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Improving the Quality of Public Information for Breast Screening

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BMJ Papers - 2013

EDITORIALS

Editorials are usually commissioned. We are, however,
See http://resources.bmj.com/bmj/authors/types

bmj.com/blogs Tracey Koehlmoos: To screen or not

Breast cancer screening: w

Overdiagnosis remains a problem; q

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The role of national breast screening programmes and the quality and transparency of information given to participating women are increasingly the subject of heated debate. After calls for an impartial review of the value of breast screening in the United Kingdom, the findings of an independent panel of experts, led by Professor Marmot, were published in November 2012.[1]

Currently in the UK, women aged 50-70 years are invited for screening every three years; 2.3 million women were invited during 2010-11. The rate of uptake currently stands at 73.4%, having steadily increased in the past decade.[2] The primary aim of screening is to reduce mortality from breast cancer. Reduced breast cancer related mortality is balanced against the cost of screening in terms of physical and psychological harm to women and the financial impact on health services.

Much recent debate has concerned overdiagnosis—that is, diagnosis of a condition that would never cause symptoms or death during a patient's lifetime. Although overinvestigation can cause harm (pain and anxiety from mammography and biopsies), this is usually transitory. The harm of overdiagnosis (anxiety associated with the "cancer" label) and subsequent overtreatment lasts a lifetime. Surgery is associated with anaesthetic risks, surgical complications, and reduced cosmesis. Short term side effects of adjuvant treatments include alopecia, neutropenic sepsis, hot flushes, vaginal dryness, and increased risk of fracture from endocrine treatment. Long term consequences include cardiovascular and respiratory complications (associated with radiotherapy), reduced quality of life,[3] and increased treatment induced secondary cancers.

It is difficult to quantify mortality benefit and overdiagnosis. Analyses are based on data from historical randomised controlled trials that used outmoded screening and treatment techniques,[4-7] or estimates extrapolate population data.[8 9] Both these methods have limitations. Meta-analyses of trials are complicated by the heterogeneous meth-

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Women's

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bmj.com/blogs
Tracey Koehlmoos
To screen or not to sc
mixed messages on mammography

Women's respon

May decline bre screening artic

Seek other for of breast cancer screening

Reconsider in light of person risk factors

Delay screenin or rescreenin

Views unchang would still screen

Suggesting that a person's life expectancy should be an arbitrary 10 years for them to benefit from screening is misguided

Benefits of cancer screening take years to appreciate

Risks are seen more immediately

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There has been much debate in recent years about the relative benefits and risks of screening. Debates about breast cancer screening have been particularly heated, even though such screening is recommended in most developed countries. Concerns raised in a recent major review of the benefits and risks of the UK breast screening programmes are also at the heart of discussions about prostate specific antigen testing, where there is evidence of benefit but also of considerable risks.[1 2] In a linked research paper, Lee and colleagues consider how long it might take for the benefits of screening to show in a population invited for breast or bowel cancer screening.[3]

Where benefits are considered to outweigh risks then screening can be recommended. In developed countries and jurisdictions where a population model of health is delivered, screening for breast, cervical, and bowel cancer is often offered on an organised basis.[4 5] Evaluation of the effectiveness of such programmes is demanded ethically and by the programmes' funders, as well as by the populations screened and their doctors. Although it has never been evaluated by a randomised controlled trial (RCT), cervical screening has been shown to have a large effect, with five yearly screening probably preventing 63-73% of cervical cancers in women over 50 years.[6] Evidence from RCTs suggests that an invitation for bowel or breast cancer screening prevents around 20% of deaths from these cancers.[1 7] The effect of cervical screening can be shown more easily using observational data than can the effect of breast or bowel cancer screening, because the effects of breast and bowel cancer screening are much smaller.

