

Breast screening - Management

[View full scenario](#)



What are the benefits and harms of breast screening?

- Inform women of the associated benefits and harms of breast screening to allow them to make an informed choice.

- **The benefits include:**
 - Breast screening saves lives, with the greatest reduction in mortality in women 50–70 years of age.
 - Increased early detection of breast cancer has led to more breast-conserving treatment and a reduced rate of interval cancer.
 - It has been estimated that up to 1400 women in England are saved each year from death, following detection of breast cancer at screening.

- **The harms include:**
 - Over diagnosis leading to unnecessary treatment.
 - False-positive mammograms leading to unnecessary further investigations.
 - False reassurance due to missed cancer and incorrect diagnosis.
 - Pain and discomfort due to mammography.
 - Psychological distress.
 - Radiation exposure which may increase the risk of breast cancer.
 - It has been estimated that if 2000 women are screened regularly for 10 years, one woman will avoid dying from cancer, but 10 healthy women will be treated for breast cancer unnecessarily, and about 200 women will experience a false alarm.

Basis for recommendation

- These recommendations are based on expert opinion in reviews [[Blamey et al, 2000](#); [Dixon, 2006](#)], trial evidence [[Vainio and Bianchini, 2002](#)], and a Cochrane Review [[Gøtzsche and Nielsen, 2006](#)].

- Available evidence indicates that breast screening reduces mortality from breast cancer in women of 50–70 years of age. It is a point of controversy whether this benefit is outweighed by the harm caused by screening.

- **Benefits of screening:**

- **Reduced mortality:**

- The [evidence](#) for this is based primarily on two meta-analyses [[U.S Preventive Services Task Force, 2002](#); [Vainio and Bianchini, 2002](#)].

- The first was an intention-to-treat analysis of 10 randomized controlled trials, which suggested that up to 1400 women in England are saved each year from death, following detection of breast cancer at screening [[Vainio and Bianchini, 2002](#)].

- The second was a meta-analysis of seven trials, six of which were also included in the Cochrane Review, which estimated a pooled reduction in breast cancer deaths of 22% in women older than 50 years of age after 14 years of regular screening. To prevent one death, 838 women would need to be screened [[U.S Preventive Services Task Force, 2002](#)].

- The estimate of the number of women whose life is prolonged varies from one in every 2000 women screened in a 10-year period [[Gøtzsche and Nielsen, 2006](#)] to five in every 2000 women screened in a 10-year period [[Advisory Committee on Breast Cancer Screening, 2006](#)].

- **Increased breast-conserving treatment and reduced rate of interval cancer:**

- Other support for screening is obtained from information published by the Advisory Committee on Breast Cancer Screening. They estimate that 7 out of 10 women diagnosed with breast cancer during screening had breast-conserving therapy compared with 5 in 10 outside the screening program [[Advisory Committee on Breast Cancer Screening, 2006](#)].

- Interval cancers are breast cancers diagnosed in the period between screenings, and thus can be defined as occurring only in women who have been screened. Interval cancer rates are inversely related to the screening-detected cancer rates, and have decreased overall over time indicating the increased sensitivity of screening programmes in detecting breast cancer [[Advisory Committee on Breast Cancer Screening, 2006](#)].

- **Harm from screening:**

- **Over diagnosis leading to unnecessary treatment:**

- Over diagnosis refers to the detection of breast cancers through screening that would not have been diagnosed without screening and would not have threatened the lives of the women concerned. Once diagnosed through screening these cancers have to be treated; without screening they would not. The [evidence](#) for harm due to over diagnosis is based primarily on a Cochrane Review of six randomized trials.

- The review estimates that, for every one prevented breast cancer death in 2000 women screened over a 10-year period, 10 healthy women will be unnecessarily treated with invasive investigations and surgery [[Gøtzsche and Nielsen, 2006](#)].

- **False-positive mammograms:**

- Around 5% of women screened are recalled for further tests (which may include clinical examination, more mammograms, breast ultrasound, and needle biopsy) because they are judged to have abnormal mammograms or, less often, to have suspicious signs or symptoms. Of these women, 85% do not have breast cancer and would not have required further tests had they not attended for screening. Only around 15% of women recalled (0.6% of women screened) prove to have breast cancer. False-positive mammograms are an inevitable and unavoidable aspect of breast screening [[NHS Breast Screening Programme, 2007](#)].

- **False reassurance:**

- There is [evidence](#) from a single study that false-negative interpretation of mammograms occurs. However it must be noted that this study does not

reflect current screening practice in the UK which has changed significantly since the study was published [[Harvey et al, 1993](#)].

- There is limited evidence to suggest that, in women who have been previously screened for breast cancer, false reassurance has no significant effect in terms of delaying presentation of symptoms to the GP [[de Gelder et al, 2008](#)].

- **Pain:**

- There is [evidence](#) to indicate that mammography causes breast discomfort and pain.

- An estimated one in three women having their first mammogram experienced discomfort [[Rutter et al, 1992](#); [Gøtzsche and Nielsen, 2006](#); [Miller et al, 2008](#)].

- **Psychological distress:**

- There is limited [evidence](#) that false-positive interpretation of mammograms can lead to psychological distress for many months afterwards [[Lerman et al, 1991](#); [Gøtzsche and Nielsen, 2006](#)].

- Despite the possible psychological distress there is also [evidence](#) of no significant reduction in participation in subsequent breast screening programmes between women with a false-positive test and women with a negative test [[Andersen et al, 2008](#)].

