

MONITORING NHSBSP STANDARDS

A GUIDE FOR QUALITY ASSURANCE REFERENCE CENTRES

Produced and updated six monthly by the National QA Coordinators' Group

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1. INTRODUCTION

This publication provides detailed instruction and guidance to Quality Assurance Reference Centres (QARCs) and other staff interested in measuring the performance of the NHS Breast Screening Programme (NHSBSP). It includes explanatory notes, details of data sources and calculations, and comments on ways in which the data should be used.

1.1 Data sources

The core activity and outcomes from local breast screening programmes are collected annually on the Department of Health (DH) KC62 return. Each table on the KC62 describes the activity for a defined cohort of women. An example is included as Appendix 1. The KC63 return summarises call and recall activity and is generated by Primary Care Organisations (PCOs) from the population database. An example is included as Appendix 2.

QARCs collate KC62 and KC63 data from local breast screening programmes on a regional basis and check their validity before they are used beyond local programme level (KC63 are first amalgamated by the NHSIA to PCO level before receipt by the QARCs). They also collect data about the performance of programmes from other sources, such as ad hoc reports from the screening and other computer systems and manual audits and surveys. Most QARCs produce a range of reports which include analysis and commentary. This includes comparison of the performance of local screening programmes against the NHSBSP national minimum standards, and comparisons of the performance of programmes within a region or with other programmes nationally.

The reports produced by QARCs are primarily intended to enable evaluation of the quality of the breast screening process. In addition, QARCs may also provide information on activity and quality to other organisations in their own regions; for example, the Regional Director of Public Health, strategic health authorities, PCOs and cancer networks. Care should be taken when using data from different reports to understand the basis on which they have been compiled.

1.2 DH Statistical Bulletin

The *Breast Screening Programme Statistical Bulletin* produced annually by the Department of Health Statistics Division is a summary of statistics for the NHSBSP (England only) derived from KC62 and KC63 returns. The purpose of this return is to report activity (eg numbers of women screened, numbers of cancers detected etc) in the NHSBSP. Although the Bulletin includes selected outcome measures, these are not necessarily calculated on the same basis as the outcome measures used to evaluate the quality of the NHSBSP and should not be used to compare the performance of programmes against national standards. Details of the current breast screening bulletin tables and the data sources are available from the DH Statistics Division.

1.3 NHSBSP Annual Review

The *NHSBSP Annual Review* includes selected statistics on activity and outcomes for the breast screening programmes across the UK. This is compiled by the Cancer Screening Evaluation Unit (CSEU) from KC62 and KC63 returns and equivalent in Northern Ireland, Wales and Scotland. Details of the data sources are available from the National Office.

1.4 Monitoring national standards

The purpose of monitoring national standards is to evaluate the quality of the NHSBSP. Data for monitoring several of the standards is derived from the KC62 returns. NHSBSP standards and targets were updated in 2003. This was primarily to reflect the expansion of the Programme to include women up to the age of 70. The source tables and calculations for age ranges 50-64 and 50-70 are summarised in Tables 1 and 2. More detailed explanations are given in the relevant chapters. Part 4 of each Table of the KC62 is a summary of outcome measures. These measures apply only to the cohort of women included in each Table and should not be used for comparison with the national standards unless specified in Table 1 and 2.

1.5 Publication of this document

It is important that the contents of this document complement NHSBSP guidelines which are continuously being updated. It is for this reason that the document will be published on the NHSPSP website (www.cancerscreening.nhs.uk) and as such will be a "live" document. It is the intention of the QA Co-ordinators National Group that the number of NHSBSP standards covered by this document will grow as guidance becomes available. The version published on the website should, therefore, be used to ensure that the most up to date guidance and advice on how to monitor the many NHSBSP standards is applied.

1.6 Acknowledgements

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Table 1: Summary of KC62 source tables and age groups to be used in the calculation of the NHSBSP Core standards for women aged 50-64 (These points are selected from the 16 Core Standards as they relate to the age band 50-64)

Objective	Criteria	Calculation	Minimum standard	Target
1.	To maximise the number of eligible women who attend for screening	Tables: A, B, C1, C2 Age: 50-64	≥ 70% of invited women to attend for screening	80%
2.	a) The rate of invasive cancers detected in eligible women	Table: A Age: 50-52	Prevalent screen ≥ 2.7 per 1,000	Prevalent screen ≥ 3.6 per 1,000
		Table: C1 Age: 53-64	Incident screen ≥ 3.0 per 1,000	Incident screen ≥ 4.0 per 1,000
		b) The rate of cancers detected which are in-situ carcinoma	Table: A Age: 50-52	Prevalent screen ≥ 0.4 per 1,000
	c) Standardised detection ratio (SDR)	Table: C1 Age: 53-64	Incident screen ≥ 0.5 per 1,000	
		Tables: A+B Age: 50-64	Prevalent screen ≥ 0.75	Prevalent screen ≥ 1.0
		Table: C1 Age: 50-64	Incident screen ≥ 0.75	Incident screen ≥ 1.0
		Tables: A, B, C1 Age: 50-64	Overall ≥ 0.75	Overall ≥ 1.0
3.	To maximise the number of small invasive cancers detected	Table: A Age: 50-52	Prevalent screen ≥ 1.5 per 1,000	Prevalent screen ≥ 2.0 per 1,000
		Table: C1 Age: 53-64	Incident screen ≥ 1.65 per 1,000	Incident screen ≥ 2.2 per 1,000
7.	a) The percentage of women who are referred for assessment	Table: A Age: 50-52	Prevalent screen < 10%	Prevalent screen < 7%
		Table: C1 Age: 53-64	Incident screen < 7%	Incident screen < 5%
	b) The percentage of women screened who are placed on short-term recall		< 1.0%	≤ 0.25%
8.	To ensure that the majority of cancers, both palpable and impalpable, receive a non-operative tissue diagnosis of cancer		≥ 80%	≥ 90%
9.	To minimise the number of unnecessary operative procedures	Table: A Age: 50-52	Prevalent screen < 3.6 per 1,000	Prevalent screen < 1.8 per 1,000
		Table: C1 Age: 53-64	Incident screen < 2.0 per 1,000	Incident screen < 1.0 per 1,000

Table 2: Summary of KC62 source tables and age groups to be used in the calculation of the NHSBSP 16 Core standards for women aged 50-70

Objective		Criteria	Calculation	Minimum standard	Target
1.	To maximise the number of eligible women who attend for screening	The percentage of eligible women who attend for screening	Tables: A, B, C1, C2 Age: 50-70	≥ 70% of invited women to attend for screening	80%
2.	To maximise the number of cancers detected	a) The rate of invasive cancers detected in eligible women	Table: A Age: 50-52 Table: C1 Age: 53-70	Prevalent screen ≥ 2.7 per 1,000 Incident screen ≥ 3.1 per 1,000	Prevalent screen ≥ 3.6 per 1,000 Incident screen ≥ 4.2 per 1,000
		b) The rate of cancers detected which are in-situ carcinoma	Table: A Age: 50-52 Table: C1 Age: 53-70	Prevalent screen ≥ 0.4 per 1,000 Incident screen ≥ 0.5 per 1,000	
		c) Standardised detection ratio (SDR)	Tables: A+B Age: 50-70 Table: C1 Age: 50-70 Tables: A, B, C1 Age: 50-70	Prevalent screen ≥ 0.85 Incident screen ≥ 0.85 Overall ≥ 0.85	Prevalent screen ≥ 1.0 Incident screen ≥ 1.0 Overall ≥ 1.0
3.	To maximise the number of small invasive cancers detected	The rate of invasive less than 15mm in diameter detected in eligible women invited and screened	Table: A Age: 50-52 Table: C1 Age: 53-70	Prevalent screen ≥ 1.5 per 1,000 Incident screen ≥ 1.7 per 1,000	Prevalent screen ≥ 2.0 per 1,000 Incident screen ≥ 2.5 per 1,000
7.	To minimise the number of women screened who are referred for further tests	a) The percentage of women who are referred for assessment	Table: A Age: 50-52 Table: C1 Age: 53-70	Prevalent screen < 10% Incident screen < 7%	Prevalent screen < 7% Incident screen < 5%
		b) The percentage of women screened who are placed on short-term recall		< 0.5%	≤ 0.25%
8.	To ensure that the majority of cancers, both palpable and impalpable, receive a non-operative tissue diagnosis of cancer	The percentage of women who have a non-operative diagnosis of cancer by cytology or needle histology after a maximum of two visits		≥ 80%	≥ 90%
9.	To minimise the number of unnecessary operative procedures	The rate of benign biopsies	Table: A Age: 50-52	Prevalent screen < 3.6 per 1,000	Prevalent screen < 1.8 per 1,000
			Table: C1 Age: 53-70	Incident screen < 2.0 per 1,000	Incident screen < 1.0 per 1,000