Although population screening is offered as a public health measure, the benefits and risks affect individuals. At invitation for screening, many of the risks are immediately evident to the person concerned. These include the anxiety associated with participation, awaiting results, and referral for diagnostic investigation—which often proves that cancer is not present. The testing and diagnostic procedures, such as

Bowel cancer screening test for occult blood

JAMES KING-HOLMES/SPL

mammography or needle biopsy of the breast, or endoscopy, also have associated complications. These immediate risks can be readily quantified and affected people identified. By contrast, almost all the benefits of screening take years to appear, and we can never know for certain who exactly has benefited.

The main benefit sought from breast and bowel cancer screening is the reduction in mortality from that cancer. This takes years to accrue, partly because even after symptomatic diagnosis of these cancers people normally survive for several years, and partly because of the additional lead time applied by earlier diagnosis through screening. In randomised trials where the population is free of cancer at the start, randomisation should account for temporal changes in other factors. Benefit, if it occurs, can be seen more clearly in such trials, whereas in public health screening programmes, where there is no control group and the population includes people diagnosed with cancer before screening started, analyses based on time trends can be difficult to interpret.

Lee and colleagues used data from RCTs of breast and bowel cancer screening to estimate how long it takes for one death to be prevented for each 1000 people screened.[3] They conclude that, for patients over age 50 years, the time lag for either of these screening programmes is around 10 years. It is important to acknowledge such a time lag, so that benefit is not sought too soon.

The authors' choice of one in 1000 to determine what is worth while underlies their conclusions, but it is an arbitrary choice, and they assume that the benefit of screening is constant at all ages. The risk of developing and dying from breast or bowel cancer, however, increases with age, and the absolute benefit of breast cancer screening rises as women get older.[8] In addition, the confidence intervals around Lee and colleagues' estimates of "10 years" are wide, with a range of 5 to 16 years. This shows that the estimates are too uncertain to justify any recommendation.

Doctors advising individual patients and public health practitioners considering population screening programmes should take account of the different time scales for benefits and for risks to accrue. Likely life expectancy is only one of many factors that may play a part in determining how someone responds to an invitation or recommendation for screening. However, suggesting that a person's life expectancy should be an arbitrary 10 years for them to benefit from screening is as misguided as saying that everyone will benefit.

Competing interests: None declared.
Provenance and peer review: Commissioned; not externally peer reviewed.

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RESEARCH, p 14

; with breast screening

ence? **Klim McPherson** applauds a book that exposes

Randomised trials
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reviews of the enormous trials of mammography. His view is that many were biased. Today's expert interpretation of that evidence suggests lower effectiveness than the euphoric interpretation of the 1980s, which provided the original justification for screening services. Gøtzsche has also extensively studied the association between screening and overdiagnosis and overtreatment as it has emerged. Those interested in the fraught relation between policy and evidence, in the special circumstances where evidence is meant to be dominant, should study this detailed account.

Evidence based healthcare comes from epidemiology; the mammography service is justified by epidemiological evidence, yet here we have an account where the screening service is apparently immune to recent evidence. That is particularly annoying and has clearly provoked Gøtzsche to tell the story in great and scathing detail. Every sordid encounter with the screening policy juggernaut is described, with detailed argument of where they got it wrong. What is clear is that the screening establishment has let women down, simply by not providing them with the well argued evidence based information they have every right to expect.

Gøtzsche pulls no punches; he names names and calls a spade a spade. He details the nature of their arguments and offers reasons for them. He explains where they fit into the armamentarium of political bullying and then counters with his perceptions of the science and the evidence. Attentive readers will make up their own minds about the validity of his perception, and that is precisely why this book is so valuable: it is there for all to evaluate for themselves, calmly.

But it will not be enough to find fault with the argument here or there and then dismiss the whole thesis. We should be able to assess a plausible programme in the light of accumulating evidence and decide, if warranted, to modify, curtail, or cut it. The barriers are inertia and vested interests. This book is a critique of the role of science in public policy where science is the dominant motivation. In most public policy it is not so dominant, and that is why this book is so valuable, detailing as it still does the normal fear of evidence among committed policy makers. They imagine and indeed boast that they are saving thousands of women's lives, and that delusion seems to justify all kinds of irrational argument.

