Public Health England

NHS

Consolidated Standards for NHS Breast Screening Programme

April 2017

Public Health England leads the NHS Screening Programmes

About Public Health England

Public Health England 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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Contents

Summary of changes to standards

Standard	Previous standard	Revised standard	Rationale
8. 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%, IQR 98.1%-99.6%)
9. Referral to assessment rate targets	Prevalent screen <10% minimum <7% target (Table A aged 50-52)	Prevalent screen <10% acceptable <7% achievable **(Table A aged 45-52)**	Age range adjusted to allow comparability between services participating and not participating in the age extension trial
	Incident screen <7% minimum <5% target (Table C1 aged 53-70)	Incident screen <7% acceptable <5% achievable **(Table C1 aged 50-70)**	Age range adjusted to allow comparability between services participating and not participating in the age extension trial
11. Time to first offered appointment for assessment	Percentage of women who attend an assessment centre within three weeks of attendance for the screening mammogram Minimum ≥90% Target 100%	The percentage of women who are **offered** an appointment at an assessment centre within three weeks of attendance for the screening mammogram **Acceptable >98%** **Achievable 100%**	The acceptable standard has been revised from attended to offered appointment as it is the services responsibility to offer an 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
13. Benign	Minimum	Acceptable	Age range and cohort

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biopsy rates	<1.5/1000 (prevalent screen) Target <1.0/1000 (prevalent) Table A aged (50-52) Minimum <1.0/1000 (incident screen) Target <0.75/1000 (incident screen) Table C1 aged 53-70	<1.5/1000 (prevalent screen) Achievable <1.0/1000 (prevalent) **Table A aged (45-52)** Acceptable <1.0/1000 (incident screen) Achievable <0.75/1000 (incident screen) **Table C1 aged 50-70**	group adjusted to allow comparability between services participating and not participating in the age extension trial
Invasive cancer detection rates (withdrawn)	Prevalent screen >=2.70/1000 minimum >=3.60/1000 target Incident screen >= 3.10/1000 minimum >= 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

15. Invasive cancer standardised detection ratios	Prevalent screen ≥1.00 minimum, ≥1.40 target (Table A aged 50-70) Incident screen ≥1.00 minimum, ≥1.40 target (Table C1 aged 50-70)	Prevalent screen ≥ 1.00 acceptable ≥1.40 achievable **(Table A+B aged 45-70)** Incident screen ≥1.00 acceptable, ≥1.40 achievable **(Table C1 aged 50-70)**	Age range and cohort group adjusted to allow comparability between services participating and not participating in the age extension trial
19. Interval cancer rates	<24 months <1.20/1000 24<36 months <1.40/1000	<**12 months 0.65/1000 12<24 months 1.40/1000 24<36 months 1.65/1000**	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

Introduction

This document presents the national standards for the Breast Screening Programme (BSP). Previous standards were documented in Quality Assurance Guidelines published for all disciplines represented in the BSP. These standards have been reviewed and replace the standards which have been published in previous Programme publications. This BSP Standards document has an implementation date of April 2017.

The national BSP 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 (BSP)

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

The BSP has responsibility for implementing this policy. The service specification (No. 24) for the NHS providers is available as part of the public health functions exercised by NHS England (https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2016/02/serv-spec-24.pdf)

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.

Format of the standards

The format of 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

Scope and terminology - process standards

The scope is standards that assess the screening process and allow for continuous improvement. This enables providers and commissioners to identify where improvements are needed.

To clarify what is measured each process standard has three parts:

- Objective: the aim of the standard
- Criteria: what is being assessed
- Performance thresholds: two thresholds (acceptable and achievable) are specified. These thresholds, definitions and reporting levels are approved by the National Screening Data Group.

    - The **acceptable** threshold is the lowest level of performance services are expected to attain 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 represents the level at which the services are likely to be running optimally; screening services should aspire towards attaining and maintaining 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

Two 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 are “provision of information to all participants” and “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.

- Outcome standards: Outcomes of the screening pathway are influenced by screening as well as factors beyond the local screening service. The national BSP collects data and reports on interval cancers. These are audited annually and results published on .gov.uk website.

- These standards cover the screening journey up to and including treatment. Prospectively, Public Health England 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 Surgeons (ABS) professional wesites. However, in the interim until revised Programme guidance is issued, some of their standards are still published on the breast screening webpage of the .gov.uk website. Future publications relating to breast screening pathology and surgery will only be published on the RCPath and ABS websites. However, the BSP will be fully consulted in any proposed standards for the Programme and will acknowledge standards, following full consultation and approval by key stakeholders and approval where they are published on professional websites.

