

AUDIT OF BREAST CANCERS IN WOMEN AGED 50 TO 74

Editors: Julietta Patnick and Chris Carrigan

**NHSBSP Publication No 62
April 2006**

Published by:

NHS Cancer Screening Programmes
Fulwood House
Old Fulwood Road
Sheffield
S10 3TH

Tel: 0114 271 1060

Fax: 0114 271 1089

Email: nhs.screening@cancerscreening.nhs.uk

Web site: www.cancerscreening.nhs.uk

© NHS Cancer Screening Programmes 2006

The contents of this document may be copied for use by staff working in the public sector but may not be copied for any other purpose without prior permission from the NHS Cancer Screening Programmes.

ISBN 1 84463 032 3

Further copies of this publication are available from the Department of Health Publications Orderline quoting NHSBSP Publication No 62

Tel: 08701 555 455

Fax: 01623 724 524

Email: doh@prolog.uk.com

CONTENTS

	Page No
PREFACE	iv
1. INTRODUCTION	1
1.1 Aim of this publication	1
1.2 Definition of an interval cancer	1
1.3 NHSBSP national standard for interval cancers	1
1.4 Uses of interval cancer data	2
1.5 Arrangements for ascertaining breast cancer cases	2
1.6 Local trust arrangements for the audit of breast cancers	3
1.7 Private sector mammography	3
2. CLASSIFICATION OF BREAST CANCERS	4
2.1 NHSBSP and cancer registry classifications	4
2.2 National Cancer Dataset	4
2.3 NHSBSP classification	4
2.4 Screen detected cancers	7
2.5 Interval cancers	7
2.6 Cancers in non-attenders	8
2.7 Cancers in lapsed attenders	8
2.8 Cancers in uninvited women	9
3. ROLES IN BREAST CANCER AUDIT	10
3.1 Local screening programmes	10
3.2 Quality assurance reference centres	10
3.3 Cancer registries	11
3.4 Cancer Screening Evaluation Unit	11
4. RADIOLOGICAL REVIEW OF INTERVAL CANCERS	12
4.1 Principles	12
4.2 Aims of review	12
4.3 Identifying interval cancers	12
4.4 Case details	12
4.5 QARC actions	14
4.6 Review protocol	14
4.7 QA review	17
REFERENCES	18
APPENDIX: NOTES ON CSEU DATA COLLECTION	19

PREFACE

This publication is the result of collaboration between the NHS Breast Screening Programme (NHSBSP), the regional cancer registries in England and the Cancer Screening Evaluation Unit. It has been produced following advice issued by the Department of Health in May 2002 on the audit of cancers for which screening programmes exist and on the disclosure of the results of these audits by the cancer screening programmes. The publication is based on the Interval Cancer Workshop held in September 2004 and on the discussions of the Radiology Quality Assurance Coordinating Group, including the protocol for the radiological review of screening mammograms. It also takes into account the views of the NHSBSP Evaluation Group.

Particular thanks are due to Robin Wilson, Mike Michell and Rachel Bennett for their helpful contributions and to Sue Gray for editorial advice.

The editors are Julietta Patnick, Director, NHS Cancer Screening Programmes, and Chris Carrigan, National Cancer Registry Coordinator for England.

This document replaces *Guidelines on the Collection and Use of Breast Cancer Data* (NHSBSP Publication No 26).¹

1. INTRODUCTION

1.1 Aim of this publication

The aim of this publication is to define a national protocol for the audit of breast cancer cases in women eligible for breast screening who are within, or just beyond, the age group for routine invitation, ie women aged 50–74. The purpose of auditing breast cancer cases in this age group is to monitor the effectiveness of the NHS Breast Screening Programme (NHSBSP) and to identify areas of good practice or areas where improvements can be made. Audit of breast cancer cases yields information at a national, local and individual level about the performance of the screening programme and about underlying trends in the incidence of breast cancer. There is particular emphasis on the audit and classification of cancers diagnosed in the interval between routine screening episodes (so-called interval cancers) and on identifying patterns in the distribution of interval cancers that may become apparent when the results of the audit of individual breast cancer cases are aggregated.

1.2 Definition of an interval cancer

The main objective of the NHSBSP is to reduce the mortality from breast cancer in women invited for screening. In the UK, women aged 50–70 years are invited for screening every three years. It is estimated that breast screening prevents up to 40% of breast cancer deaths in those women who attend for screening. This is because breast cancers can be detected and treated before symptoms are apparent. However, not all breast cancers are detected by mammography screening. Some cancers will not be visible on mammography, some may be missed and some will develop after a screening episode.

Interval cancers present symptomatically and are defined as breast cancers diagnosed during the interval between scheduled screening episodes after a normal screening result. More detailed definitions and explanations of the classification of interval cancers and other categories of breast cancer diagnosed in women eligible for breast screening are given in Chapter 2.

1.3 NHSBSP national standard for interval cancers

The NHSBSP national standard for interval cancers for women aged 50–70 are as follows:

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

The standards are based on the interval cancer rates observed in Swedish trials, including the Two Counties Study.² They have been calculated by applying the proportionate incidence of interval cancers from trials data to the underlying incidence of breast cancer in women in this age group in England.

Most screening trials are based on a 24 month screening interval. Therefore, there is much greater uncertainty about the expected rate in the third year after screening than in the first two years after screening because of the paucity of evidence. Where the screening interval has exceeded 36 months, no standards are available for interval cancer rates. This is because there is a lack of data for a screening round of more than three years, which is beyond acceptable levels in the UK and internationally.