In a civilised world we would expect much better from expert scientific committees. This book helps us to understand how it doesn't happen in mammography. It is a small step then to better understand why it doesn't.

establishment has let women down, simply ng them with the well argued evidence based ey have every right to expect

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‘I crudely estimate that that an additional one to three deaths might be expected from other causes for every breast cancer death avoided.’

Michael Baum BMJ 346 27 2013

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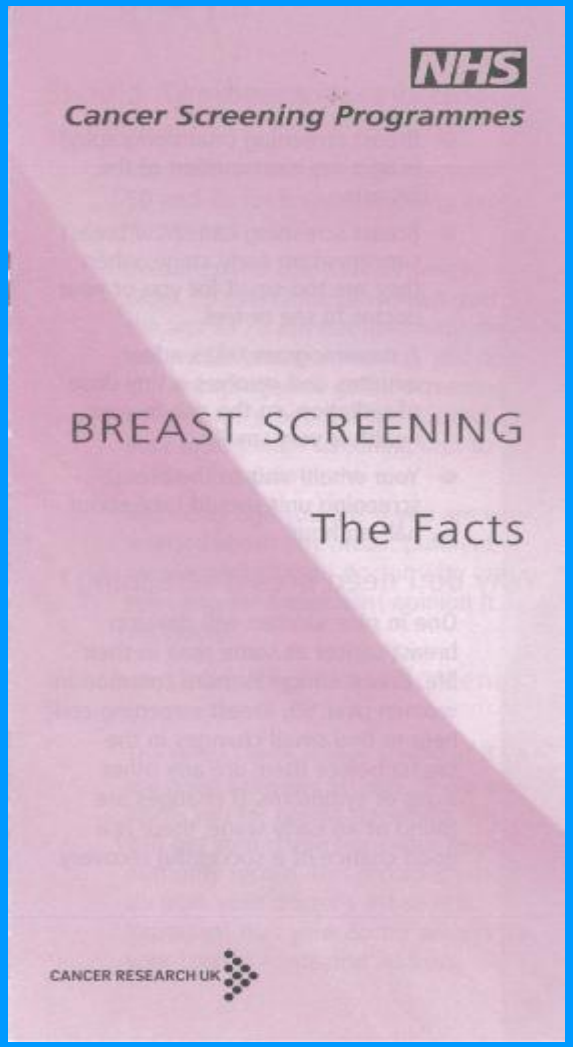
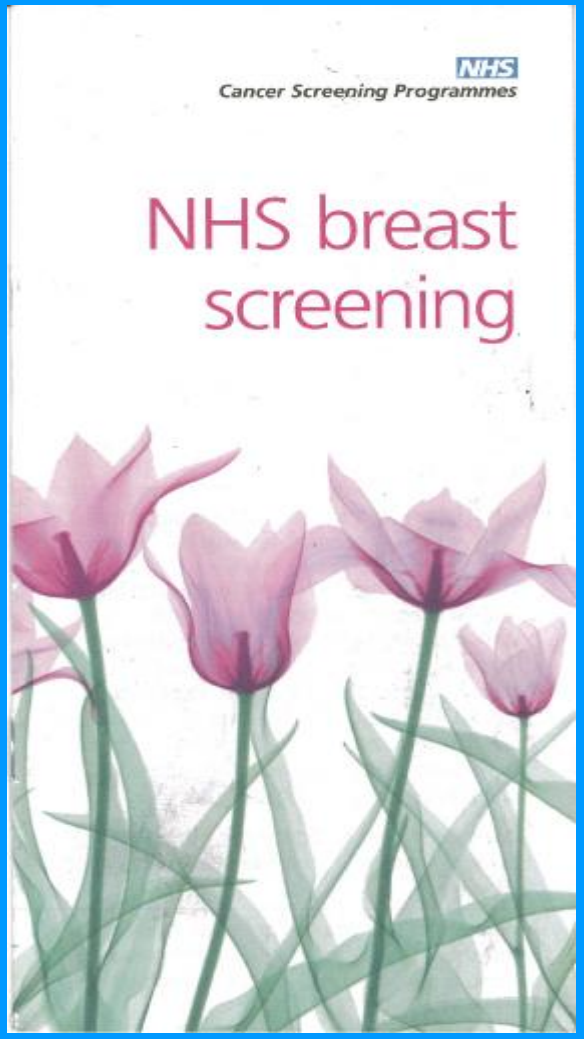
Information for Women Attending Breast Screening