Screening pathway

The standards are based on ten themes that assess the whole pathway:

- Identify population (to accurately identify the population to whom screening is offered)
- Inform (to maximise informed choice across the screening pathway)
- Coverage/Uptake (to maximise uptake in the eligible population who are informed and wish to participate in the screening programme)
- Test (to maximise accuracy of screening test from initial sample or examination to reporting the screening result)
- Diagnose (to maximise accuracy of diagnostic test)
- Intervention/Treatment (to facilitate high quality and timely intervention in those who wish to participate)
- Outcome (to optimise individual and population health outcomes in the eligible population)
- Minimising Harm (to minimise potential harms in those screened and in the population)
- Staff: 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)
- Commissioning/Governance (to ensure effective commissioning and governance of the screening programme).

Reporting standards

Standards will be reported at the intervals detailed in this document: monthly, quarterly, bi-annually or annually. Performance reports are produced by BSP using information from the national breast screening system (NBSS). National reports (KC62) are produced six months after fiscal year (April-March) end with a submission deadline of 30 October.

Revising standards

It is anticipated that standards will be reviewed in line with the service specifications on a three yearly basis.

Other resources to support providers and commissioners

This document focuses on process standards to enable providers and commissioners to continuously improve the quality of the screening programme. Additional BSP operational guidance is included on the .gov.uk website (https://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, socioeconimc status and other protected characteristics) and screening outcomes can be considered avoidable and unfair.

Review of performance at a local level by population group may indicate inequity in whether or not women enter, complete the screening pathway or access services within optimal timescales. Tools that can be used to help local services and commissioners consider how to improve equity of access are NHS England's Equality Diversity System and PHE's Health Equity Assessment Tool (http://phenet.phe.gov.uk/Our-Organisation/Directorates/Health-and-Wellbeing/Health-Equity/Pages/Health-Equity-Assessment-Tool.aspx)

The NHSBSP Standards

BSP Standard 1	Inform: timely invitation letter sent to eligible women
Rationale	A key objective of the programme is to give women sufficient notice to be able to attend screening appointments allowing practical arrangements to be made to enable attendance and giving time for women to make an informed choice of whether to take up the offer of screening
Objective	To ensure that an appropriate timely and accessible screening invitation is sent to all eligible women
Criteria	The percentage of screening invitation letters giving at least two weeks notice of the appointment date
Definitions	Numerator: Number of first offered invitations with ≥ 2 weeks before appointment date (50-70) Denominator: Total first offered invitations sent out to eligible screening population (50-70) (both within defined period expressed as a percentage) This excludes self and GP referrals
Performance thresholds	Acceptable ≥95% Achievable =100%
Mitigations/ qualifications	N/A
Reporting	*Reporting focus: screening service* *Data source: NBSS (to be developed)* *Responsible for submission: screening service* *Reporting period: Monthly (4 weeks in arrears)* *Quarterly (4 weeks in arrears)*

BSP Standard 2	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	Numerator: Number of eligible women aged 53-70 registered with a GP with a screening test result recorded in the past 36 months Denominator: Number of eligible women aged 53-70 registed with a GP (both within defined period expressed as a percentage) Women who are ineligible for screening due to having previously had a bi-lateral 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 decision to remove themselves from the screening programme will be removed from the numerator and denominator 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
Performance thresholds	Acceptable ≥70% Achievable ≥80%
Mitigations	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. 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. Some patient treatment regimes may expand beyond 6 months (eg, where neo-adjuvant therapies administered) which will mean some patient episodes will not be closed within 6 months. 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.
Reporting	*Reporting focus: Local Authority* *Data source: Breast Screening Select* *Responsible for submission: Exeter, NHS Digital* *Monthly and annual reporting schedules (6 months in arrears)*

BSP Standard 3	**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	Numerator: Total eligible women attending screening (within 6 months of data of first offered appointment Denominator; Total eligible women with date of first offered appointment within the period (both within defined period expressed as a percentage)

	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.
Performance thresholds	Acceptable ≥70% Achievable ≥80%
Mitigations	N/A
Reporting	*Reporting focus: screening service* *Data source: NBSS (KC62 report: Tables A-C2 aged 50-70)* *Responsible for submission: screening service* Data on this indicator will only be accurate 6 months after the end of 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. Quarterly (provisional data produced 4 weeks in arrears) Annual (definitive data produced 6 months in arrears)
Equity impact	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 . Analysis of uptake rates by GP screening practice are recommended.