1.4 Uses of interval cancer data

1.4.1 Evaluation of the NHSBSP

In order to ascertain whether the NHSBSP is achieving its objectives, various evaluations are carried out. Cancer detection rates and standardised detection rates are monitored closely to evaluate the performance of the programme year on year through successive screening rounds. However, cancer detection rates do not give a complete picture of the effectiveness of the programme. They measure its current effectiveness rather than how effective it could be if its activities were all optimised.

Analysis of interval cancer data allows the sensitivity of screening to be estimated and may identify patterns that merit further attention in the classification or geographical distribution of cancers. The Cancer Screening Evaluation Unit (CSEU) at the Institute of Cancer Research undertakes annual data collection and a detailed analysis of interval cancer data at national level on behalf of the national office of the NHS Cancer Screening Programmes. Further details are given in Chapter 3 and the Appendix.

1.4.2 Radiological review of interval cancers

Radiological review of interval cancers can highlight valuable learning points for health professionals. The results of such activity nationwide, collected over several years, will yield a great deal of information about the effectiveness of breast screening. Radiological review is explained further in Chapter 4.

1.4.3 Audit of individual screening histories

Women who develop symptomatic breast cancer despite participating in the breast screening programme often wish to know why this has happened. Audit of their personal screening history can yield information about this. Advice on best practice in the disclosure of audit results in cancer screening has been published.³

1.5 Arrangements for ascertaining breast cancer cases

Cancer registries and quality assurance reference centres (QARCs) need to collaborate in the identification and classification of all breast cancers, including interval cancers, diagnosed in women aged 50–74. Cancer registries are responsible for the timely identification and registration of all breast cancers diagnosed in women resident in their catchment area, and for the continued collection and analysis of diagnosis and treatment

data. This includes keeping a record of the screening status of women in the population who are eligible for screening. QARCs are responsible for assigning a screening history to each case of breast cancer diagnosed in women who are eligible for screening from which the screening status information required by the cancer registries can be derived. QARCs are also responsible for the classification of all such cases in accordance with the definitions given in Chapter 2 and for ensuring that all cases classified as interval cancers are subject to radiological review (see Chapter 4). Local agreements outlining the inter-related roles and responsibilities and agreed data transfers between regional cancer registries and QARCs should already be in place, based on the national template service level agreement between the National Cancer Registration Service and the NHS Cancer Screening Programmes that was agreed in November 2003.⁴

1.6 Local trust arrangements for the audit of breast cancers

Arrangements for the audit of breast cancers should be undertaken as part of the clinical governance arrangements in each trust and should cover all breast cancer services, including screening and symptomatic and treatment services. Each clinical team or directorate should work with trust management to agree on how breast cancer audit will work within their own organisational arrangements. This includes reporting the results of interval cancer audits and learning local lessons from them. It is important that arrangements for interval cancer audits are incorporated into each trust's clinical audit framework and clinical governance arrangements.

1.7 Private sector mammography

Breast cancers may be diagnosed in the private sector either through symptomatic presentation or following private mammography of asymptomatic women. In either circumstance, the cancer should be classified as a symptomatic case. Where there is a large local private mammography unit, local NHSBSP programmes may find it useful to build links and arrange at least an annual transfer of information about cases of breast cancer identified in women previously screened in the NHSBSP. However, most of these cases are discovered through cancer registry links, and information about whether these cancers were diagnosed by asymptomatic mammography is often unobtainable or unreliable.

2. CLASSIFICATION OF BREAST CANCERS

2.1 NHSBSP and cancer registry classifications

There are three main differences in the way that the NHSBSP collects and classifies data on breast cancers and the way that cancer registries classify the data:

NHSBSP	Cancer registries
Data are presented on the basis of a financial year (April to March)	Data are presented on the basis of a calendar year (January to December)
Microinvasive cancers are included with in situ cancers (because they are managed in a similar way)	Microinvasive cancers are included with invasive cancers
A recurrence of breast cancer in a woman who has been screened by the NHSBSP is counted as a screen detected cancer	A recurrence of breast cancer is subject to international cancer registry rules and may not be the subject of a new registration

2.2 National Cancer Dataset

Cancers classified by the NHSBSP can be mapped to one of the following diagnostic routes defined in the National Cancer Dataset:⁵

National Cancer Dataset 1	Cancers detected by a national screening programme (screen detected cancers)
National Cancer Dataset 2	Interval cancers occurring in patients screened by a national screening programme (interval cancers)
National Cancer Dataset 3	Other cancers (include here cancers in non-attenders, lapsed attenders and uninvited women)
National Cancer Dataset 9	Not known

2.3 NHSBSP classification

Quality assurance reference centres should produce a complete classification of all cases of breast cancer in women aged 50–74. Women in this age group are eligible for breast screening, and invitations for screening are sent routinely to women every three years from the age of 50 up to and including age 70. Women up to the age of 74 are included in the classification because they may be within three years of their most recent routine screening invitation. Women who may have been invited for screening aged 49 or younger should be excluded because they are not part of the population routinely invited for screening.

The basis of the classification is shown in Figure 1, and a decision tree is shown in Figure 2. The five main categories are:

- screen detected cancers
- interval cancers
- cancers in non-attenders
- cancers in lapsed attenders
- cancers in uninvited women.

Interval cancers should be further subcategorised.