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NHS Breast Screening: 'The Facts'

1995 Version – Risks

'Many women find the test uncomfortable and some find it painful' This should last no longer than the test – just a few minutes

'Like other medical tests, mammography is not 100% accurate'

1995 Benefits

'Breast screening makes sense. It could save your life'

Jan 1995

Journal of Medical Screening 1995;2:15–17

Revision of "NHS breast screening: the facts": an evaluation

Julietta Patnick, Joan Austoker, Tara Wolff

The original "NHS breast screening: the facts" leaflet was published in 1989 by the Health Education Authority (HEA) as a joint venture with the embryonic NHS Breast Screening Programme. One of the current authors (JA) took the lead for the breast screening programme on that occasion. By 1993 the leaflet, which had been widely used in health promotion exercises and translated into 12 minority languages, was clearly in need of revision. This was due both to development of knowledge about the needs and responses of women to the screening programme and also to the time references made in the leaflet. About 50% of breast screening units used the leaflet to accompany an invitation to screening, and others used local leaflets with local references.

Working again with the HEA as a joint venture, we rewrote some sections of the text in the light of research evidence coming out of studies into uptake and acceptability of the NHS breast screening programme.[1] Rutter *et al* had shown that many women found mammography uncomfortable, and some (7%) painful.[2] They also showed that this could be somewhat modified if women expected some discomfort. Therefore a reference to the notion that discomfort was common and pain possible was needed in the leaflet, together with the reassurance that these feelings would only last for a few minutes.

A section was also added on breast awareness. This was an expansion of the previous guidance that women should be aware that mammography was not 100% sensitive and changes at any time should be reported. The new section was based on work by Austoker *et al* (unpublished).

A redesign of the leaflet was also commissioned. The original leaflet had been fairly plain and comprised printed text in red and black on white. Research showed that the design was regarded as both dated and, given the use of red, slightly alarmist. The designer suggested use of blue and yellow, the printing of the text in columns, an unusual front opening of the A4 leaflet, and the use of photographs of different women's faces on the front cover. The last two items caused a great deal of discussion between the authors in particular.

Before the leaflet was finalised and printed a provisional leaflet was evaluated by focus groups. The overall objective was to ensure that the new leaflet was relevant to current needs and was appealing, comprehensible, and accessible. The evaluation covered women aged 35 to 64, with in depth study of 45 to 64 year olds in two socioeconomic bands (BCs and C2DEs) in three different locations (north, midlands, and south). Non-attenders for screening were specifically included in the exercise.

Overall, the new leaflet was found to be informative, reassuring, and to give the impression that the NHS breast screening programme was a well run, efficient service. A number of comments were made, however, which enabled improvements to be introduced to the final version.

The original and provisional leaflets included the statement that "general screening of women under 50 had not yet proved to be helpful". The respondents found this most unsatisfactory, and explanations about the limitations of the technique on the premenopausal breast helped them understand that this was not an economic but a clinical argument.

The women who had attended for screening commented that they had found the experience less embarrassing that they had expected and felt that the leaflet should make reference to the fact that the radiographers concerned were always female. The adjective "female" was therefore added to the final version before the two occasions when the word "radiographer" was used.

Most of the women felt that the paragraphs on breast awareness were straightforward, reassuring, and easy to understand. This section also appeared to give women confidence that "they were doing the right thing".