2. UPTAKE AND COVERAGE

	Objective	Criteria	Calculation	Minimum standard	Target
1.	To maximise the number of eligible women who attend for screening	The percentage of eligible women who attend for screening	Tables: A,B,C1,C2 Ages 50-64 Ages 50-70	≥70% of invited women to attend for screening	80%

Explanatory notes to national standards table

- The expected effectiveness of the NHSBSP is based on the minimum standard uptake of 70% of eligible invited women being screened. Current national data indicate that this standard is being achieved across the UK. However, it is recognised that in some localities this will prove very difficult to attain. Indeed, even in those regions which do attain well over 70% uptake, there may be PCOs or GP practices within PCOs where to achieve considerably less than 70%, for example 50%, may still be regarded as a considerable achievement. In these cases it could be considered that the objective of maximising the number of eligible women attending for screening in that GP practice has been achieved. This minimum standard and target relates to women aged 50-70 called or recalled for screening as part of the NHSBSP.

Monitoring performance against national standards

Uptake

Data source

KC62 Tables A, B, C1 & C2* **

Calculation

$\frac{\text{Number of women invited and screened (column 3)}}{\text{Number of women invited (column 1)}} \times 100\%$

*The calculation excludes women in Table D because women on short term recall are not being invited for screening to the screening clinic.

**The calculation should be run for women aged 50–64 until the programme has completed a full screening round of women aged 50-70

Coverage

Data source

KC63, produced by NHAIS.

Calculation

$\frac{\text{Number of women screened in last 3 years (column 14)}}{\text{Number of women resident as at – report period end date (col 3)–Number of women ineligible (col 4)}} \times 100\%$

Further comments for QARCs

In addition to calculating uptake for comparison with the national minimum standard and target, QARCs and local screening programmes may also wish to calculate uptake by specified age range, GP practice, PCT, or specified screening location. QARCs may need to gain some of these data from the local screening programme's manually gathered figures or from standard NBSS reports such as the GP Feedback Report. Although the new KC62 produces reports by PCT, it should be noted that the whole PCT population may not be covered by a single KC62 since PCT boundaries may overlap with more than one local screening programme.

An alternative measure of the performance of the screening programme is coverage. Coverage and uptake should be considered as part of the same quality issue. The relationship between coverage and uptake are illustrated graphically in Figure 1.

Coverage is a key performance indicator for PCOs. The data source for eligible women screened in the last three years is the KC63 return provided by PCOs. The KC63 returns are generated from the NHAIS ('Exeter') system which is used to administer the population register. It is the responsibility of the NHAIS system manager in each PCO to produce annual KC63 returns. The KC63 returns are adjusted nationally* to produce a complete KC63 return for each PCT. This is necessary because the KC63 returns produced by PCOs include all resident women. However some resident women will be registered with GP practices which 'belong' to a neighbouring PCT and are hence the responsibility of the neighbouring PCT in terms of screening coverage. The adjusted returns are then forwarded to the DH Statistics Division. QARCs have an opportunity to scrutinise the adjusted returns for sense and accuracy before they are published nationally.

It is difficult for full close validation of KC63 to be done by QARCs, however the following is suggested:

- obtain advance copies of the KC63 from each Exeter System (1st September) to pre-audit the data and to highlight any probable shortcomings before the official run date of 1st October.
- triangulate the population against previous years to ensure no great fluctuations – otherwise resolve with NHAIS offices
- check that the “ineligible” numbers are sensible
- compare the coverage figures with previous years in the DH Bulletin and check that coverage is sensible (ie It is most likely to be equal to or lower than uptake over the past 3 years – see discussion of coverage vs uptake below)
- check that, as far as possible, all episodes are closed. Transmissions between screening offices and the Exeter System sometimes fail for a variety of reasons. Sometimes episodes remain open on the Exeter System for many months because batches have been specified very early and then the programme was unable to screen that batch as planned. In any case, QARCs should satisfy themselves that any open episodes are open for legitimate reasons and not a technical failure. This needs to be resolved between the programme and the NHAIS office.

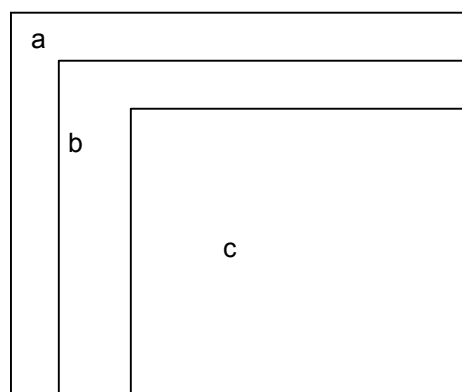
* currently by the NHS Information Authority (NHSIA)

- in the age group 53-64 (or up to 70 if a full screening round of 65-70 screening has taken place), the 'resident', eligible population should be equal to the 'Invited in the last 3 years', less the "ineligible". If this is not the case then QARCs should investigate, because some women may not have been invited and failsafe not properly applied.
- obtain a copy of each full PCO KC63 from the NHSIA for your region (this will come in November when the NHSIA have completed the aggregation by PCO) and briefly do some of the above checks again to ensure that the original issues highlighted in September have been responded to.
- further details on the spec for KC63 can be seen in the Exeter System User Guide
- the Number of Women Never Selected / Never Invited (Column 6), should be zero and any cases investigated, justified, reported to the Programme Director and PCT screening lead and cleared.

Coverage should be calculated for women aged 53 to 64 - all women should have been invited in the prevalent screening round by the age of 53. Note that until a programme has been screening women up to 70 for at least three years, coverage cannot be accurately calculated for women aged 65 to 70. This is because there will be women in their late 60s who will not have been invited in the last three years, because the programme was only inviting women up to the age 64 at the previous screening round. The National Evaluation Group has set a minimum standard for coverage of 70%.

Coverage is significantly affected by round length slippage. A programme may have very good uptake and yet very poor coverage because it has been unable to screen women within 36 months.