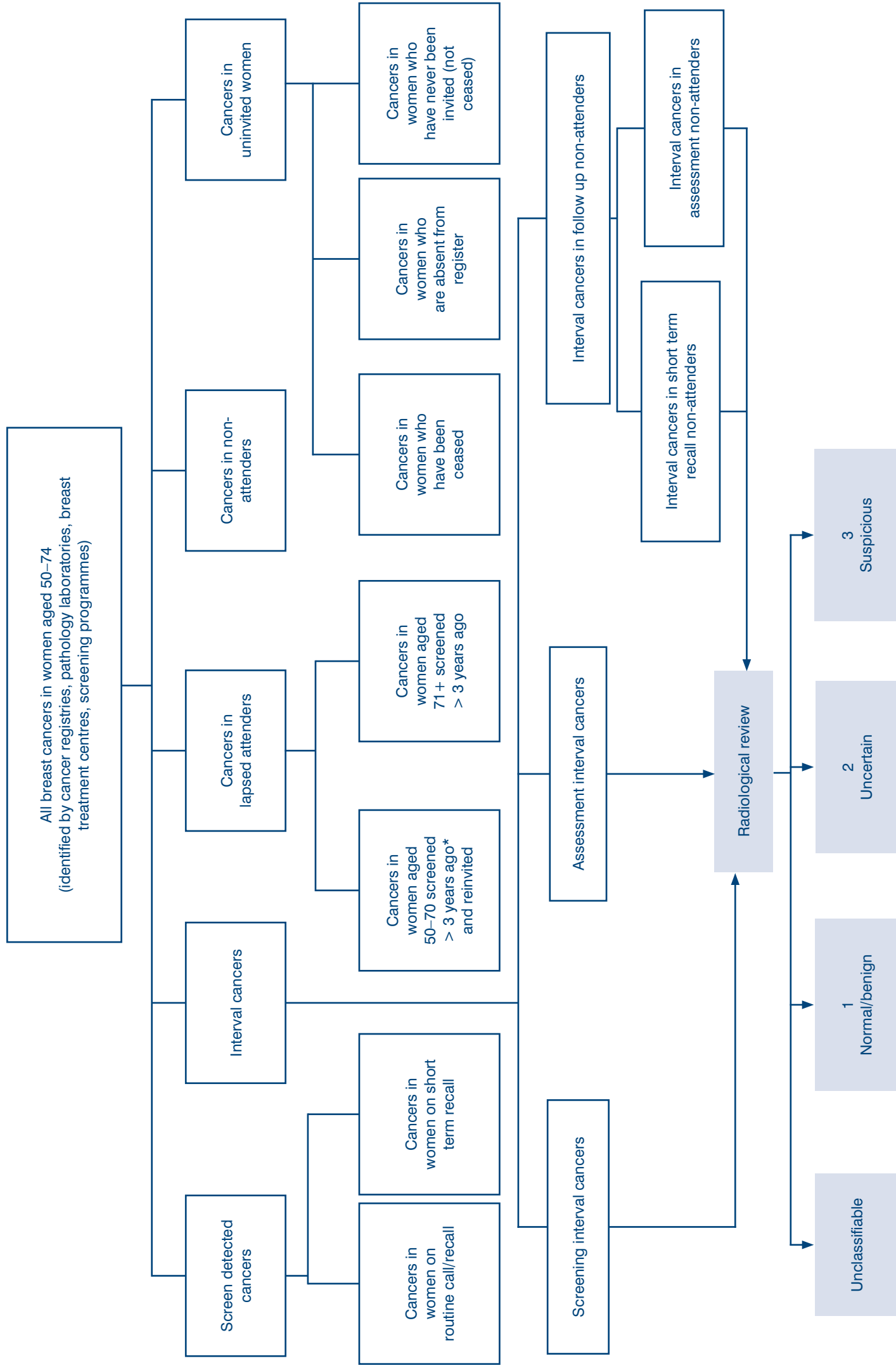


Figure 1 Classification of breast cancer cases.

*Dependent on local screening round length.