The design and colour of the new leaflet proved popular, though some older respondents found the front opening a little fiddly. The majority of the women liked it. It was therefore decided to leave the opening as the designer had intended it. The women did not, however, like the photographs. Their purpose was felt to be unclear and the models to look too serious and too old. Some women of screening age were offended by how old the models looked. The photographs were removed for the final version.

The women commented positively on how discreet the leaflet was with no pictures or large print words that they would be embarrassed to be seen looking at in public.

Half a million copies of the final version of the leaflet have now been distributed, and reaction has largely been positive. Translation into minority ethnic languages is now being arranged. One reservation that has been expressed, however, is about the front opening, which made the leaflet difficult to handle en masse by screening units sending it out with invitations. This has now been reviewed and the leaflets produced in 1995 have a more conventional front opening. The text of the current leaflet is given on the following two pages.

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Accepted for publication 2 January 1995

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Breast screening – The Facts 2006

- **Breast screening reduces the risk of the women who attend dying from breast cancer.**
- **We will call back some women for more investigations if we are not sure about their mammogram. After more tests, we will find that many of these women will not have cancer. If you are called back it can cause worry.**
- **Screening may miss some breast cancers.**
- **Not all breast cancers that are found at screening can be cured.**
- **Many women find mammography uncomfortable and painful, but normally just for a brief period of time.**

Public health

Is screening for breast cancer with mammography justifiable?

Peter C Gøtzsche, Ole Olsen

Summary

Background A 1999 study found no decrease in breast-cancer mortality in Sweden, where screening has been recommended since 1985. We therefore reviewed the methodological quality of the mammography trials and an influential Swedish meta-analysis, and did a meta-analysis ourselves.

Methods We searched the Cochrane Library for trials and asked the investigators for further details. Meta-analyses were done with Review Manager (version 4.0).

Findings Baseline imbalances were shown for six of the eight identified trials, and inconsistencies in the number of women randomised were found in four. The two adequately randomised trials found no effect of screening on breast-cancer mortality (pooled relative risk 1·04 [95% CI 0·84–1·27]) or on total mortality (0·99 [0·94–1·05]). The pooled relative risk for breast-cancer mortality for the other trials was 0·75 (0·67–0·83), which was significantly different (p=0·005) from that for the unbiased trials. The Swedish meta-analysis showed a decrease in breast-cancer mortality but also an increase in total mortality (1·06 [1·04–1·08]); this increase disappeared after adjustment for an imbalance in age.

mortality in Sweden,[1] where screening has been recommended since 1985. The observed decrease in number of deaths from breast cancer was 0·8% (not significant), whereas the expected decrease was 11%. Although that study can be criticised,[2,3] it raises once again the issue of the reliability of the evidence that screening is effective.

We therefore reviewed the methodological quality of the mammography trials and the Swedish meta-analysis, and did a meta-analysis ourselves. We focused on the three most important sources of bias in randomised trials: suboptimum randomisation methods, lack of masking in outcome assessment, and exclusion after randomisation. We paid special attention to the quality of the randomisation, since bias caused by suboptimum randomisation methods can be larger[4,5] than the treatment effects that might be detected if a screening programme is beneficial.

Methods

We searched the Cochrane Library with the terms "breast-neoplasms/all" or "breast next cancer" and "screening" and "mammography" and extended the search with authors' names and other terms as appropriate to capture updates of the trials. When necessary, we asked the investigators for details about the

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‘We conclude that screening for breast cancer with mammography is unjustified.’