Figure 1 Coverage and uptake



a = eligible population

The eligible population includes all women in the screening age range resident in the PCT area. In practice, the best measure of this is the number of women in the age range on the PCT population register.

b = invited population

c = screened population

Uptake = $c/b \times 100\%$

Coverage = $c/a \times 100\%$

3. CANCER DETECTION

	Objective	Criteria	Calculation	Minimum standard	Target
2.	To maximise the number of cancers detected	<p>a) The rate of invasive cancers detected in eligible women invited and screened</p> <p>b) The rate of cancers detected which are in situ carcinoma</p> <p>c) Standardised detection ratio (SDR)</p>	<p>Table A Age 50-52</p> <p>Table C1 Age 53-64</p> <p>Table C1 Age 53-70</p> <p>Table A Age 50-52</p> <p>Table C1 Age 53-64</p> <p>Table C1 Age 53-70</p> <p>Table A + B Age 50-64</p> <p>Table C1 Age 50-64</p> <p>Tables A,B, C1 Age 50-64</p> <p>Table A + B Age 50-70</p> <p>Table C1 Age 50-64</p> <p>Tables A,B, C1 Age 50-64</p>	<p>Prevalent screen >2.7 per 1000</p> <p>Incident screen >3.0 per 1000</p> <p>Incident screen >3.1 per 1000</p> <p>Prevalent screen >0.4 per 1000</p> <p>Incident screen >0.5 per 1000</p> <p>Incident screen >0.5 per 1000</p> <p>Prevalent screen ≥ 0.75</p> <p>Incident screen ≥ 0.75</p> <p>Overall ≥ 0.75</p> <p>Prevalent screen ≥ 0.85</p> <p>Incident screen ≥ 0.85</p> <p>Overall ≥ 0.85</p>	<p>Prevalent screen >3.6 per 1000</p> <p>Incident screen >4.0 per 1000</p> <p>Incident screen >4.2 per 1000</p> <p>Prevalent screen ≥ 1.0</p> <p>Incident screen ≥ 1.0</p> <p>Overall ≥ 1.0</p> <p>Prevalent screen ≥ 1.0</p> <p>Incident screen ≥ 1.0</p> <p>Overall ≥ 1.0</p>
3	To maximise the number of small invasive cancers	The rate of invasive cancers less than 15mm in diameter detected in eligible women invited and screened	<p>Table A Age 50-52</p> <p>Table C1 Age 53-64</p> <p>Table C1 Age 53-70</p>	<p>Prevalent screen ≥1.5 per 1000</p> <p>Incident screen ≥1.65 per 1000</p> <p>Incident screen ≥1.7 per 1000</p>	<p>Prevalent screen ≥2.0 per 1000</p> <p>Incident screen ≥2.2 per 1000</p> <p>Incident screen ≥2.5 per 1000</p>

Explanatory notes to national standards table

- The criterion used to measure whether the number of cancers detected is being maximised is the rate of invasive cancers detected in women both invited and screened, every three years, in the 50 to 70 age group. Microinvasive disease is excluded. The number of in situ carcinoma expected includes ductal carcinoma in situ (DCIS), lobular carcinoma in situ and microinvasive disease. There is a geographical variation in the incidence of

breast cancer, although no consistent pattern has emerged which would allow different standards to be set for different parts of the country.

The standardised detection ratio (SDR) measures a unit's performance and takes into consideration variable age distributions between screening units. For investigative purposes it can be corrected for the geographical variations in background incidence. The minimum standard and the target are a guide to the levels to be achieved based on the underlying incidence and the average age of the women screened.

If a high DCIS rate is reported, the overall cancer detection rate and pathology reporting should be investigated.

3. This standard refers to the number of invasive cancers measuring less than 15 mm in diameter, Microinvasive carcinoma is excluded. Size is determined by pathological measurement. These figures are 55% of the total invasive cancer rate.

Monitoring performance against national standards

2a) *Invasive cancer detection rate*

Data source

Prevalent screen	KC62 Table A	Ages 50-52*
Incident screen	KC62 Table C1	Ages 53-64**
Incident screen	KC62 Table C1	Ages 53-70**

Calculation

$\frac{\text{Number of women with invasive cancer (column 35)} \times 1000}{\text{Number of women invited and screened (column 3)}}$

2 b) *In situ (non-invasive) cancer detection rate*

Data source

Prevalent screen	KC62 Table A	Ages 50-52*
Incident screen	KC62 Table C1	Ages 53-64**
Incident screen	KC62 Table C1	Ages 53-70**

Calculation

$\frac{\text{Number of women with non and micro invasive cancers (columns 27 + 28)} \times 1000}{\text{Number of women invited and screened (column 3)}}$

2 c) Standardised detection ratio

Data source

Prevalent screen	KC62 Tables A, B	Age 50-64
Incident screen	KC62 Table C1	Age 50-64
Overall	KC62 Tables A, B, C1	Age 50-64
Prevalent screen	KC62 Tables A, B	Age 50-70
Incident screen	KC62 Table C1	Age 50-70
Overall	KC62 Tables A, B, C1	Age 50-70

Calculation

Number of invasive cancers

Expected number of invasive cancers

The expected number of invasive cancers can be calculated using the table below

Age band	Number of women screened (KC62 column 3)		Use these expected per 1000 for Table C1	Use these expected per 1000 for Tables A and/or B		Total per age band
50-52 (line 3)		X	3.2	3.64	=	
53-54 (line 4)		X	3.46	4.44	=	
55-59 (line 5)		X	3.79	5.86	=	
60-64 (line 6)		X	4.42	8.72	=	
65-69 (line 7)		X	4.54	10.76	=	
70 (line 8)		X	4.71	12.3	=	
Sum of age bands	-	-		-	-	Total all ages

3. Small cancer detection rate

Data source

Prevalent screen	KC62 Table A	Ages 50-52*
Incident screen	KC62 Table C1	Ages 53-64**
Incident screen	KC62 Table C1	Ages 53-70**

Calculation

$$\frac{\text{Number of women with invasive cancers less than 15 mm (column 29+30)} \times 1000}{\text{Number of women invited and screened (column 3)}}$$

Presentation and frequency

Annually, with cumulative three-year data and individual year data for at least the previous two years.

* Table A includes all women aged 50-52 and screened for the first time in the NHSBSP. It is possible that some age trial women aged 50-52 are included in Table B but these are excluded as being a special case, because of their small numbers and different screening /invitation history to women who appear in Table B having DNAd from 3 yearly invitations after the age of 50.

** Table C2 women are excluded here and only Table C1 used because they have a screening interval of more than five years. The standards for the incident screen cancer detection rates are based on the assumption of a three year screening interval. No standards are set for a screening interval of more than 36 months. If a programme has significant slippage, incident screen women will be counted on table C2 and the programme can only be monitored against the prevalent target.

Further comments for QARCs

The relatively small numbers of cancers detected are subject to wide natural statistical variation and so are best considered over long time periods by considering trends and alongside other relevant criteria. Calculation of the cancer detection rate at a GP practice or PCT level is not likely to be helpful. The numbers will often be too small, even over several years. Also, this target is a function of programme performance which is unlikely to be affected by which PCT or GP practice the woman is a part of.

Care should be taken when reporting cancer detection rates to indicate which KC62 tables have been used. QARCs are advised to calculate a rate for each cohort. The figures calculated, which are not for comparison with the NHSBSP targets, are valuable for comparison between local screening programmes and may provide further information for better interpretation of performance data. A sub analysis is sometimes done for cancers <10mm.

During the rollout of the extended age range for routine invitation for screening, breast screening programmes should monitor their performance using the standards for women in the age range 50 to 64 only. Women in the age range 65 up to and including 70 may not have been fully screened previously. The revised national standards for women aged 50 to 70 are based on the assumption that all women in the eligible population have been routinely invited from age 50 upwards. The revised national standards should not be used to monitor the performance of a breast screening programme until that is the case.

4. IMAGE QUALITY AND RADIATION DOSE

	Objective	Criteria	Minimum standard	Target
4.	To achieve optimum image quality	a) High contrast spatial resolution b) Minimal detectable contrast 5-6mm detail 0.5mm detail 0.25mm detail c) Aim film density	≥ 12 lp/mm $\leq 1.2\%$ $\leq 5\%$ $\leq 8\%$ 1.5 –1.9	 $\leq 0.8\%$ $\leq 3\%$ $\leq 5\%$
5.	To limit radiation dose	Mean glandular dose per film for a standard breast at clinical settings	≤ 2.5 mGy	
6.	To minimise the number of women undergoing repeat examinations	The number of repeat examinations	<3% of total examinations	<2% of total examinations

Explanatory notes to national standards table

4. For a full discussion of the assessment of image quality, refer to the latest version of IPEM Report 89. The following points should be noted.
- i) The measurement of image quality is subjective and due allowance should be made for observer variability. Ideally measurement data should be based on more than one film and more than one observer.
 - ii) The standards specified are guidelines based on current knowledge, and may need to be revised in the light of future developments.
 - iii) Test films should be evaluated under appropriate viewing conditions with the use of ocular aids where necessary.
 - iv) These standards were derived from experience with film screen systems and are not appropriate for digital mammography systems. New standards and testing procedures for digital mammography systems in the UK are in preparation .