BSP Standard 4	**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	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 Denominator: Total number of eligible women (50-70 yrs) screened (both within defined period expressed as a percentage) This excludes self and GP referrals
Performance thresholds	Acceptable ≥90% Achievable 100%

Mitigations	Breast Screening select was introduced in July 2016. This has replaced 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	*Reporting focus: screening service* *Data source: NBSS* *Responsible for submission: screening service* Monthly and quarterly (produced 4 weeks in arrears)

BSP Standard 5	**Test and minimising harm: Repeat examination rate**
Rationale	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. To ensure good quality practice the number of repeat examinations is monitored.
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 film readers Repeat mammography rates may be higher for trainee mammographers or assistant practitioners than trained staff. It is advisable to calculate the rates both including and excluding trainees.
Performance thresholds	Acceptable <3% Achievable <2%
Mitigations	N/A
Reporting	*Reporting focus: screening service* *Data source: NBSS* *Responsible for submission: screening service* Monthly and quarterly (produced 4 weeks in arrears)

BSP Standard 6	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 and 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 "Commissioning and routine testing of full field digital mammography systems" (NHSBSP Equipment Report 1303) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/442720/nhsbsp-equipment-report-1303.pdf
Performance thresholds	Acceptable ≤2.5mGy
Mitigations	N/a
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 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.

BSP Standard 7	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	The method of measuring threshold gold thickness is described in "*Commissioning and routine testing of full field digital mammography systems*" (NHSBSP Equipment Report 1303). https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/442720/nhsbsp-equipment-report-1303.pdf Software is provided by the NHSBSP to automate the analysis of CDMAM images for 0.1 to 1.0 mm detail sizes.

<table>
<tr><td>Performance thresholds</td><td>
<table>
<tr><td></td><td colspan="2">Threshold gold thickness (µm)*</td></tr>
<tr><td>Diameter of detail (mm)</td><td>Minimum acceptable value</td><td>Achievable Value</td></tr>
<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>
</table>
* Lower values of threshold gold thickness indicate better image quality
</td></tr>
<tr><td>Mitigations</td><td>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</td></tr>
<tr><td>Reporting</td><td>Reporting focus: screening service digital mammography (2-D) equipment
Data source: NBSS
Responsible for submission: screening 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</td></tr>
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BSP Standard 8	**Minimising harm: receipt of screening results**
Rationale	It is essential that women receive the results of screening in a timely manner to ensure those who require further tests and those who do not are informed at the earliest opportunity
Objective	To minimise anxiety for women who are awaiting the results of screening
Criteria	The proportion of women who are sent their result within two 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 ≥95% Achievable 100%
Mitigations	N/a
Reporting	*Reporting focus: screening service* *Data source: NBSS* *Responsible for submission: screening service* *Monthly and quarterly (produced 4 weeks in arrears)*

BSP Standard 9	Minimising harm: referral to assessment rates
Rationale	To encourage high specificity and 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 45-52 (from KC62 Table A) Incident screen includes women aged 50-70 (from KC62 Table C1)

BSP Standard 10	Minimising harm:short-term recall rates
Rationale	Every effort should be made to obtain a definitive diagnosis at initial assessment and 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 occurences when a short-term recall may be justified but women should not receive more than one short-term recall outcome within a normal three yearly screening episode
Mitigations	N/a
Reporting	*Reporting focus: screening service* *Data source: NBSS (KC62, table T, aged 50-70)* *Responsible for submission: screening service* *Quarterly (6 weeks in arrears), and annually (definitive data 6 months in arrears)*

BSP Standard 11	**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	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)
Performance thresholds	Acceptable >98% Achievable 100%
Mitigations	N/a
Reporting	*Reporting focus: screening service* *Data source: NBSS* *Responsible for submission: screening service* *Monthly and quarterly (6 weeks in areas)*

BSP standard 12	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 ≥95%
Mitigations	In some circumstances, repeated visits may be necessary where difficult to diagnose lesions are found to be multi-focal or the 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 two 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 Surgeons audit

BSP Standard 13	Minimising harm: benign biopsies rates
Rationale	To minimise unnecessary surgery as 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 45-52 (from KC62 Table A) Incident screen includes women aged 50-70 (from KC62 Table C1)

