INFORMATION AND ADVICE FOR HEALTH PROFESSIONALS IN BREAST SCREENING

NHSBSP National Quality Assurance Coordinating Group for Radiography

NHSBSP Publication No 53
December 2002

First published by:

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ISBN 1 87 1997 89 5

This publication replaces NHSBSP No 19.

Further copies of this publication are available from:

NHS Responseline
Tel: 08701 555 455
Fax: 01623 724 524
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Typeset by Prepress Projects Ltd, Perth (www.prepress-projects.co.uk)
Printed by Streamline Offset, Hoddesdon, Herts

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PREFACE

This document is designed to provide information and advice to assist in answering the questions which are commonly asked by women invited for screening by the NHS Breast Screening Programme (NHSBSP). It has been written for radiographers and other health professionals trained to take mammograms, but will also be useful for administrative and clerical staff, clinical nurse specialists and other staff working in the screening programme who may have contact with women, either in person at the screening unit or by telephone before or after a screening appointment.

The document uses the term 'mammography practitioner'. This means a state registered radiographer or other health professional trained to take mammograms.[1]

The document replaces previous information and advice published in 1997 as *Information and Advice for Radiographers*.[2] It will be reviewed and revised regularly.

ACKNOWLEDGEMENTS

This document has been revised by a working group of the NHSBSP national quality assurance coordinating group for radiography. The members of the working group were Sylvia Andrews, Dianne Passmore and Jean Smith. Further editorial contributions have been made by Jenny Caseldine, Sarah Cush, Susan Gray and Julietta Patnick.

1. INTRODUCTION

The mammography practitioner working in the NHSBSP, particularly on a mobile unit, accepts considerable responsibility. She is frequently the first contact that a woman has with the service, and may be the only health professional encountered for the majority of women who have a normal mammogram.

The mammography practitioner has a duty to be well informed about the breast screening programme, and breast care in general, to enable her to answer questions from women in a straightforward, honest and professional manner. She should be familiar with the contents of this booklet, and with the leaflet *Breast Screening THE FACTS*, which is sent to all women invited for screening.[3] She should also take steps to ensure that she keeps up to date with the latest professional guidance on mammography from the NHSBSP, and with the wider issues about breast cancer and breast care which may be of concern to women invited for screening.

Further information about breast screening that is suitable for anyone who works for or takes an interest in the NHSBSP can be found in *Breast Screening: a Pocket Guide*[4] and on the NHS Cancer Screening Programmes' website (www.cancerscreening.nhs.uk).

2. MAMMOGRAPHY SCREENING

Early detection and treatment are the most promising approach to reducing breast cancer mortality. The available evidence from trials of mammography screening for the early detection of breast cancer was evaluated by a working group convened by the International Agency for Research on Cancer (IARC) of the World Health Organization (WHO) in March 2002.[5] The group concluded that the trials have provided sufficient evidence for the efficacy of mammography screening of women aged between 50 and 69 years. The reduction in mortality from breast cancer among women who chose to participate in screening programmes was estimated to be about 35%, or about one life saved for every 500 women screened. For women aged between 40 and 49 years, there is only limited evidence for a reduction in mortality.

Mammography is the most reliable way of detecting breast cancer early but, like other screening tests, it is not perfect. For example:

- some cancers are very difficult to see on the x-ray
- some cancers, even though they are there, cannot be seen on the x-ray at all
- the person reading the x-ray may miss the cancer (this will happen occasionally, no matter how experienced the reader is).

High quality mammography is vital to maximise the benefits of screening and to minimise the risks.

3. AGE

3.1 Women aged 50–70 years

Women aged 50–64 years who are registered with a GP are routinely invited for breast screening every three years. Women should receive their first invitation for screening within three years of their fiftieth birthday.

In September 2000, the Government announced in *The NHS Cancer Plan*[6] its intention to extend routine invitations for breast screening to women up to and including age 70. A three year rollout programme commenced in the NHSBSP in 2002. All breast screening programmes in England should have commenced inviting women aged 50–70 years by 2004.

3.2 Women not registered with a GP

Some categories of women who are not registered with a GP are eligible for screening. These include members of the armed forces, women in prison, homeless women, travellers and residents of long stay hospitals. UK residents temporarily working abroad and foreign nationals resident in the UK may also be eligible depending on their circumstances.