- 4a) The value given refers to the limiting high contrast resolution which would be obtained by radiographing a high contrast resolution grating placed on top of approximately 4cm Perspex and approximately 6cm from the chest wall edge. The value given should be met in directions both parallel and perpendicular to the tube axis. The measured high contrast resolution in the direction perpendicular to the tube axis will normally be greater than that parallel to the tube axis. The test film should have a sufficient dwell time in the cassette prior to exposure to ensure good screen-film contact (the time will depend on the type of cassette but will often be at least five minutes). The film should be evaluated under appropriate conditions with the aid of a high power magnifier.
- 4b) The figures given for threshold contrast are based on measurements with the TOR(MAS) or TOR(MAX) test object placed on top of 4cm Perspex and the contrast values are those quoted by the manufacturer (nominal radiation contrast calculated at 28kVp using a molybdenum target and filter). To estimate the number of details that should be detected to meet the standard using the TORMAX test object the user should refer to the contrast specifications from the supplier for the specific version used. Because the contrast steps in some test objects (e.g. TOR(MAX)) are relatively large and arbitrary, very precise measurements may not be possible and due allowance should be made for this in interpreting measurements and comparison with the rounded numbers in the standards. The threshold contrast limits can be applied using different makes of test object provided that due allowance is made for the different definitions of contrast used by the manufacturer and the amount of scatter material used.
- 4c) Each screening centre should operate with a specified aim film density in the range 1.5 to 1.9. In this context, film density is taken to mean the gross optical density measured 4cm from the chest wall edge on the midline of a radiograph of a 4cm thick Perspex block exposed using the automatic exposure control (AEC) at the current clinical settings. The aim film density for a unit should be chosen taking into account local factors such as system contrast and the AEC calibrated to achieve this aim density. The measured film density will fluctuate slightly from day to day and the quality control system should confirm that it always lies within +/- 0.2 of the chosen aim density.
5. The standard applies for a measurement of the mean glandular dose for a 53 mm thick standard breast simulated with a 45 ± 0.5 mm thick Perspex phantom exposed at the conditions used clinically (i.e. as selected by the automatic AEC system using the usual clinical settings). For definitions and methods of dose measurement, refer to IPEM Report 89. Image quality should be investigated if dose values are lower than 1.0 mGy. A more complete estimate of doses for a mammography system can be obtained by a dose survey in which the mean glandular doses are determined for a sequential sample of 50 or 100 screened women. This data can be used to determine that the appropriate diagnostic reference level (DRL) for mammography is not being exceeded.
6. Repeat examinations should be avoided both to minimise radiation dose and, particularly where second appointments are needed, to minimise anxiety. The

decision to repeat a film while the woman is present in the unit is generally the radiographer's decision. The decision to recall a woman for a second appointment in order to repeat a film is the film reader's decision. Both types of repeat examination need to be monitored, and the combined rate of both types of repeat examination should be less than 3% of total examinations.

Further comments for QARCs

Surveys of image quality and radiation dose should be carried out by the medical physics service once every six months on every x-ray set. A copy of the detailed survey report for each x-ray set is sent to the relevant superintendent radiographer with a copy to the director of breast screening. A summary report of performance data which states achievement (or not) of the national standards should be sent to the QA Director every six months.

Local radiographers should also carry out frequent and regular quality control checks on image quality. The methods of measurement, recording and reporting should be stated in a QA manual held by each breast screening programme. A single regional manual agreed with the medical physics service would be ideal.

Further guidance on monitoring repeat examinations is given in NHSBSP Good Practice Guide No. 4 *Collecting, Recording, Monitoring and Reporting Technical Recall/Repeat Examinations* (published in May 2000 and currently being revised).

Repeat examination rates should be monitored regularly by local screening programmes and reported to the QA Radiographer (the QARC may act as the repository of this information for the QA Radiographer). Repeat examination rates by individual radiographers may be monitored within the local screening programme, but should be made available to the regional QA radiographer when they visit the unit. Reasons for repeat examinations should be investigated by the recorded reason for the technical repeat (radiographer, equipment or client). These categories may be expanded locally in order to facilitate audit (eg. radiographers may be split into fully trained staff and staff in training).

5. ASSESSMENT

	Objective	Criteria	Calculation	Minimum standard	Target
7.	To minimise the number of women screened who are referred for further tests	<p>a) The percentage of women who are referred for assessment</p> <p>b) The percentage of women screened who are placed on short term recall</p>	<p>Table A Age 50-52</p> <p>Table C1 Age 53-64</p> <p>Table C1 Age 53-70</p> <p>Table T Age 53-64</p> <p>Table T Age 53-70</p>	<p>Prevalent screen <10%</p> <p>Incident screen <7%</p> <p><1.0%</p> <p><0.5%</p>	<p>Prevalent screen <7%</p> <p>Incident screen <5%</p> <p>≤0.25%</p> <p>≤0.25%</p>
8.	To ensure that the majority of cancers, both palpable and impalpable, receive a non operative tissue diagnosis of cancer	The percentage of women who have a non operative diagnosis of cancer by cytology or needle histology after a maximum of two visits	<p>Table T Age 50-64</p> <p>Table T Age 50-70</p>	≥80%	≥90%
9.	To minimise the number of unnecessary operative procedures	The rate of benign biopsies	<p>Table A Age 50-52</p> <p>Table C1 Age 53-64</p> <p>Table C1 Age 53-70</p>	<p>Prevalent screen <3.6 per 1,000</p> <p>Incident screen <2.0 per 1,000</p> <p>Incident screen <2.0 per 1,000</p>	<p>Prevalent screen <1.8 per 1,000</p> <p>Incident screen <1.0 per 1,000</p> <p>Incident screen <1.0 per 1,000</p>

Explanatory notes to national standards table

7. The minimum standards and targets for the number of women referred for assessment relate to women aged 50-70 called or recalled for screening as part of the NHSBSP.
- 8 & 9. If a particularly low benign biopsy rate is reported, this might be due to a high non-operative diagnosis rate in the context of an on target cancer detection rate. If this is not the case, then further investigation would be needed particularly looking at cancers detected amongst women placed on short-term recall. This target relates to women aged 50-70 called or recalled for screening as part of the NHSBSP.

Monitoring performance against national standards

7a) Referral to assessment rate

Data source

Prevalent screen	KC62 Table A	Ages 50-52*
Incident screen	KC62 Table C1	Ages 53-64**
Incident screen	KC62 Table C1	Ages 53-70**

Calculation

$\frac{\text{Number of women referred for assessment (column 7)}}{\text{Number of women screened (column 3)}} \times 100\%$

7 b) Short term recall rates

$\frac{\text{Number of women on short term recall (column 6+11)}}{\text{Number of women screened (column 3)}} \times 100\%^{***}$

* Table A includes all women aged 50-52 and screened for the first time in the NHSBSP. It is possible that some age trial women aged 50-52 are included in Table B but these are excluded as being a special case.

** Table C2 women are excluded because they have a screening interval of more than five years. The standards for the incident screen cancer detection rates are based on the assumption of a three year screening interval. No standards are set for a screening interval of more than 36 months. If a programme has significant slippage, incident screen women will be counted on table C2 and the programme can only be monitored against the prevalent target.

*** NHSBSP policy is that women can only be referred to short term recall following assessment (in other words, not on the basis of a screening mammogram only). Therefore column 6 on the KC62 should be zero. It is recommended that the KC62 should be audited to identify any cases that may have been entered as early recall as an outcome of an initial screen. Any such cases should be brought to the attention of the Director of Breast Screening and the QA radiologist.