Goetsche, Olsen Lancet 2000 355 129-34

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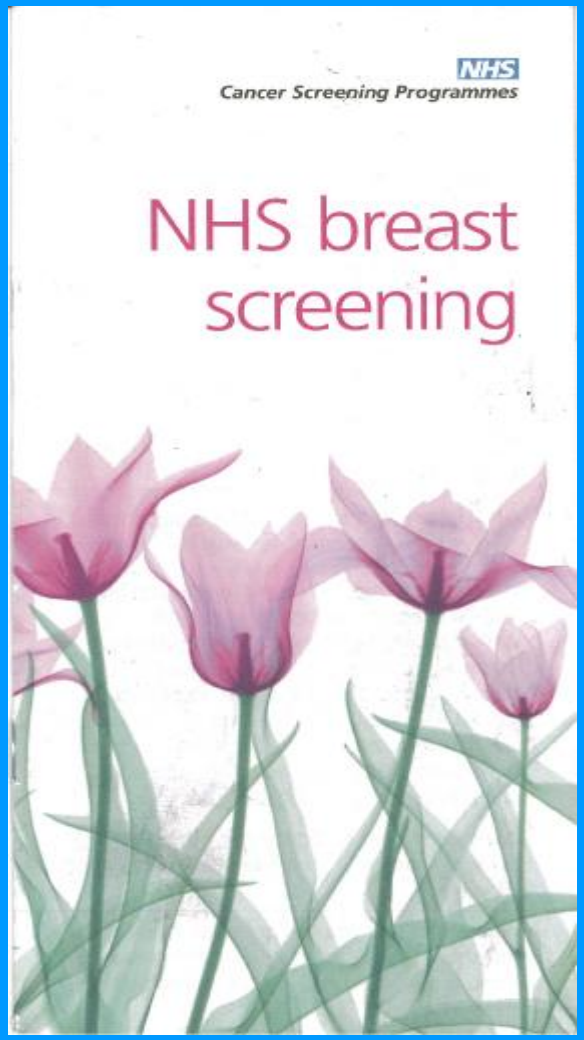

2011 NHS Breast Screening Leaflet

What are the down sides of being screened?

- Having a mammogram means your breasts are exposed to a small amount of radiation
- Sometimes a mammogram will look normal, even if a cancer is there. This is called a false negative result. You should remain breast aware.
- Sometimes a mammogram will not look normal and you will be recalled for more tests, but cancer is not there. This is called a false positive result.
- Screening can find cancers which are treated but which may not otherwise have been found during your lifetime.
- If you go for screening you may be anxious or worried. This usually only lasts for a short time.

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Review

The benefits and harms of breast cancer screening: an independent review

Independent UK Panel on Breast Cancer Screening*

Lancet 2012; 380: 1778–86
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See Editorial page 1734
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Whether breast cancer screening does more harm than good has been debated extensively. The main questions are how large the benefit of screening is in terms of reduced breast cancer mortality and how substantial the harm is in terms of overdiagnosis, which is defined as cancers detected at screening that would not have otherwise become clinically apparent in the woman's lifetime. An independent Panel was convened to reach conclusions about the benefits and harms of breast screening on the basis of a review of published work and oral and written evidence presented by experts in the subject. To provide estimates of the level of benefits and harms, the Panel relied mainly on findings from randomised trials of breast cancer screening that compared women invited to screening with controls not invited, but also reviewed evidence from observational studies. The Panel focused on the UK setting, where women aged 50–70 years are invited to screening every 3 years. In this Review, we provide a summary of the full report on the Panel's findings and conclusions. In a meta-analysis of 11 randomised trials, the relative risk of breast cancer mortality for women invited to screening compared with controls was 0·80 (95% CI 0·73–0·89), which is a relative risk reduction of 20%. The Panel considered the internal biases in the trials and whether these trials, which were done a long time ago, were still relevant; they concluded that 20% was still a reasonable estimate of the relative risk reduction. The more reliable and recent observational studies generally produced larger estimates of benefit, but these studies might be biased. The best estimates of overdiagnosis are from three trials in which women in the control group were not invited to be screened at the end of the active trial period. In a meta-analysis, estimates of the excess incidence were

The Benefits and Harms of Breast Cancer Screening:

An Independent Review

Authors:
The Independent UK Panel on Breast Cancer Screening

IBSR
Independent Breast Screening Review

A report jointly commissioned by Cancer Research UK and the Department of Health (England).

October 2012

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What does the independent review say?