Detailed guidance is given in *Screening Policy for Women not on Health Authority Lists* (NHSBSP Good Practice Guide No 2).[7]

3.3 Women over invitation age

Women over the age for routine invitation may request a screening appointment at three yearly intervals. Local policy will dictate where and when an appointment will be given to women who have not been screened for three years.

3.4 Women under 50 years old

Women under the age of 50 are not routinely invited for screening within the NHSBSP. The IARC study[5]

concluded that there was only limited evidence for a reduction in mortality among women aged 40–49 who participated in breast screening programmes. A trial is under way in the UK to assess the efficacy of screening for women in this age group.

3.5 Age trial

The UK age trial is being coordinated by the Clinical Studies Group of the Institute of Cancer Research. The aim of the trial is to consider what benefit, if any, is gained by screening women from the age of 40. The trial started in 1991 and will run for 15 years. It has recruited approximately 195 000 women aged 40–41. Of these, 65 000 women have been randomised to the study group and are invited for annual screening by mammography for seven consecutive years. The control group, consisting of 130 000 women, is not invited for annual screening. Both groups will receive usual NHS care and will be eligible to be invited for routine breast screening after the age of 50. Breast cancer mortality rates for both groups will be monitored and compared. Interim results from the trial are due in 2003.

Further details of the age trial can be found at www.icr.ac.uk/cseu/bc4.htm.

4. BENEFITS AND DIFFICULTIES OF SCREENING

The benefits and difficulties of breast screening are:[3]

- most breast cancers are found at an early stage when there is a good chance of a successful recovery
- around half the cancers that are found at screening are still small enough to be removed from the breast; this means that the whole breast may not have to be removed*
- breast screening saves an estimated 1250 lives each year in this country
- breast screening reduces the risk for the women who do attend for screening of dying from breast cancer
- some women are called back for further investigations; after further tests, many of these women will be found not to have cancer; being called back can cause worry
- screening may miss some breast cancers
- not all cancers found by screening can be cured
- many women find mammography uncomfortable or painful.

*Recent evidence from the NHSBSP shows that, in the UK (2000/2001), 71% of all women diagnosed with invasive cancer through the programme underwent conservation surgery whereas 28% had more radical surgery.[5]

5. RISKS OF SCREENING

5.1 Radiation dose

There is a risk of inducing breast cancer as a result of irradiation of the breast tissue. The risk of radiation induced breast cancer as a result of mammography is very small and substantially less than the proven benefits of early detection of disease.

5.2 Ionising Radiation (Medical Exposure) Regulations 2000

Mammography practitioners must understand their duties under the Ionising Radiation (Medical Exposure) Regulations 2000 (IRMER). Detailed guidance notes for the implementation of the regulations in the NHSBSP have been published.[8]

Both practitioners and operators (as defined in the guidance notes) have a responsibility to ensure that doses arising from exposures are kept as low as reasonably practicable, consistent with the intended purpose. The following aspects are important:

- practical aspects of the exposure
- quality assurance
- assessment of dose
- adherence to diagnostic reference levels.

5.3 False results

Mammography is the most reliable way of detecting breast cancer early but, like other screening tests, it is not perfect.

5.3.1 False negatives

A false negative result is when a woman's mammogram or assessment investigations are reported as normal even though breast cancer is present. This results in false reassurance for the woman and a delayed diagnosis.

5.3.2 False positives

A false positive result is when a woman is recalled for further investigations which then show that the woman does not have breast cancer. This results in high anxiety for the woman and unnecessary investigative procedures, which may include unnecessary surgery for diagnosis.

5.4 Anxiety

Anxiety is present in the majority of women attending for screening. Women may be anxious about:

- the test itself
- the results
- their vulnerability to the disease
- their perception of breast cancer.