8. Non-operative diagnosis rate

Calculation

$\frac{\text{Number of cancers diagnosed non operatively* (column 18)}}{\text{Total number of women with cancer (column 25)}} \times 100\%$

*ie not referred for open biopsy

9. Benign biopsy rates

Calculation

$\frac{\text{Number of benign/normal results (columns 22 + 23)^{***}}}{\text{Number of women screened (column 3)}} \times 1000$

*** (routine recall + early recall)

* Table A includes all women aged 50-52 and screened for the first time in the NHSBSP. It is possible that some age trial women aged 50-52 are included in Table B but these are excluded as being a special case, because of their small numbers and different screening /invitation history to women who appear in Table B having DNAd from 3 yearly invitations after the age of 50.

** Table C2 women are excluded here and only Table C1 used because they have a screening interval of more than five years. The standards for the incident screen cancer detection rates are based on the assumption of a three year screening interval. No standards are set for a screening interval of more than 36 months. If a programme has significant slippage, incident screen women will be counted on table C2 and the programme can only be monitored against the prevalent target.

Further comments for QARCs

Recall rates should be reported annually with cumulative three-year data and individual year data for at least the previous two years.

Recall rates for individual film readers may be looked at on a local basis and it is useful to identify referrals for assessment by 1st, 2nd and 3rd readers. Crystal reports on the NBSS are being developed for this purpose. This information should be made available to the QA Radiologist and identified at QA visits.

A Crystal report is being developed to monitor the number of visits required before a non-operative diagnosis is reached. If the standard for the overall non-operative diagnosis rate is not met, then QARCs may wish to look at rates for individual cohorts.

6. INTERVAL CANCERS

	Objective	Criteria	Minimum standard	Target
10.	To minimise the number of cancers in the women screened presenting between screening episodes	The rate of cancers presenting in screened women a) in the two years following a normal screening episode b) in the third year following a normal screening episode	Expected standard 1.2 per 1000 women screened in the first two years 1.4 per 1000 women screened in the third year	

Explanatory notes to national standards table

10. The criterion for measuring whether the number of cancers presenting between screening episodes is being minimised is the rate of cancers which presents in screened women in the first 24 months subsequent to screening. It is recognised that these will not all be false negatives; some will have developed in the interval since screening and some will be mammographically occult cancers. In addition, it is recognised that some false negative cancers will present in the third year after screening. Since interval cancers are an expected part of breast screening, and have to be considered over either a number of years or on a regional, large population basis, no minimum or target level is given.

Monitoring performance against national standards

Calculation

$$\frac{\text{Number of invasive interval cancers diagnosed within (x) years of a "normal" screen result}}{\text{Number of women screened in the year of the "normal" result}} \times 1000$$

This can be broken down into year bands to compare with the targets (see suggested table below).

Note:

1. A "normal" screening result is counted as an RR result following screening and possibly assessment.
2. The standard relates to all prevalent and incident screen women (tables A,B,C1 & C2), however, QARCs may wish to calculate for individual KC62 Tables, if they have enough data – they may need to consider combining data from different years or screening programmes

Further comments for QARCs

Data on interval cancers may be collected from a variety of sources. The main source is likely to be the cancer registry, but pathology laboratories and breast surgeons may provide additional data.

Interval cancer rates should be reported annually in accordance with the specification set by the Cancer Screening Evaluation Unit (CSEU) on behalf of the Evaluation Group. Essential data items required are:

- cancer type
- client's date of birth
- date of last routine screen
- date of diagnosis of cancer
- invasive status of cancer

Preferable data items are:

- screen type (prevalent or incident)
- type of last screen
- result of last screen
- recalled for assessment at last screen

For invasive cancers the size, number of nodes sampled, number of nodes positive, stage, and grade is preferable.

A request for interval cancer data will be made by CSEU to QA Directors each year (currently in the summer to avoid KC62 and BASO workloads)

All QARCs and Cancer Registries should be working towards adopting the standard NHSBSP Service Level Agreement for exchanging data. This SLA specifies the data items to be exchanged and the frequency of these exchanges between the QARC and the Cancer Registry.

There are also requirements for QARCs to be involved in the collation of data for the radiological review of interval cancers: - see *Quality Assurance Guidelines for Breast Cancer Screening Radiology* (NHSBSP Publication No 59, 2004).

Presentation of interval cancer data:

As well as the requirement to report via the CSEU, QARCs should also present data within their own region. The following format is suggested:

Name of screening programme / region

	No of women screened	Interval 0-24 months	Interval cancer rate per 1000 women screened	Interval 25-36 months	Interval cancer rate per 1000 women screened	Interval +36 months	Interval cancer rate per 1000 women screened
Screening Year							
1/4/94-31/3/95							
1/4/95-31/3/96							
1/4/96-31/3/97							
1/4/97-31/3/98							
1/4/98-31/3/99							
1/4/99-31/3/00							

Footnotes to interval cancers table:***NHSBSP interval cancer rates – minimum standards***

1.2 per 1000 women screened in the first two years following a normal screening episode

1.3 per 1000 women screened in the third year following a normal screening episode

These are all prevalent and incident screen interval cancers shown as a rate per thousand women screened. The data was supplied by XXXXXX Breast Screening Programme and KC62 data (Tables A,B,C1 & C2) for years 1994/1995 – 2004/2005

The data in shaded areas is unlikely to be complete because the time period has only just ended or has not yet end

7. SCREENING ROUND LENGTH

	Objective	Criteria	Minimum standard	Target
11.	To ensure that women are recalled for screening at appropriate intervals	The percentage of eligible women whose first offered appointment is within 36 months of their previous screen	≥90%	100%

Explanatory notes to national standards table

11. The long term effectiveness of the screening programme is dependent on women in the target age group continuing to be screened at regular intervals. Currently the screening interval is 36 months. Women should be offered an appointment that ensures that they are screened at an interval of not more than 36 months. In order to keep women within their screening batch, this may on occasion necessitate a screening interval of less than 36 months.

Further comments for QARCs

The standard refers to the percentage of eligible women whose first offered appointment is within 36 months of their previous screen. Details of the calculations and presentation of results are given in *Collecting and presenting screening round length data* (NHSBSP Good Practice Guide No 6, Jun 2002).

Round length should be reported for women aged 50-64 only until a local programme has completed a full screening round for women aged 65-70.

Programmes with excessive round length slippage (ie more than 40 months) should ensure their round length report shows the number of women in each specific "months" group (not just to fall into the '40 months + 'group).

Screening round length also impacts on the ability of QARCs to compare other core areas performance against the NHSBSP standards. Many of these were developed to measure performance of screening programmes running a 36 month screening round. The expected rates will differ if a 36 month round has not been maintained. This will make monitoring by QA Teams increasingly difficult.

It will be similarly difficult to assess performance of programmes which are unable to invite all women before their 53rd birthday.

Currently, screening round length on a per programme basis, is reported to the national office and considered at each national QA Directors meeting. The reports to the national office should be for women aged 50-64 to ensure comparability between regions, until further notice.

8. WAITING TIMES

	Objective	Criteria	Minimum standard	Target
12.	To minimise anxiety for women who are awaiting the results of screening	The percentage of women who are sent their result within two weeks	≥90%	100%
13.	To minimise the interval from the screening mammogram to assessment	The percentage of women who attend an assessment centre within three weeks of attendance for the screening mammogram	≥90%	100%
14.	To minimise diagnostic delay for women who are diagnosed non-operatively	Proportion of women for whom the time interval between non-operative biopsy and result is one week or less	≥90%	100%
15.	To minimise the delay for women who require surgical assessment	Proportion of women for whom the time interval between the decision to refer to a surgeon and surgical assessment is one week or less	≥90%	100%
16.	To minimise any delay for women who require treatment for screen detected breast cancer	The percentage of women who are admitted for treatment within 2 months of their first assessment visit	≥90%	100%

Explanatory notes to national standards table

13. Many programmes are able to assess all women within a week by having the surgeon attend part of the assessment clinic or by holding a simultaneous clinic nearby.
16. The total period between first attendance for assessment and admission for any resulting definitive treatment should be no longer than two months, irrespective of whether an open biopsy has been carried out or not.
- 14, 15 & 16. Where the recommended intervals detailed in the standards are not achieved, this should be drawn to the attention of the appropriate hospital managers and steps taken to improve the situation.

