that can be detected in the image of a CDMAM test object.