Mammography practitioners must respect the anxieties of women and help them by:

- being understanding and caring
- giving a full explanation of the procedure for a mammography examination
- maintaining a high standard of mammography in order to reduce the number of women requiring technical repeats
- informing the women of the arrangements for receiving the results and the likely time interval
- answering women's questions and by giving a telephone help line number where appropriate
- referring women to the leaflet *Breast Screening THE FACTS*.[3]

5.5 Interval cancers

Interval cancers are cancers that are diagnosed in the interval between scheduled screening episodes in women given a normal screening result. They are an inevitable part of screening. Interval cancers are classified as:

- *true interval cancer* – the screening mammograms are normal but mammograms taken at the time of diagnosis clearly show signs of cancer
- *occult interval cancer* – cancers which cannot be seen on the screening mammogram nor on the mammograms taken at the time of diagnosis
- *false negative interval cancer* – cancers which are present on the screening mammogram and which should have led to the woman being recalled for further investigation
- *interval cancer with minimal signs* – abnormalities identified on the screening mammogram at the site of the cancer subsequently diagnosed, but which would not be considered sufficient to recall the woman for further investigation.[9]

Evidence shows that the prognosis for women with interval cancers is still better than that for women who have never attended for breast screening.[10]

6. HEALTH AND SAFETY

Mammography practitioners are responsible for ensuring that the screening environment is safe for themselves and for women attending for screening. All practitioners should understand and adhere to local health and safety rules and regulations. It is their responsibility to make sure that they are up to date on all relevant guidance, including:

- local procedures for medical physics checks, including acceptance tests and quality control checks
- local procedures for regular checking of all equipment, including mobile units, for wear and tear
- local rules for the use of ionising radiation
- local infection control procedures
- local procedures for dealing with women who become unexpectedly ill during screening
- COSHH regulations
- regulations on electrical safety
- fire regulations
- safe working practices for manual handling.

7. THE MAMMOGRAPHIC EXAMINATION

7.1 Before starting

A full explanation of the examination should be given. This should include a statement of:

- the number of views and films to be taken
- the positioning of the breast and the reasons for the compression.

7.2 Checking the woman's personal details

The mammography practitioner performing the mammogram (the operator under IRMER) is responsible for ensuring that:

- the woman's right to confidentiality is respected
- all of the woman's details are correct
- the correct relevant information is transferred to the film, in accordance with local policies
- all women who self request meet the criteria for screening according to IRMER.

7.3 Positioning

Mammography practitioners should ensure that the woman is relatively comfortable and in the correct position before the compression is applied.

7.4 Compression

Mammography practitioners should recognise that compression is uncomfortable for some women and painful for a few.[11] Transient discomfort from application of compression is normal and experienced by approximately 70% of women. Transient pain from the application of compression is experienced by approximately 6% of women.

In order to obtain the full cooperation of the woman,

she should understand both the need for and importance of compression, which are:

- to reduce radiation dose
- to visualise better the breast tissue
- to reduce overlapping of tissue shadows
- to reduce blurring due to movement.

The mammography practitioner should stress to the woman that the compression:

- usually only lasts for a few seconds
- does not cause any harm to the breast.

Compression should be firm without causing distress and care should be taken to apply compression as smoothly and gently as possible.

Some breasts are more sensitive to pressure and handling than others, and some women may experience a dull ache and tenderness. This is usually short lived, but a few women may experience a more prolonged reaction. These women should be advised to take their usual analgesics and consult their GP if the pain persists.

If a woman reports that her breasts are tender at the time of her screening appointment, it may be appropriate to offer her another appointment at a time when her breasts are less sensitive.

There is no evidence that breast cancer is spread by the compression used in mammography.

7.5 Minimising pain and discomfort

It has been shown that the pain and discomfort experienced by women, and the acceptability of the service, can be influenced by the anxiety felt by the woman

and the interaction between her and the radiographer.[11] Moreover, the experience of pain is a significant factor associated with failure to reattend for screening.[12] A recent study has shown that it is possible to influence the discomfort felt by the women.[13] This may be achieved by lowering the women's expectation of discomfort with the provision of good verbal information prior to the procedure. A significant reduction in the actual discomfort experienced by the women was reported. The effect of the information was more pronounced among first time attendees because they often do not know what to expect not having had any previous experience of mammography.

7.6 Superficial changes

Skin reddening and tingling may be experienced; this is largely due to irritation of the skin capillaries. Women should be advised that this is not unusual and will quickly fade.

7.6.1 Skin abrasions

Some women who attend for breast screening will have identifiable breast problems, eg skin tearing or soreness to either or both breasts. For these women, a mammogram may aggravate the condition or make the mammogram more uncomfortable than might normally be expected. Such women should be given the opportunity to make an informed decision regarding the possible consequences of undergoing mammography. Some units may have a local protocol requiring the woman to sign a consent form before continuing with the examination.