Monitoring performance against national standards

12. *Waiting times for results*

Calculation

$\frac{\text{Number of RR women whose episode is closed within 2 weeks}^*}{\text{Total number of women screened}} \times 100\%$

*Because the date of posting the result letter is not recorded, the date of Episode Close is usually taken as a proxy for this. This relies on the screening office ensuring good administrative processes to minimise delays in posting result letters

An NBSS Crystal Report is available on the NBSS website :
www.nbss.nhs.uk (report SR006)

13. *Waiting time for assessment*

Calculation

$\frac{\text{Number of women who have a DoFOAss}^* \text{ within 3 weeks}}{\text{Total number of women screened}} \times 100\%$

*It would be ideal if the NBSS used the Date of First Offered Assessment Appointment (DoFOAss) as a proxy for the date of attendance for assessment. This ensures that the screening programme is not unfairly represented when women change their own appointments. As at October 2005, NBSS Crystal Report above uses the date of first assessment visit, not the DoFOAss. This situation is being resolved by the national office.

An NBSS Crystal Report is available on the NBSS Support website :
www.nbss.nhs.uk (report SR001)

14. *Waiting time between non-operative diagnosis and result*

Calculation

$\frac{\text{Number of women given their result of non-op biopsy within one week}^*}{\text{Total number of women who have non-op biopsy}} \times 100\%$

*The time interval is between the date that the biopsy was taken and the date on which the result is communicated to the woman (this is usually done personally either face to face or by telephone, depending on the result and local policy. It is possible to record the date the result is given and by whom, on the NBSS, but most units do not use this facility. Other dates which are routinely recorded (such as date of report for the FNA or WBN, or date of the MDT) are not reliable or accurate enough to be used as a proxy. Therefore, local manual collection of this data is required. This makes reliable comparison between programmes difficult. QARCs should be aware of the local methodology used so that they can better assess the data provided.

15. *Waiting time for assessment by a surgeon*

Calculation

$$\frac{\text{Number of women referred to a surgeon within 1 week}}{\text{Total number of women referred to a surgeon}} \times 100\%$$

Defining the date of decision to refer to a surgeon is difficult and should be decided on a local basis. Recording both the date of decision and date the women sees the surgeon is also difficult. It is possible to record the date women first sees the surgeon on the NBSS, but most local programmes do not use this facility. Therefore, local manual collection of this data is required. This makes reliable comparison between programmes difficult. QARCs should be aware of the local methodology used so that they can better assess the data provided.

16. *Waiting time for treatment*

Calculation

$$\frac{\text{Number of women admitted for treatment within 2 months of their first assessment visit*}}{\text{Total women admitted for treatment}} \times 100\%$$

*Both the date of first assessment and date of first surgery are recorded on the various screening systems. A Crystal report on NBSS is being developed to produce reports for this standard which will make it possible to print off lists of women who fall into different time periods, such as 0-4 weeks, 5-6 weeks, 7-8 weeks, 8-9 weeks and >=10 weeks. This will be useful when auditing the reasons for delays. Meanwhile local manual data collection is required.

Further comments for QARCs

Standard NBSS Crystal Reports are being introduced all the time and are published on the WMS Helpdesk web site, for which a login name and password is required:

www.nbss.nhs.uk

Programmes may feel unfairly represented if the first offered date of surgery is refused by the woman and the appointment is delayed. However, there is no plan at present to add a "Date of First offered Surgery". If programmes are concerned that they are unfairly represented, then they could break the data down and categorise the cases to show the reason for delay as was previously done in the national BASO audit

(eg patient choice, theatre time, staff availability, bed availability, clinical reasons, other – please state).

Monthly within a local breast screening programme.

Quarterly reported to the QARC

The KC62 requires the waiting time for assessment indicator (percentage within 3 weeks) to be reported annually.

9. PATHOLOGY QA STANDARDS

Quality assurance objectives	Outcome measurements	Targets	Methods of achieving objectives
1. To improve the identification and pathological characterisation of lesions producing mammographic abnormalities	Proportion of specimens containing the mammographic abnormality in which it is not identified histopathologically	< 1%	(a) High quality specimen radiography for impalpable lesion (b) Adequate macroscopic examination and sampling of biopsy specimens (c) High quality tissue fixation and section preparation (d) Participation in technical EQA schemes (e) Prospective multidisciplinary meetings to correlate radiological and pathological findings
2. To improve the consistency of diagnoses made by pathologists	Diagnostic consistency measured in the UK breast EQA scheme: (a) for invasive carcinoma (b) for ductal carcinoma in situ (including microinvasive carcinoma) (c) for benign lesions (including atypical ductal hyperplasia and radial scar)	(a) Minimal $k = 0.8$. achievable $k = 0.9$ (b) Minimal $k = 0.7$. achievable $k = 0.8$ (c) Minimal $k = 0.8$. achievable $k = 0.9$	(a) Use of the standardised terminology and diagnostic criteria (b) High quality tissue fixation and section preparation (c) Participation in technical EQA schemes (d) Continuing medical education in breast pathology (e) Participation in the national breast EQA scheme (f) Referral of difficult cases for second opinion (g) Research and development work on borderline lesions

Quality assurance objectives	Outcome measurements	Targets	Methods of achieving objectives
3. To improve the quality of prognostic information in pathological reports	<p>(a) Proportion of invasive carcinomas graded and measured</p> <p>(b) Consistency of grading in national EQA scheme</p> <p>(c) Consistency of tumour measurement in national EQA scheme</p> <p>(d) Proportion of cases assessed for hormone receptor status</p> <p>(e) Consistency of satisfactory performance in hormone receptor EQA scheme</p>	<p>(a) Minimal $\geq 95\%$, achievable $\geq 99\%$ (except in inappropriate specimens)*</p> <p>(b) Minimal $k = 0.5$, achievable $k = 0.7$</p> <p>(c) Minimal $\geq 88\%$ of measurements within 3 mm of the median value, achievable $\geq 90\%$ of measurements within 3 mm of the median value</p> <p>(d) Minimal $\geq 95\%$, achievable $\geq 99\%$ (except in inappropriate specimens)*</p>	<p>(a) Application of grading and size measurement criteria†</p> <p>(b) Following grading criteria†</p> <p>(c) Following guidance on measuring tumour size‡</p> <p>(d) Appropriate preservation and preparation of tissue: following hormone receptor assessment methodology†</p> <p>(e) Availability of EQA scheme results and prompt remedial action following identification of sub-standard performance</p>
4. To minimise the number of unnecessary surgical operations‡ (see national standard 9)	<p>(a) Benign-malignant ratio at initial surgery</p> <p>(b) Unsatisfactory smears from cancer bearing breasts and core biopsy miss rate (B1 – B2) from cancer bearing breasts</p> <p>(c) False positive rate§</p> <p>(d) False negative rate§</p>	<p>(a) For needle core biopsy: minimal 1:2, achievable 1:4; for cytology: minimal 1:2, achievable 1:4</p> <p>(b) For needle core biopsy: minimal $\leq 15\%$, achievable $\leq 10\%$; for cytology: minimal $\leq 10\%$, achievable $\leq 5\%$</p> <p>(c) For needle core biopsy: minimal $\leq 0.5\%$, achievable $\leq 0.1\%$; for cytology: minimal $\leq 1\%$, achievable $\leq 0.5\%$</p> <p>(d) For needle core biopsy: use miss rate (b), above; for cytology: minimal $\leq 5\%$, achievable $\leq 4\%$</p>	<p>(a) Monitoring performance using the BQA and CQA systems and correcting deficiencies</p> <p>(b) Ensuring clinical staff are able to obtain satisfactory samples and check the quality of the preparations</p> <p>(c) Development of EQA scheme for needle core biopsy using telepathology</p> <p>(d) Training in breast needle core biopsy and FNAC technique</p>

*Inappropriate specimens include needle biopsies, carcinomas of less than 10 high power fields in size and cases in which section quality or tissue preservation is too poor to assess the relevant histological characteristics.