- **Radiation-induced breast cancer:**

- There is limited [evidence](#) of a small risk of radiation-induced breast cancer. The estimates for radiation exposure-induced breast cancer averages at 0.07 per 1000 women of 50–70 years of age [[Advisory Committee on Breast Cancer Screening, 2006](#)].

What information do I give women about breast screening?

- Inform women awaiting breast screening that:

- An invitation will arrive by post giving the date, time, and place to attend. If the time and place are inconvenient, the appointment can be changed by telephoning the screening unit.
- Screening is done using mammography (radiography) of each breast.
- The screening unit may be mobile, hospital-based, or permanently based in a convenient location such as a shopping centre.
- The visit to the screening unit should last approximately 30 minutes.
- Mammography requires removal of clothes from the top part of the body, including the bra if the woman is wearing one.
- Each breast is placed in turn on the machine and gently but firmly compressed with a flat, clear, plastic plate.
- Some women find mammography uncomfortable, and even painful, as the breasts have to be held firmly in position and pressed to get a good image.
- The pain due to mammography usually only lasts for as long as the procedure, although in a small number of women it may continue for some time afterwards.
- Women should avoid the use of talcum powder or spray-on deodorant on the day of breast screening as this may affect the mammogram.
- Women with breast implants can receive breast screening but usually have to go to the hospital screening unit for this.
- They should await contact from the breast screening service about the test results and any follow up required. Results should arrive within 2 weeks, and after this time the woman can contact the screening unit directly for results.
- Additional information about the UK Breast Screening Programme can be obtained from www.cancerscreening.nhs.uk.

Basis for recommendation

- These recommendations are based on expert opinion in reviews [[Blamey et al, 2000](#); [Dixon, 2006](#); [Knutson and Steiner, 2007](#)].

Who is eligible for national screening for breast cancer?

- Inform women younger than 50 years of age, who are not an increased risk of breast cancer, that they are currently excluded from the screening programme.
 - The incidence of breast cancer and the effectiveness of mammography are lower among women in their forties than in women 50 years of age or more.
 - Mammography results in less absolute benefit and greater absolute risk for women in their forties than for women 50 years of age or more.
 - The Cancer Reform Strategy 2007 announced a policy of extending the range of women eligible for routine breast screening to 47 years of age, but this is not yet in place.
- Women at increased risk of breast cancer (e.g. with a strong family history of breast cancer) are eligible for breast screening before 50 years of age. Women who may be at increased risk can be referred to have their risk formally assessed and their management options, which include screening, discussed. For more information, see the CKS topic on [Breast cancer - managing FH](#).
- Advise healthy women of 50–70 years of age that they are eligible for routine breast screening.
 - Because the programme is a rolling one which invites women from GP practices in turn, not every woman will receive an invitation as soon as she is 50 years of age; but she will receive her first invitation before her 53rd birthday.
 - Routine screening is repeated every 3 years.
- The breast screening service provides additional support for certain groups of women including those with a degree of:
 - Physical disability.
 - Mental impairment.

- Resources are available to assist women with learning difficulties to learn more about breast screening. For more information see www.cancerscreening.nhs.uk.
- Advise women older than 70 years of age that they are currently excluded from the screening programme. However, if they wish to continue to receive breast screening they can do so by contacting their local NHS Breast Screening Service directly, either by phone or letter.
- Local breast screening centres will also accept GP- or self-referral for an appointment for women older than 70 years of age.
- The decision to screen women older than 70 years of age should be based on consideration of any comorbidities that may limit life expectancy and hence reduce the benefits of any treatment.
- The Cancer Reform Strategy 2007 announced a policy of extending the range of women eligible for routine breast screening to 73 years of age, but this is not yet in place.
- Refer the woman to a breast clinic if she has worrying breast symptoms.

Basis for recommendation

- These recommendations are consistent with the Advisory Committee on Breast Cancer Screening [[Advisory Committee on Breast Cancer Screening, 2006](#); [NICE, 2006](#)] and are based on expert opinion in reviews [[Blamey et al, 2000](#); [Dixon, 2006](#); [Knutson and Steiner, 2007](#)].
- **Mammography in women less than 50 years of age who are not at increased risk is not currently advised:**
 - There is only limited evidence that screening women of 40–49 years of age reduces mortality from breast cancer.
 - Any reduction in mortality for women who are screened from 40 years of age onwards may be due to cancer detected after 50 years of age.
 - There is difficulty in interpreting results due to increased breast tissue density in this age group, which may affect the mammogram [[Advisory Committee on Breast Cancer Screening, 2006](#)].

- Screening is available as an option for women less than 50 years of age who have been formally assessed as being at increased risk [[NICE, 2006](#)].

- However, the NHS Breast Screening Programme is due to include women from 47 years of age by 2012. This is likely to commence in 2009 in a number of screening units.

- **Women with physical disability:**

- Mammography is a procedure that requires a high degree of cooperation between the radiographer and the woman.

- Extra support can be provided in the form of additional facilities and increased duration of appointment.

- If a mammogram is not technically possible at a particular time due to the disability, the woman should still remain in the call and recall programme, as any increased mobility at a future date may make screening easier.

- **Women with impaired mental capacity:**

- Permanent mental incapacity should not normally be a barrier to screening.

- The decision to undertake breast screening in the event of lack of consent due to permanent mental incapacity should take into account the local policy of the screening unit and the views of the woman's medical practitioner and family.

- Some people may have fluctuating mental capacity, in which case, the decision about screening should be delayed until the woman is able to decide for herself.