7.6.2 Bruising

Some women bruise very easily. If the woman indicates that she bruises easily, she should be reassured about the need for compression and that any bruising should be of a transient nature.

7.7 Consent

The woman should feel confident that she has the ability to stop the procedure at any point. The mammography practitioner should respect that right and recognise when consent is withdrawn. Consent to mammography is usually behavioural and means that the woman:

- cooperates with the radiographer
- is not unduly anxious
- responds to simple requests
- shows no signs of agitation or distress.[14]

7.8 Notification of results

The mammography practitioner should inform the women of the procedure for notification of results and the approximate length of waiting time. This should not exceed two weeks.[15]

The mammography practitioner should remind women that a small proportion of women are recalled for various reasons.

7.9 Technical repeats/recalls

If films are not being processed on a mobile screening unit, the mammography practitioner should ensure that women know that they could be recalled for technical reasons.

The mammography practitioner should ensure that technical repeats/recalls are always recorded either on the report form or using their local computer system. These records must be easily accessible and subjected to regular audit.[16]

Technical recalls are usually the radiologist's responsibility. Local protocols will determine whether a woman is to be recalled to the mobile or static unit, but due care should be taken to limit anxiety and the

films should be checked to ensure that, if possible, the woman is not first recalled for technical reasons and then again at a later date for clinical reasons.

8. CLINICAL SIGNS AND SYMPTOMS

8.1 Noting clinical signs and symptoms

When women attend for screening, the mammography practitioner should note down on the clinical sheet any significant or relevant symptoms which are reported by the women or observed by the mammography practitioner.

The mammography practitioner is not being asked to undertake a clinical examination of the breasts, only to record reported or observed significant signs or symptoms.

A record of what has been said to the woman may also be helpful for the film reader. For example:

- 'I have written down the problem and the film reader will know about this when they look at your films – a decision will then be made about whether you need a second screen.'
- 'I have asked for you to be recalled to have this checked out.'

8.2 Recall for assessment following a normal screening mammogram

A woman with a normal screening mammogram may still be called for clinical assessment, by the radiologist or equivalent, if any of the following clinical signs and symptoms are noted at the screening episode:

- *recent lump in the breast* – a long standing lump which has been previously investigated and diagnosed need not be recalled providing the mammogram is consistent with a benign diag-

nosis; comparison with previous symptomatic mammograms should be made if possible

- *distortion or change in the shape of the breast* – a mass may be palpable
- *nipple eczema* – this includes recent eczema that has just healed
- *recent nipple inversion* – this may be caused by cancer and requires assessment; it is important that mammography practitioners are aware of the various nipple appearances
- *skin tethering or dimpling* – a mass may be palpable
- *nipple discharge* – unilateral multiple duct discharge, whether bloody or not, is highly unlikely to be related to malignancy; bilateral multiple duct discharge is very unlikely to be of significance.

Local written protocols must be in place for the recall of women with significant signs and symptoms.

9. WOMEN WITH SPECIAL NEEDS

9.1 Screening appointments

Mammography practitioners should be aware of and respect women with special needs. Appropriate facilities should be available to ensure that their visit to the breast screening unit is as acceptable as possible. This usually means offering an appointment at a static unit that allows easier access for women with physical disabilities, more space for carers or other supporters who may accompany the woman and better privacy. An appointment in a static unit also allows their films to be checked while they are still present.

Women with special needs may require a longer screening appointment time or an appointment when the screening clinic is not so busy, eg at the end of a screening session.

9.2 Women with learning disabilities

Women with learning disabilities have the same entitlement as other women to breast screening. The NHSBSP has a responsibility to ensure that women with a learning disability:

- have access to information to enable them to make their own decision about whether to attend for breast screening
- know what to expect when they attend for screening
- understand the possible consequences of breast screening and the need to be breast aware.

The NHSBSP has published guidance on good practice in breast and cervical screening for women with learning disabilities.[14] A picture leaflet about breast

screening is available and should be sent or given to women who are known to have a learning disability.[17] A more detailed picture book is also available for carers to use to help to prepare women for a screening appointment and for mammography practitioners to explain the screening procedure to women.[18]

9.3 Women with physical disabilities

Every effort should be made to image women with a physical disability and to produce films of diagnostic quality. However, this may not always be possible for women who have limited mobility in their upper bodies or who are unable to support their upper bodies unaided.[14]

9.4 Women with other special needs

Women with cultural differences and for whom English is not a first language may have support from local link workers or advocates.