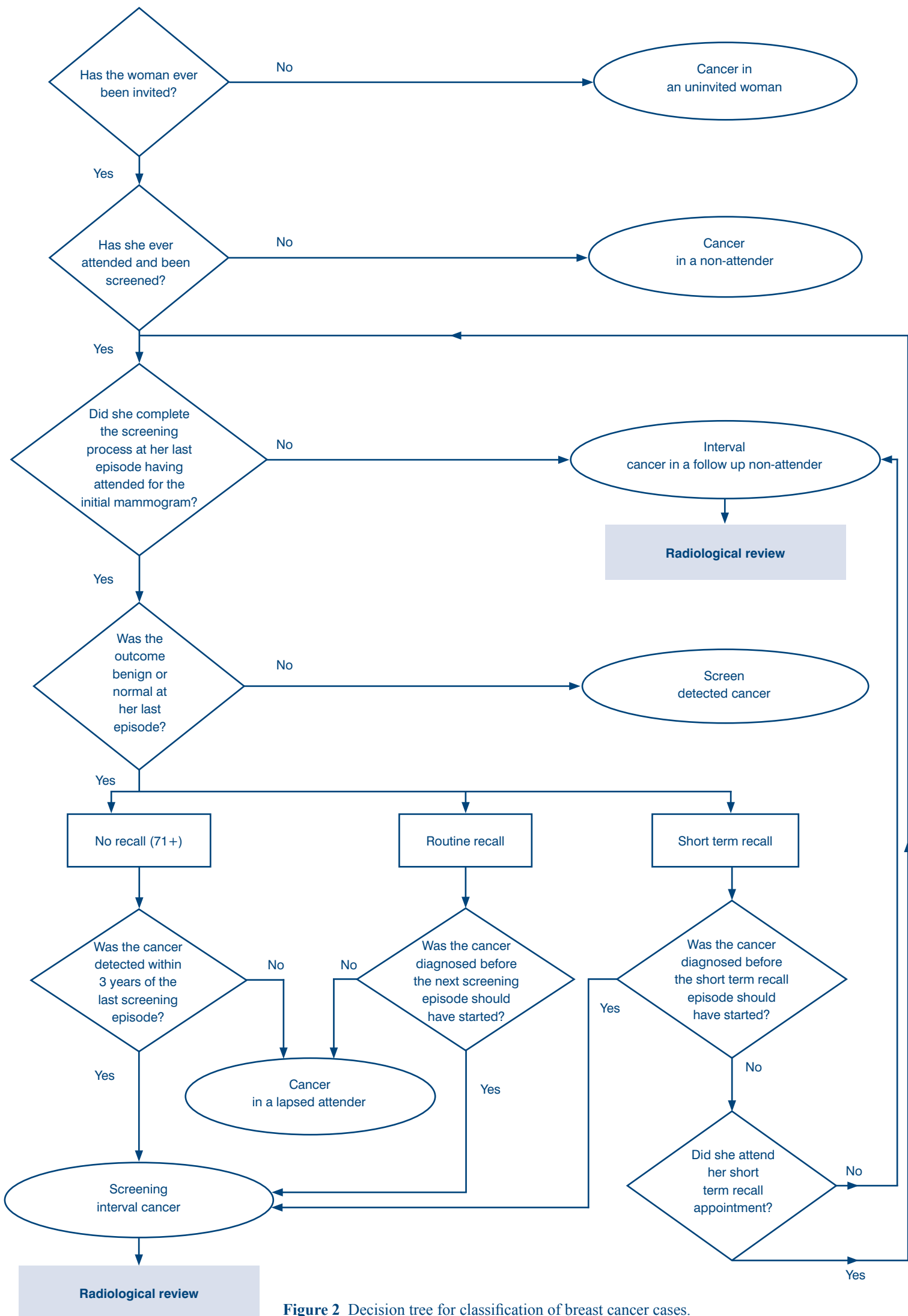


Figure 2 Decision tree for classification of breast cancer cases.

Detailed definitions of the NHSBSP categories and subcategories of interval cancers are given in the following sections.

Interval cancers must also be referred to the local screening programme for radiological review (see Chapter 4).

2.4 Screen detected cancers

Cancers diagnosed in asymptomatic women as a result of a scheduled screening episode.

This includes screening episodes which result from:

- routine invitations to women from age 50 up to and including 70
- self or GP referral of any woman aged 50 or over (eg over 70 or newly moved to area)
- short term recalls.

Symptomatic referrals from any source are excluded.

2.5 Interval cancers

These are defined as cancers diagnosed following a normal screening result during the interval beginning with the closure of the previous NHS screening episode and ending when the next screening episode is due to commence.

The dates to be used for the screening episodes are the date when the last screening mammogram was taken and the date of the next routine screening appointment.

This category includes cancers diagnosed in women aged over 70 within 36 months of their last screening episode. The dates to be used are the date when the screening mammogram was taken and the date when the next would have been due.

If slippage in a local screening programme means that the scheduled screening interval is more than 36 months, cancers diagnosed in women during that interval should still be classified as interval cancers but shown in a separate subcategory (see below).

Cancers diagnosed as a result of private mammography in the interval following a normal NHS screening result should also be classified as interval cancers.

Interval cancers can be further subcategorised as follows.

2.5.1 Screening interval cancers

These are interval cancers in women who were given a normal screening result after the previous screening mammogram.

2.5.2 Assessment interval cancers

These are interval cancers diagnosed in women who were recalled for assessment at the previous screening episode and then given a normal screening result. They are a particularly informative subcategory of interval cancers.

2.5.3 *Interval cancers in follow up non-attenders*

Interval cancers in assessment non-attenders

These are interval cancers diagnosed in women who were recalled for assessment at the previous screening episode but who failed to attend.

Interval cancers in short term recall non-attenders

These are interval cancers diagnosed in women who were placed on short term recall following assessment at the previous screening episode but who failed to attend.

Interval cancers will be analysed by year of screening and by number of months since the previous screening episode.

2.6 **Cancers in non-attenders**

Cancers diagnosed in women who have been sent one or more invitations to attend for routine basic screening (ie call or recall, but not assessment, self-referral or short term recall) but who have failed to attend on any occasion.

2.7 **Cancers in lapsed attenders**

These are cancers diagnosed in women who have attended at least once for screening and whose last attendance for screening was more than three years (36 months) previously.

This includes:

- women who have been reinvited at the routine screening interval but who have declined to attend for any reason (including being ceased⁶ from the programme)
- women who are aged over 70 and are therefore no longer in the age group for routine invitation.

If slippage in a local screening programme means the scheduled screening interval is more than 36 months, and no invitation for reattendance has been issued, cancers diagnosed in such women should be classified as interval cancers.

For cancers diagnosed until 31 December 2007, women aged 65–70 who were diagnosed with breast cancer before being reinvited as part of the expansion of the age range of the screening programme should also be classified as lapsed attenders if more than 36 months have elapsed since their previous screening episode.

All programmes should have begun inviting women aged 65–70 by 2004. Therefore, breast cancers diagnosed in any women aged 65–70 who have not been invited for screening by January 2008 should be classified as interval cancers owing to programme slippage.

Cancers in lapsed attenders will be analysed by age of woman at diagnosis and by year of diagnosis.

2.8 Cancers in uninvited women

These are cancers diagnosed in women who have not yet been invited for screening. These women fall into three categories:

Ceased

Women who have been ceased⁶ and who have never previously been invited. These women will generally have requested exclusion from the programme at some previous date.