†As given in *Pathology Reporting of Breast Disease* (NHSBSP Publication No 58).²⁹

‡Achieving the targets depends not only on the performance of the pathologist, but also upon the clinician undertaking the aspirations or needle biopsy sampling procedures.

§For definitions see *Guidelines for Non-operative Diagnostic Procedures and Reporting in Breast Cancer Screening* (NHSBSP Publication No 50).²²

Comments for QARCs

Several of the pathology QA standards have neither relevant data items recorded on the NBSS or other screening systems nor standard reports. Some will therefore require ad hoc local data collection and audits.

The information from the national EQA scheme for breast screening histopathology is anonymised and is only known to the individual pathologist and the CSEU who run the scheme. QARCs and regional pathology QA professional coordinators are only allowed to know who has participated and how many times in the past three circulations. Each screening pathologist must have participated in two out of every three circulations.

There existing comprehensive reports however, which are very useful and provide a great deal of data and ability to examine aspects of the programme's ability to assess and diagnose. These standard reports, which are available on all of the different types of screening system, are:

Histology QA report	(HQA)
Cytology QA report	(CQA)
Wide bore needle QA report	(BQA)
Non-operative diagnosis QA report	(NDQA)

Each may be broken down in different ways to provide different analyses. It is important to understand which breakdown options have been chosen and the implications of this for the meaning of the data.

These can now be run by KC62 'Date of First Offered Appointment' period, which should ensure clean data and data which is comparable with KC62 and BASO. The same limits on the timing of reporting as KC62 and the BASO audit should therefore be understood and applied: that is, six months following the close of the report period should be allowed for all episodes to be closed, data cleaned by the screening office and signed off as a true record by the programme director.

The following pathology standards can be obtained directly from these reports:

Proportion of invasive carcinomas graded and measured – from HQA

Unsatisfactory smears from cancer bearing breasts and core biopsy miss rate (B1 + B2) from cancer bearing breasts – from CQA and BQA -'inadequate rate from cancers'

False positive rate- from BQA and CQA

False negative rate – from BQA and CQA

QARCs are advised to double check some individual cases with the local pathologists and QA pathologist before publication of data. This is particularly advisable for false positives.

10. GLOSSARY OF TERMS

Acceptance

See 'uptake'

Assessment

This is defined as 'further tests' and does not include 'repeat examinations' (qv).

Benign biopsy

A benign biopsy is an open surgical biopsy which results in a benign diagnosis histologically. More than one procedure at the same assessment visit on one patient will be counted as one biopsy.

Cancers detected

This applies to both invasive and in situ cancers. For this purpose, multiple cancers in one patient are counted as one cancer.

Coverage

Coverage is defined as the proportion of women resident and eligible for screening who have had a screening mammogram at least once in the previous 3 years. Women who are ineligible (eg those who have had a bilateral mastectomy) are excluded.

Criteria

These are the parameters by which the achievement of the objective (or not) will be measured.

Early recall

This is now called 'short term recall' (but the term 'early recall' is still used on the KC62 return).

Eligible women

These are women aged 50-70 who are included in the call and recall system.

Further tests

These include all second appointments where further procedures (including further views and/or clinical examination) beyond those normally undertaken at first appointment are carried out.

Incident screen

These are women who have had a previous screening episode within the NHSBSP and are now re-screened.

Minimum standards

These figures represent the levels of performance which are the minimum acceptable for any breast screening unit. Where the minimum standard is shown as 'greater than or equal to', any level of performance below that standard should be investigated by the quality assurance team. Where the minimum standard is shown as 'less than or equal to', any level of performance above that standard should be investigated by the quality assurance team.

Non-operative biopsy

Non-operative biopsy refers to needle core biopsy or FNA.

Objectives

These are the aims of the NHSBSP in its operation in relation to specific quality issues.

Prevalent screen

These are women who are being screened for the first time by the NHSBSP.

Proportion of women invited who attend for screening

The percentage of women who, having been sent an invitation for screening, attend a screening unit and undergo mammography in response to that invitation. No allowance is made for letters returned or refusals. This is calculated from KC62 and represents uptake not coverage.

Repeat examinations

Repeat examinations include both those films repeated with the same view while the woman is still present in the unit, and those occasions where a woman is required to attend a second time to have a film repeated (same view), because of a technical inadequacy.

Screening round length

Screening round length is the interval between the date of a woman's previous screening mammogram and the date of her next first offered appointment.

Short-term recall

A second invitation to attend an assessment clinic at less than the routine (three year) screening interval.

Small cancers

The size of the cancer is determined by pathological measurement.

Targets

These are the quantitative targets which are achievable individually by one third of units within the NHSBSP. All units should aim to achieve these targets. If the specified cancer detection rates etc are achieved, then the programme will be on target to replicate the mortality reduction achieved in trials.

Uptake

The percentage of women who, having been sent an invitation for screening, attend a screening unit and undergo mammography in response to that invitation. No allowance is made for letters returned or refusals. The national standard is for uptake. Uptake is sometimes referred to as 'acceptance'.

Week

This is defined as one calendar week (seven calendar days)

11. BIBLIOGRAPHY

1. *Consolidated guidance on standards for the NHS Breast Screening Programme.* NHS Cancer Screening Programmes 2005 (NHSBSP Publication No 60)

This includes all the national standards and additional standards set by the professional QA coordinating groups together with a full reference list.

2. *Collecting, recording monitoring and reporting technical recall/repeat examinations.* NHS Cancer Screening Programmes, 2000 (NHSBSP Good Practice Guide No 4) (being revised).
3. *Quality assurance guidelines for radiology.* NHS Cancer Screening Programmes 2005 (NHSBSP Publication No 59).
4. *Collecting and presenting screening round length data.* NHS Cancer Screening Programmes, 2002 (NHSBSP Good Practice Guide No 6).
5. *NBSS User Manual.* (available on the NBSS website www.nbss.nhs.uk)

APPENDIX 1 – Copy of KC62 Report

DH Form

ADULT SCREENING PROGRAMMES - BREAST SCREENING

*This return is effective from 1 April 2002
It has been approved by the Review of Central Returns Steering Committee (ROCR) and Minister*

Year end _____

Breast Screening Unit code _____

Breast Screening Unit name _____

Name of contact _____

Contact telephone _____

Email Address _____

If you have any queries regarding completion of this form, please contact SD3G on : Telephone :

Fax :

Email: SD2BScreening@

Returns should be completed and returned to : Department of Health
Statistics Division ;
Room 430B, Skipton
London, SE1 6LH

Please complete the following:

Reading type

Single	Recall if one suggests	Consensus	Arbitration	Mixed
a	b	c	d	e

Number of views

	One view	Two view
Prevalent screen		
Incident screen		

Round length indicator

(percentage of eligible women whose first offered appointment is within 36 months of their previous screen)

KC62 Women invited 1st April 2003 to 31st March 2004

Screening Office code

Parts 1 to 6 are repeated for Tables A to T

- Table A:* First invitation for routine screening
- Table B:* Routine invitation to previous non-attenders
- Table C1:* Routine invitation to previous attenders (Last screen within 5 years)
- Table C2: Routine invitation to previous attenders (Last screen more than 5 years)
- Table D: Early Recall
- Table E: Self/GP referrals of women not screened previously
- Table F1: Self/GP referrals of women screened previously (Last screen within 5 years)
- Table F2: Self/GP referrals of women screened previously (Last screen more than 5 years previously)
- Table T: All invitations and screenings : Sum of Tables A - F2