Absolute benefit

- **1 death avoided from breast cancer for every 100-2000 women screened**
- **Best estimate 1 death prevented for every 250 women screened**
- **Approximately 1400 breast cancer deaths prevented each year**

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Overdiagnosis

The panel believes overdiagnosis occurs. The consequence of overdiagnosis is that women have their cancer treated by surgery and in many cases radiotherapy and medication, but neither the woman nor her doctor can know whether this particular cancer would be one that would have become apparent without screening and could possibly lead to death, or one that would have remained undetected for the rest of the woman's life'

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Risk of Over-diagnosis

‘If I am given a cancer diagnosis during the period of screening, what is the likelihood of over-diagnosis?’

- 19% or 1 in 5

but more commonly quoted as:

‘for each breast cancer death presented, three cases will be over-diagnosed and treated’

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Information for Patients 2013
What is required and appropriate

Information relating to:

- **Rationale and process**
- **Likelihood of diagnosis of cancer**
- **Benefits**
- **Risks**
  - **false positive (over-diagnosis)**
  - **false negative**
  - **over-treatment**

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How to present this information to the public?

Informed choice about cancer screening (KCL)

Citizens Jury on Information for women about Breast Cancer Screening London Oct 2012

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Citizens' Jury

25 women - Greater London 47-73 years
- Screening attenders + non-attenders
- No experience of breast cancer
- Age/employment/ethnicity/sexuality/ disability

3 days of evidence

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Presentations

Understanding breast cancer	Malcolm Reed
Treatment of breast cancer	Alison Jones
Breast screening	Patsy Whelehan
Breast imaging	Mike Michell
Independent review	John Denver
Communication	
- Complex health issues	Angela Coulter
- Uncertainty	David Spiegelhalter
- Information leaflet style	Roger Felton

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How to describe the mortality benefit associated with breast screening using words and the size of the benefit using graphics

Jury consensus recommendations:

- The jury recommended using the figure of 1,300 lives saved per year.
- The jury supported communicating information about the **benefits of early diagnosis.**
- The jury expressed a preference for benefit and harm statistics presented alongside one another in a simple format.

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Jury consensus recommendations (cont'd):

- The jury recommended not using **too many numbers**, and expressed a general preference for whole numbers rather than percentages or decimals.
- The jury **rejected bar chart graphics** and **line graphs.**
- The jury **broadly recommended icon arrays and be presented as 'people' rather than 'dots'.**

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Jury consensus recommendations (cont'd):

- Jurors expressed preference for icon arrays depicting women. Twenty out of 25 jurors preferred icon array graphics to a pie chart.
- The jury recommended figures on mortality benefit to be expressed in terms of **women attending rather than women invited to screening.**