9.5 Gender reassignment

Individuals who are undergoing female to male gender reassignment will continue to be invited for breast screening so long as they are registered as a woman, unless they ask to be ceased from the programme or have had a bilateral mastectomy. Individuals who are undergoing male to female gender reassignment may be screened as a self referral at the request of their GP. Individuals who are registered as indeterminate or female are included in screening batch lists and will be sent a screening invitation unless they ask to be ceased from the programme.

10. WOMEN WITH BREAST IMPLANTS

Women with breast implants should be offered screening in a unit with processing. Imaging should only be undertaken by a state registered mammography practitioner.[19]

Before proceeding, the mammography practitioner should:

- take the relevant breast history and, if possible, ascertain the type of implant; Trilucent implants should not be imaged (these have only been available since 1995 and women have been advised to have them removed)[20]
- give the woman a copy of the NHSBSP leaflet on breast screening and breast implants (or local alternative)[21]
- explain the significantly reduced sensitivity of screening owing to the presence of the silicone implant
- observe and record the size, shape and contour of the breasts and the position of the nipples before and after the mammographic examination
- explain the use of minimal compression.

If a rupture is suspected:

- discuss this with the woman
- discuss with the radiologist how to proceed.

Detailed guidelines for imaging women with breast implants are given in Appendix 1.

11. WOMEN WITH PACEMAKERS

These are not affected by the x-rays used for mammography.[22] If the pacemaker is in the pectoral region (some are abdominal), the mammography practitioner should adjust the x-ray equipment to make the woman as comfortable as possible and avoid pressure on the pacemaker. Care must be taken not to compress the pacemaker while taking the mammogram. Depending on the position of the pacemaker, it may be difficult to image the breast adequately. Women with pacemakers may be advised to attend the static unit so that films can be processed while the woman is still at the unit.

If ultrasound is used for women recalled for assessment, care must be taken not to place the probe over the pacemaker implant site because the energy from the probe may adversely affect pacemaker operation.

12. ATAXIA TELANGIECTASIA

12.1 What is ataxia telangiectasia?

Ataxia telangiectasia (AT) is a rare progressive disease of the nervous system which affects around 50 families in the UK. The risk for AT patients developing cancer is approximately 100 times greater than that for any other person of the same age.

12.2 Carriers of the AT gene

Relatives of AT patients may be carriers of the AT gene. Female blood relatives of AT patients have a five times greater risk of developing breast cancer than the general population. Carriers of the AT gene are also known to have an increased sensitivity to x-rays. Current evidence suggests that this increased sensitivity is unlikely to increase the risk of breast cancer during mammography in women aged over 40.[23]

The advice for AT gene carriers is as follows:

- *over the age of 50* – female blood relatives of patients with AT should take up their invitations for breast screening; they should be offered breast screening using the lowest practicable dose, preferably using single view mammography
- *under the age of 50* – female blood relatives of patients with AT should only have mammography symptomatically.[24]

Women who are aware that they are carriers of the AT gene should already understand that they should inform the breast screening unit. There is no need for the mammography practitioner to make enquiries to all women.

13. FAMILY HISTORY

13.1 Women over 50 years old

All women over the age of 50 are invited for screening as a matter of routine every three years as part of the NHSBSP.

13.2 Women under 50 years old

Women under the age of 50 with a family history of breast cancer should seek further advice from their general practitioner; if there is a specific local protocol for advice to these women, a contact point should be given.[25] These women are usually seen in special family history clinics within the breast care service. These women are not eligible for routine breast screening under the NHSBSP.

13.3 Intervention trials

The International Breast Cancer Intervention Study (IBIS) is designed to evaluate the effect of taking daily tamoxifen on the incidence of breast cancer in women with an increased risk. Recruitment to the IBIS I trial has now closed. The IBIS II trial, which is still recruiting, is divided into two parts: a prevention study and a ductal carcinoma in situ (DCIS) study. The prevention study is looking at prevention in women at increased risk of breast cancer. The DCIS study is looking at prevention of breast cancer in women with a recent diagnosis of DCIS.

Details of the IBIS I and IBIS II trials can be found at www.ibis-trials.org.