Inaccurate/absent

Women incorrectly identified or absent from the NHS central register.

Never invited

Women aged 50 or more who have never been invited by the screening programme but who are not ceased. It is useful to distinguish between women under 53 and those above. All women should have been invited at least once by their 53rd birthday. If there is slippage in a local screening programme, it may also be useful to analyse cancers diagnosed in the additional period due to slippage before the first screening invitation is scheduled.

3. ROLES IN BREAST CANCER AUDIT

3.1 Local screening programmes

The role of each local breast screening programme in breast cancer audit includes:

- identifying a member of staff to take administrative responsibility for the identification, classification and notification of breast cancers in women aged 50–74
- building links with breast cancer treatment centres in the programme's own trust and other local trusts where treatment takes place in order to ensure that all women aged 50–74 diagnosed with breast cancer have their screening history checked (patients treated privately should be included if possible)
- notifying all breast cancer cases (with screening history where available) to the regional QARC
- where a woman with an interval breast cancer is identified, contacting the diagnosing breast treatment centre to obtain diagnostic images and pathology reports on the tumour(s) to allow radiological review
- carrying out radiological review of the screening images and notifying the regional QARC of the resulting category
- carrying out local analysis of cancer cases according to regional protocols, including running reports interrogating the IT system where necessary.

3.2 Quality assurance reference centres

Each regional QA director should identify a member of their QARC staff who has lead responsibility for the ascertainment and analysis of breast cancers diagnosed in women in breast treatment centres in the region who have been screened by breast screening programmes in the region. Reports should always be based on the screening population.

The role of the QARC includes:

- liaison with the relevant cancer registries, breast screening programmes and breast cancer treatment centres in order to achieve full ascertainment of all breast cancers diagnosed in the region in women aged 50–74
- exchange of data with other QARCs about women now resident and diagnosed locally who were last screened by screening programmes in other regions
- checking a woman's screening history and completing the case details
- initial classification of a breast cancer and identification of interval cancers and subcategorisation so far as is possible
- informing breast screening units of interval cancers and requesting radiological review and other details to permit full classification
- analysis of patterns of cases in order to identify any weaknesses in the local screening programme that require attention (eg a high proportion of women who have never been invited for screening)
- reporting interval cancer rates in the annual QA report
- providing interval cancer data to the CSEU on an annual basis
- review by the QA radiologist during QA visits of interval cancer films and the results of the radiological review process.

3.3 Cancer registries

Cancer registries are responsible for the identification and registration of in situ and invasive breast cancers diagnosed in women resident in their catchment area, and for continued collection and analysis of diagnosis and treatment data that follow diagnosis. The information stored by the cancer registries includes a record of the screening status of each woman with in situ and invasive breast cancer diagnosed in the population of women eligible for screening.

Each cancer registry director should identify an individual member of his/her staff who has responsibility for liaison with the QARC to ensure that the information stored by the cancer registry includes a record of the screening status of each woman with in situ and invasive breast cancer diagnosed in the population eligible for screening. The individual should work closely with his/her opposite number at the QARC in order to ensure complete ascertainment and analysis of all breast cancer cases in women aged 50–74 resident in the region covered by the registry. The individual should also ensure full exchange of data about women diagnosed or screened in the area but resident within another registry's area. The specific tasks to be undertaken include:

- liaison with the relevant QARC in order to achieve full ascertainment of all breast cancers diagnosed in the region in women aged 50–74
- supply of data to the QARC for all women diagnosed with breast cancer within the screening population where the registry has no record of their screening status
- supply of data to the QARC for all women diagnosed with breast cancer within the screening population (whether the registry has the screening status or not) if required by the QARC
- receipt and recording of the results from the QARC following checks on a woman's screening history, diagnosis and screening classification
- assisting the QARC in the analysis of patterns of cases in order to identify any weaknesses in the local screening programme that require attention.

The nature, timing and details of these tasks should be included in the service level agreement between the cancer registry and the QARC.

3.4 Cancer Screening Evaluation Unit

The CSEU collaborates with the national office of the NHSBSP to produce information about the sensitivity and performance of the NHSBSP at a national level. It liaises with QARCs to collect and analyse interval cancer data. Specific data collection exercises are undertaken (see Appendix). When the data become sufficiently reliable, interval cancer rates and analyses will be published in the appropriate scientific journals. It is anticipated that interval cancer data will be published on an annual basis. This will allow year on year comparisons of the performance of the programme against national standards and international comparisons of performance.

4. RADIOLOGICAL REVIEW OF INTERVAL CANCERS

4.1 Principles

Radiological review of interval cancers in a breast cancer screening programme is important because of the educational benefit of this process to film readers. By reviewing cases where mammograms show very subtle changes of malignancy, screening film readers have been able to improve their skills in detecting small breast cancers. In formulating this protocol, the previously published guidelines on interval cancer review and classification and further experience and publications on interval cancer review have been taken into account.^{1,7,8} The need for consistency and objectivity in the review process has been recognised. However, because the review and classification process involves opinions on cases from individual film readers, it has not been possible to develop a process yielding entirely consistent results between all programmes and regions.

4.2 Aims of review

The aims of the review protocol are:

- to ensure that there is a standard process for the review of previous mammograms which will ensure that radiologists and film readers continue to learn from interval cancer film review
- to provide helpful and understandable information to those women with a diagnosis of breast cancer who request the results of the audit of their previous screening mammograms.