* Columns 49 to 51 are only appropriate for Tables A, B and C1

Part 1 Invitations and Outcomes

Age at 1st offered appointment	Line number	Number of women invited (1)	Lost to follow-up after tech. inadequate screening mammogram (2)	Number screened (tech. adequate) (3)	Outcome of initial screen				Final outcome of assessment				
					Not known (4)	Routine recall (5)	Early recall (6)	Referred for assessment (7)	Failed to attend for assessment (8)	Outcome of assessment not known (9)	Routine recall (10)	Early recall (11)	Cancer (12)
					<=44	01							
45-49	02												
50-52	03												
53-54	04												
55-59	05												
60-64	06												
65-69	07												
70	08												
71-74	09												
>=75	10												
Target Group (50-70)	11												
Total all ages	12												

Part 2 Assessment

Age at 1st offered appointment	Line number	Cancer diagnosed without cytology or histology (13)	Outcome of assessment up to and including cytology and diagnostic histology										Cancer (24)	
			Referred for cytology and/or core biopsy (14)	Up to and including cytology and/or core biopsy					Up to and including open biopsy					
				Not referred for open biopsy				Open biopsy (19)	Total open biopsy (20)	No result/inadequate result (21)	Result: Benign/normal			
				No result recorded/inadequate result (15)	Routine recall (16)	Early recall (17)	Cancer (18)				Routine recall (22)	Early recall (23)		
<=44	13													
45-49	14													
50-52	15													
53-54	16													
55-59	17													
60-64	18													
65-69	19													
70	20													
71-74	21													
>=75	22													
Target Group (50-70)	23													
Total all ages	24													

Repeated for Tables A - T:

Part 3 Cancers diagnosed

Screening Office code

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Cancers diagnosed by cytology and/or histology												
Age at 1st offered appointment	Line number	Total number of women with cancer (25)	Invasive status not known (26)	Non-invasive or possibly micro-invasive (27)	Definitely micro-invasive (28)	Invasive size						Total invasive (35)
						<10mm (29)	>=10mm & <15mm (30)	>=15mm & <20mm (31)	>=20mm & <50mm (32)	>=50mm (33)	Size not known (34)	
<=44	25											
45-49	26											
50-52	27											
53-54	28											
55-59	29											
60-64	30											
65-69	31											
70	32											
71-74	33											
>=75	34											
Target Group (50-70)	35											
Total all ages	36											

Repeated for Tables A - T:

Screening Office code

Part 4 Outcome measures

	Line no.	Uptake rate (% of invited) (36)	Referral rate (% of screened) (37)	Non-invasive or micro-invasive cancers (per 1,000 screened) (38)	Benign biopsy rate (per 1,000 screened) (39)	Benign Therapeutic operation		Invasive cancer detection rate (per 1,000 screened) (42)	Detection rate of invasive cancers <10mm (per 1,000 screened) (43)	Detection rate of invasive cancers <15mm (per 1,000 screened) (44)	Referral rate for cytology and/or core biopsy (% of screened) (45)	Referral rate for open biopsy (% of screened) (46)	Pre-operative diagnosis rate (% of all cancers diagnosed) (47)	Early recall rate following assessment (% of screened) (48)	Number of invasive cancers observed (49)	Number of invasive cancers expected (50)	SDR (51)	
						Number (40)	rate (per 1,000 screened) (41)											
Age Group (50-64)	37																	
Age Group (50-70)	38																	
Total all ages	39																	

Part 5 Data completeness indicators

	Line no.	Assessment result not known (% of referred) (52)	Cytology and/or core biopsy result not known (% of referred) (53)	Open biopsy result not known (% of referred) (54)	Invasive status of cancer not known (% of all cancers diagnosed) (55)	Size not known (% of invasive cancers) (56)	Lymph node status not known (% of invasive cancers) (57)	Grade not known (% of invasive cancers) (58)	Special type not known (% of invasive cancers) (59)	Grade not known (% of DCIS) (60)
Age Group (50-64)	40									
Age Group (50-70)	41									
Total all ages	42									

Part 6 Status of cancer

	Line no.	Women with an invasive cancer detected											Women with DCIS only detected		
		Any nodes sampled			4 or more nodes sampled				Grade						
		Number with lymph nodes sampled (61)	Number positive (62)	Number Negative (63)	Number with 4 or more nodes assessed (64)	Number positive (65)	Number Negative (66)	Number Grade 1 (67)	Number Grade 2 (68)	Number Grade 3 (69)	Number special type (70)	Number not special type (71)	Number low or intermediate grade (72)	Number High grade (73)	
Age Group (50-64)	43														
Age Group (50-70)	44														
Total all ages	45														

Screening Office code

KC62 Annex

The purpose of this Annex is to provide further information on each cancer detected which will allow epidemiological comparisons to be made both within the programme and with data from elsewhere.

The file will contain no identifying information of the woman .

The download to accompany the KC62 should be either as a ASCII or EXCEL file.

The information requested is as follows:

Line for each cancer detected	Relevant table (i.e. A, B, C1 etc.)	Age at first offered appointment in this episode (years)	Type of cancer (invasive, non-invasive or micro-invasive)	Size of tumour (mm)	Grade of tumour (I, II or III for invasive and high or low/intermediate for DCIS)	Nodal status of tumour			Histological type *
						Number of lymph nodes sampled (number, 0 or "Not known")	Number sampled positive	Number sampled negative	
(01)	(01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)
(01)									
(02)									
(03)									
(04)									
(05)									
(06)									
(07)									
(08)									
(09)									
(10)									
(11)									
(12)									
(13)									
(14)									
(15)									
(16)									
(17)									
(18)									
(19)									
(20)									

Use more lines if number of cancers detected exceeds 20

* see guidelines for histological sub types and codes

APPENDIX 2 – Copy of KC63 Report

This return is effective from 1 April 2002.

It has been approved by the Review of Central Returns Steering Committee (ROCR) and Minister

DH Form

ADULT SCREENING PROGRAMMES - BREAST SCREENING

KC63

Year ending 31 March 2004

PCT code _____
PCT name _____
Name of PCT Breast Screening contact _____
PCT Contact Telephone No. _____
PCT Contact Fax No _____
PCT Contact e-mail _____

If you have any queries regarding completion of this form, please contact SD3G on

Telephone : 020 7972 5543
Fax : 020 7972 5662

Returns should be completed and returned to : Department of Health
Statistics Division 3G
Room 430B, Skipton House
London, SE1 6LH

For NHS use. Please use this space to record anything relevant to the quality or consistency of the data.

DH FORM

BREAST SCREENING PROGRAMME

KC63

Part 1: CROSS SECTION ANALYSIS OF POPULATION COVERAGE WITHIN PERIOD 1/4/2003 - 31/3/2004

(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)	(11)		(12)	(13)	(14)	(15)
Line Number	Age of woman at 31 March 2004	Number of women resident as at 31 March 2004	Number of ineligible women	Never screened		Call / Recall Episodes				Self/GP Referral Episodes		Women screened		Coverage % Women screened in last 3 years		
				Number of women selected	Number never selected	Number invited in period	Number screened in period	Number invited in last 3 years	Number screened in last 3 years	Number screened in period	Number screened in last 3 years	Number screened in period	Number screened in last 3 years			
001	< 45															
002	45 - 49															
003	50 - 52															
004	53 - 54															
005	55 - 59															
006	60 - 64															
007	65 - 69															
008	70															
009	71-74															
010	75+															
011	Target Group (50-70)															
999	Total all ages															

Part 2: WOMEN WITH OPEN EPISODES

001	Number with Open episodes - no invite		002	Number with Open episodes - invited	
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