14. HORMONE REPLACEMENT THERAPY

14.1 Effects of hormone replacement therapy

Starting on hormone replacement therapy (HRT) is not a valid reason for having a baseline mammogram, nor does being on HRT require more frequent screening. Women taking HRT may notice changes in their breasts and may experience increased sensitivity and tenderness in the breasts. The available evidence indicates that there is a small increase in the risk of developing breast cancer while women are taking HRT and during the few years after stopping. The increased risk diminishes after ceasing use of HRT and has disappeared largely, if not wholly, within 5 years.[26]

14.2 Million women study

This study is looking at how HRT affects a woman's breasts and other aspects of her health. Other factors being investigated include diet, childbirth, breastfeeding, vitamin and mineral supplement use, contraceptives and family history. The study has recruited over one million women from among those invited for breast screening. Initial findings show that, among women participating in the study, one in three is currently using HRT.

Further details of the study can be found at www.millionwomenstudy.org/.

15. LOCAL PROTOCOLS FOR WORKING PRACTICES

Every unit must have fully documented protocols in line with the requirements of its trust. Copies of these protocols must be available to all staff and it is the responsibility of the individual to be aware of and adhere to the contents.

APPENDIX 1: SCREENING WOMEN WITH BREAST IMPLANTS

This is a state registered mammography practitioner task.

A1.1 Background information

These guidelines on imaging women with breast implants should form the basis of a local protocol for each breast screening service. The guidelines complement *Mammography in Women who have Undergone Augmentation Mammoplasty*, published by The Royal College of Radiologists, and aim to standardise procedures in the NHSBSP.[27]

All women in the screening age group are invited for screening, including women with breast implants who may have specific requirements and concerns. Mammography is the most accurate method of early detection of breast cancer in patients who have had augmentation, although a percentage of the breast parenchyma may be obscured by the implant during routine film screen mammography.

A1.2 Screening women with implants

A1.2.1 Prior to screening, women with silicone implants should be advised of the lack of efficacy of breast screening and the possibility of reduced sensitivity with mammography.

A1.2.2 These women should be screened in a unit where films can be processed and, where appropriate, discussed with a radiologist while the woman is still on site.

A1.2.3 Some units may require the woman to sign a consent form prior to carrying out the examination on the mobile or static unit. This is not a national requirement.

A1.2.4 As with all women, a relevant breast history should be taken prior to mammography. In addition, information on the type of implant in situ should be obtained if possible.

The mammography practitioner should observe and record on the clinical sheet anything considered to be unusual, for example:

- differences in the size of the breasts
- position of the nipple
- skin colour of the breast
- contour of the breast.

Any differences should be pointed out to the woman prior to mammography. If a ruptured implant is suspected, mammography should not be undertaken. Local procedures should be followed.

A1.2.5 The mammography practitioner must explain the use of minimum compression and that this is very unlikely to damage the implant. The results of a survey of 23 screening mammography units demonstrated no complications with mammography.[28]

A1.2.6 Local protocols on the views to be taken should be drawn up in conjunction with the radiologist. These may include:

- craniocaudal views
- extended craniocaudal views
- lateral views
- Eklund modified views.

A1.2.7 In addition to routine views, the Eklund technique may be used to pull the breast tissue forward to the implant and improve breast tissue visualisation. However, if the implant feels firmly fixed in position, this technique may not be suitable. Even under ideal circumstances, such as a 'soft' breast and an experienced mammography practitioner, approximately 10% of breast tissue may still be obscured.

Despite the best efforts to maximise the amount of breast tissue visualised free of the implant, in most patients who have breast implants there will be some compromise in visualisation of all breast tissue.[29]

Where minimal glandular tissue is demonstrated, a radiologist may decide that no further films are required and that screening would be of little benefit.

A1.2.8 The mammography practitioner should record all details of the examination, eg views taken, post mAs exposure, breast thickness and compression force.

A1.2.9 A routine clinical observation, as described in section A1.2.4, should be undertaken following mammography. If any changes have occurred, the radiologist should be informed and the local policy followed.

A1.2.10 Women should be informed that they should contact the breast screening unit for advice if they have any concerns following mammography.

A1.2.11 As with all women, it is important to emphasise breast awareness.

A1.3 Subcutaneous mastectomy

The mammography practitioner should advise women who have had breast implants following subcutaneous mastectomy that mammography is not necessary since it is expected that all breast tissue has been removed.

An information leaflet produced by the NHSBSP is available for women with breast implants.[21]

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