4.3 Identifying interval cancers

Interval breast cancer cases may be identified from a number of sources. These include symptomatic breast clinics, pathology laboratories and cancer registries. The information flows in the identification of interval breast cancer cases are shown in Figure 3.

When a breast cancer case is identified in a woman of screening age or within a few years of screening (ie 50–74) in a hospital with a breast screening unit, the lead clinician of the multidisciplinary team (MDT) treating the woman should ensure that the Director of Breast Screening is informed. This may be done through the MDT coordinator. The Director of Breast Screening is then responsible for ensuring that the QARC is informed. If the hospital that is treating the woman for her breast cancer does not have a breast screening unit, the clinician treating the woman may choose to inform the QARC directly or may inform the local breast screening unit. Patients with interval breast cancers will also be identified through liaison between the QARC and cancer registries.

4.4 Case details

Case details to be passed by the MDT or the cancer registry to the screening unit or QARC should include the following patient details:

- NHS number
- name
- date of birth
- address
- GP/practice details

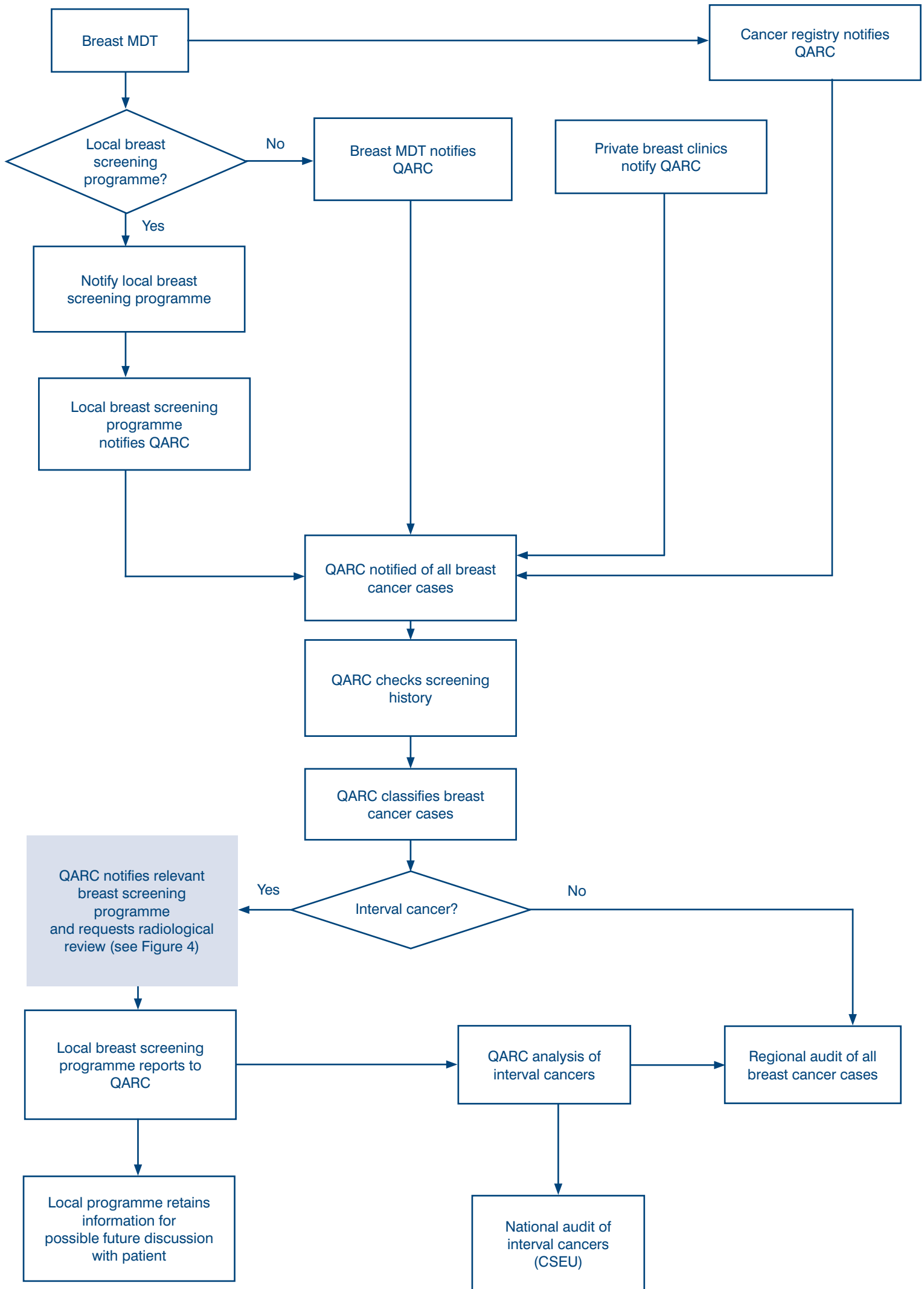


Figure 3 Identification of interval cancers.

- treating clinician
- size, stage and site of breast cancer
- notifying organisation.

This is the minimum dataset. A detailed specification of the list of items to be passed by the cancer registry should be included in the service level agreement between the cancer registry and the QARC. If the full details are not available, the QARC should be notified using the information that is available as soon as possible.

4.5 QARC actions

When the QARC has received the identifying details of a patient diagnosed with breast cancer, they should check the patient's screening history and confirm the details of the case. This includes completing any missing data items. The case should then be classified into one of the following categories (see Chapter 2 for detailed definitions):

- screen detected cancer
- interval cancer (between screens)
- cancer in a non-attender (never accepted invitation)
- cancer in a lapsed attender (more than three years since last screen and since reinvited or over invitation age)
- cancer in an uninvited woman (a woman who has never been invited).