BSP Standard 14	**Diagnose:rates of non-operative diagnosis**
Rationale	It is important to minimise the number of operative procedures necessary 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 two 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, 50-70) and ABS audit for information on with/without LCIS* *Responsible for submission: screening service* *Bi-annually (provisional data), annually (6 months in arrears-definitive data)*

BSP Standard 15	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 rate which 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	Numerator: Number of women with invasive cancer in eligible women screened Denominator: The expected number of invasive cancers in eligible women screened (both within defined period) 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
Performance thresholds	Acceptable 1.00 Achievable 1.40
Mitigations	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 may be under-reported by the host service where the woman was initially screened.
Reporting	*Reporting focus: screening service* *Data source: NBSS* *Responsible for submission: screening service* Bi-annually (provisional data), annually (6 months in arrears-definitive data) Prevalent screen includes women aged 45-70 (from KC62 Table A + B) Incident screen includes women aged 50-70 (from KC62 Table C1)

BSP Standard 16	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 standardised detection ration (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) should 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 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.
Reporting	*Reporting focus: screening service* *Data source: NBSS (KC62,)* *Responsible for submission: screening service* Bi-annually (provisional data), annually (6 months in arrears-definitive data) All screens aged 45-70 (from KC62 Tables A+B+C1)

BSP Standard 17	**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 although 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 rate of non-invasive cancer is maximised (particularly high grade disease)
Criteria	The rate of cancers detected that are non-invasive (*in situ)* 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 ≥0.5/1000 (prevalent screen), >=0.6/1000 (incident screen) Achievable n/a Some experts have argued that detection of this stage of breast carcinoma may represent overdiagnosis (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 they believe that 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	N/a
Reporting	*Reporting focus: screening service* *Data source: NBSS (KC62)* *Responsible for submission: screening service*

	Bi-annually (provisional data), annually (6 months in arrears-definitive data) Prevalent screen includes women aged 45-70 (from KC62 Table A) Incident screen includes women aged 50-70 (from KC62 Table C1)

BSP Standard 18	**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	n/a
Reporting	*Reporting focus: screening service* *Data source: NBSS* *Responsible for submission: screening service* Annually all ages as part of the Association of Breast Surgeons audit

BSP Standard 19	**Outcomes:rates of interval cancers**
Rationale	Cancers that are detected between screens (Interval Cancers) decrease the likelihood of reducing mortality in the elgible 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	Acceptable: <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

	Achievable: n/a Analysis of interval cancer data should take place at screening service level aggregating several years performance, as 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. Interval cancers should be examined alongside other screening data (such as SDRs) when considering the performance of a breast screening programme as 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
Mitigations	N/a
Reporting	*Reporting focus: screening service* *Data source: NBSS & Screening Histories Information Management system (SHIM)* *Responsible for submission: screening service* Annual audit for women aged 47-73 at screening

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	Following the failure to obtain a non-operative diagnosis of cancer cal biopsy where the outcome is normal or not malignant
Breast screening select	This is a national database which holds details of all eligible women for screening and is used by services to call and recall women to screening appointments. It has replaced the functionality of the Open Exeter system.
CD Mam 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	This describes where the data can be produced
Denominator	The part of a fraction that is below the line and that functions as the divisor of the numerator
Eligible screening population	Women between the ages of 50 to 70 are eligible for screening registered with a GP. Women who are ineligible for screening due to having previously had a bi-lateral 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 decision to remove

	themselves from the screening programme will be removed from the numerator and denominator Women aged over 70 are eligible to be screened if they self-refer 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 (eg, diplomats, UK residents temporarily working abroad, missionaries, armed forces personnel and residents of long stay hospitals)
Gold thickness (threshold)	The smallest thickness of the gold disks, of a specified size, that can be detected in the image of a CDMAM test object
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)
Invasive cancer	This is a malignant tumour which has spread to invade cells beyond the cell wall
Mean glandular dose	This is 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	This is an early form of carcinoma. There are cancerous cells but they have not started to grow outside of the cell wall.
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 ie, individual, service, local authority level
Sensitivity	The ability to correctly detect disease in the eligible screening population who have the disease
Screening round length	The screening round length for the breast screening programme is 36 months and all eligible women should receive a screening invitation within 36 months of a previous screen
Short term recall	A second invitation to attend an assessment clinic at less than the routine (36 months) screening interval. Usually after one year of 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 equivalent to 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)	This is the ratio of the observed number of invasive cancers to the expected number 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