These categories map to the National Cancer Dataset (see section 2.2); any further subcategories should map to the definitions given in Chapter 2.

The QARC should inform the appropriate screening unit of those breast cancers that are interval cancers and that, therefore, require radiological review. The screening unit should be given details of the woman's diagnosis, including the details of the treating clinician.

4.6 Review protocol

4.6.1 *Symptomatic mammograms*

Once notified of a woman's details, the breast screening unit should request the symptomatic mammograms and pathology report and carry out radiological review in order to classify the case. If no images are taken at the time of diagnosis, the cancer is regarded as 'unclassifiable' for audit purposes.

4.6.2 *Number of film readers*

The review process is carried out at a local level in the screening programme, and should involve a minimum of two film readers. For screening programmes with one film reader, a film reader from another programme should be invited to take part in the review. If there is disagreement between the two film readers regarding the classification of a case, arbitration should be sought from a third reader.

Some regions or programmes may choose to undertake a further review process involving more than two readers for educational purposes.

4.6.3 *Classification of screening films*

The previous screening films should be reviewed initially by each reader independently without sight of the mammograms taken at diagnosis if these are available. It is not necessary to mix normal cases with the screening films to be reviewed.

The radiology level of suspicion for malignancy is indicated using the three point scale below, and the presence of any abnormal mammographic sign/feature is recorded (see Figure 4)

Category 1: Normal/benign

Normal or benign mammographic features.

Category 2: Uncertain

A feature is seen with hindsight on the screening mammogram that is difficult to perceive or that does not have either clearly benign or malignant features. All screening film readers may have difficulties with perception or interpretation of such subtle mammographic appearances, eg asymmetric soft tissue density, parenchymal distortion.

Category 3: Suspicious

An abnormality is seen on the mammogram which has features suspicious of malignancy, eg pleomorphic microcalcification, spiculate mass.

It is expected that the proportion of screening films classified as 'suspicious' will be higher in the first two years after screening than in later years, and conversely that the proportion of normal/benign cases at screening will be higher in the third and subsequent years after screening rather than earlier. This expectation can be validated through audit.

4.6.4 *Review of diagnostic films*

Following initial review of the screening films, the diagnostic films should be reviewed in order to verify that any subtle or suspicious signs detected on the screening films correspond to the site of the confirmed breast cancer on the diagnostic films.

4.6.5 *False negative assessment cases*

For cases where a woman was recalled following screening, and underwent assessment for an abnormality which is shown to correspond to the breast cancer, the case should be reviewed within a multidisciplinary forum. These cases should be separately reported to the QARC as a sub-category of interval cancer (ie as an assessment interval cancer).

4.6.6 *Follow up non-attenders*

There are two forms of follow up within the NHSBSP. The first of these is follow up of a suspected abnormality at an assessment clinic which takes place within a single screening episode. The second is short term recall, ie the recall of a woman to an assessment clinic for a further screening episode at a shorter interval than the usual three year interval. Short term recall is used only in exceptional cases where a definitive diagnosis cannot be reached at initial assessment. Interval cancers occurring in women who have not attended when offered one of these types of appointment fall into the category of interval cancers in a follow up non-attender, but the two classes should be reported as separate subgroups (ie as an interval cancer in an assessment non-attender or as an interval cancer in a short term recall non-attender).

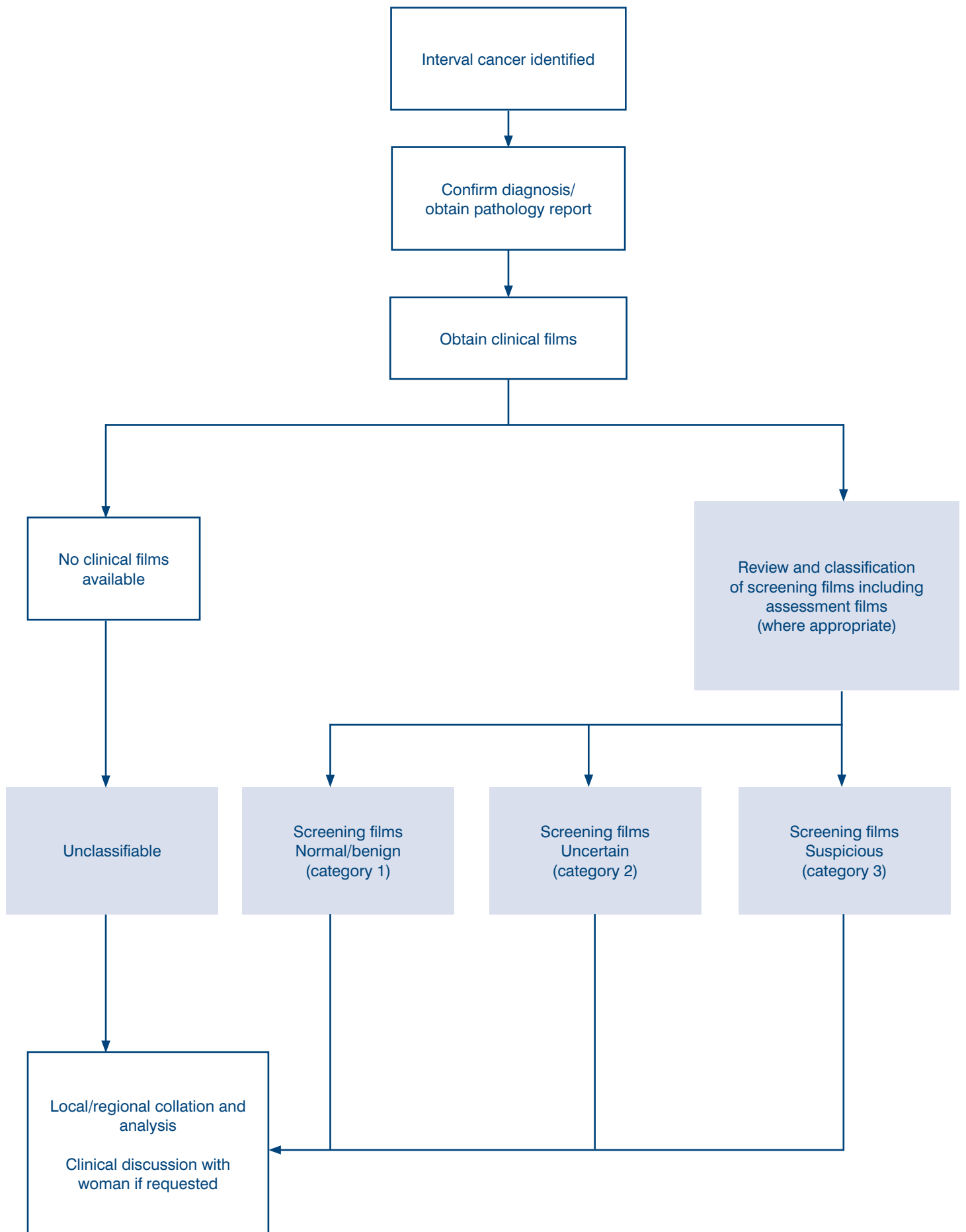


Figure 4 Radiological review of interval cancers.

4.6.7 *Completion of radiological review*

When the case has been reviewed, the breast screening unit should inform the QARC. The unit that screened the woman should retain the data in order to discuss the findings of the review with the woman at a later date if she so wishes. Notes should be retained for at least eight years from the date of the review.

4.7 **QA review**

Interval cancer films together with the results of the review process will be reviewed by the regional QA radiologist during a QA visit to ensure that the interval cancer review process is being carried out appropriately.

REFERENCES

1. *Guidelines on the Collection and Use of Breast Cancer Data*. NHS Breast Screening Programme, 1996 (NHSBSP Publication No 26).
2. Tabar L, Fagerberg G, Duffy SW et al. Update of the Two-County Program of Mammographic Screening for Breast Cancer. *Radiologic Clinics of North America*, 1992, 30: 187–210.
3. *Disclosure of Audit Results in Cancer Screening: Advice on Best Practice*. NHS Cancer Screening Programmes, 2006 (Cancer Screening Series No 3).
4. *Template Service Level Agreement between the National Cancer Registration Service and the National Cancer Screening Programmes November 2003* (internal document).
5. National Cancer Dataset (www.icservices.nhs.uk).
6. *Ceasing Women from the NHS Breast Screening Programme*. NHS Cancer Screening Programmes, 2004 (NHSBSP Good Practice Guide No 7).
7. Moss S, Blanks R for the Interval Cancer Working Group. Calculating approximate target cancer detection rates and expected interval cancer rates for the UK NHS Breast Screening Programme. *Journal of Epidemiology and Community Health*, 1998, 52: 111–115.
8. *Quality Assurance Guidelines for Breast Cancer Screening Radiology*. NHS Cancer Screening Programmes, 2005 (NHSBSP Publication No 59).

APPENDIX: NOTES ON CSEU DATA COLLECTION

Interval cancer cases with last routine screen between 1st April xxxx and 31st March xxxx.

Provision of data

The data collection includes all cancers recorded by a region as interval cancers for the given year. For multiple primaries, see the specification below. The data request may therefore include microinvasive or in situ cancers as well as cancers diagnosed more than 36 months since the last routine screen. However, for the purposes of primary data analyses, interval cancers will follow the criteria outlined below:

- invasive cancers
- women aged 50–70 at date of screen
- cancers diagnosed in women at an interval of 36 months or less from the date of a negative screen.

Specification of data items

A number of queries have arisen during an earlier data collection exercise, and clarification on a number of points is given here.

Unique identifier	All records must have a unique identifier attached to the record at the QARC. Any numbering system must remain consistent for the purpose of correspondence with the CSEU.
Date of screening	Date on which the screening mammogram was taken, ie the first set of mammograms of diagnostic quality in this episode.
Date of diagnosis	Date of histological diagnosis (from cancer registry or from breast screening computer systems). Follow the hierarchy defined in the National Cancer Dataset if there is no histological diagnosis.
Multiple primaries	As per NHSBSP definitions. Bilateral cancers are only counted once; take the one with the highest Nottingham Prognostic Index (NPI). Subsequent second primaries or recurrences are included. Recurrences are also included; however, few are expected to be identified as these would not generally be recorded by cancer registries.

Non-routine screens	Cancers detected at non-NHSBSP (including private) screens are included as interval cancers. All NHSBSP screens should be routine.
Short term recall	Cancers detected at short term recall are counted as screen detected. Negative short term recall screens do not alter the screening interval.

Use of Excel spreadsheet for data entry

To ease the comparability of data between regions, an Excel spreadsheet has been designed to enable standard data entry. Many fields are similar to the British Association of Surgical Oncology (BASO) audit in that they ask for an entry to be selected from a list. It is acknowledged that information may not be available for a particular data item for a number of reasons. However, for the purpose of this request, all unavailable data for whatever reason should be recorded as 'Unknown'.

A copy of the spreadsheet is available from the CSEU.