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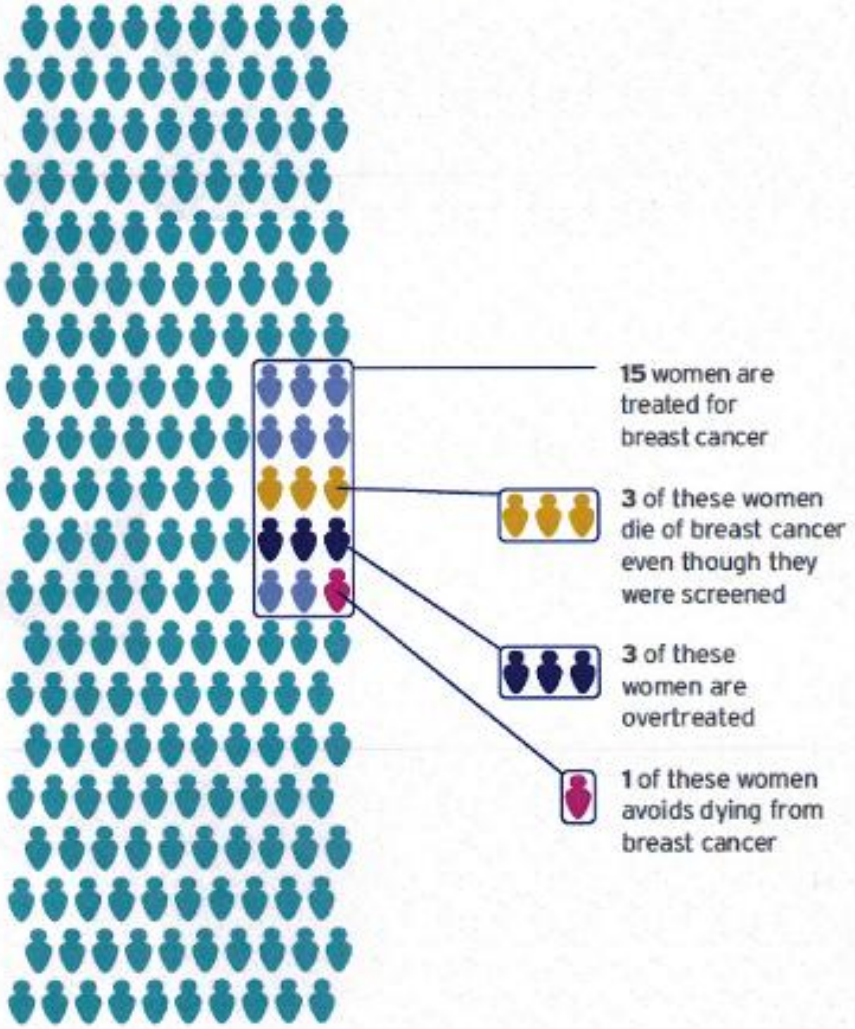
What would happen to 200 women by the time they are 80, if they have breast screening every 3 years from the age of 50 to 70



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Latest version

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It is your choice whether to have breast screening or not. This leaflet aims to help you decide.

Why does the NHS offer breast screening?

The NHS offers screening to save lives from breast cancer. Screening does this by finding breast cancers at an early stage when they are too small to see or feel. Screening does not prevent you from getting breast cancer.

Breast screening does have some risks. Some women who have screening will be diagnosed and treated for breast cancer that would never otherwise have been found or caused them harm.

Why have I been invited for breast screening?

All women aged 50 to 70 are invited for breast screening every 3 years. Some older and younger women are also being invited as part of a study of screening in different age groups.

If you are over 70 you are still at risk of breast cancer. Although you will no longer automatically get screening invitations after you are 70, you can still have breast screening every three years. You will need to ask your local breast screening unit for an appointment.

What is breast screening?

Breast screening uses an X-ray test called a mammogram to check the breast for signs of cancer. It can spot cancers that are too small to see or feel.

What will happen if I choose to have breast screening?

When you arrive at the breast screening unit, the staff will check your details and ask you about any breast problems you have had. If you have any questions, do feel free to ask.

Mammograms are all carried out by women called mammographers. To have a mammogram, you need to undress to the waist. So it may be easier to wear a skirt or trousers instead of a dress.

The mammographer will first explain what will happen. She will then place your breast onto the mammogram machine and lower a plastic plate onto the breast to flatten it. This helps to keep your breast still and get clear X-rays.

The mammographer will usually take two X-rays of each breast – one from above and one from the side. She will go behind a screen while the X-rays are taken. You have to keep still for several seconds each time.

The whole appointment takes less than half an hour and the mammogram only takes a few minutes.

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Breast screening results

You will receive a letter with your breast screening results within 2 weeks of your appointment. The results will also be sent to your GP.

Most women will have a normal result
The mammogram shows no sign of cancer in about 96 out of every 100 women screened – this is a normal result.

Remember that cancer can still develop between mammograms, so tell your GP straight away if you notice any breast changes.

Some women will need more tests because they have an abnormal result
The results letter may say you need more tests because the mammogram looks abnormal. About 4 in every 100 women are asked to come back for more tests after screening.

Out of these 4 women, 1 will be found to have cancer. The rest will not have cancer and will go back to having screening invitations every 3 years.

If you are called back for more tests, you may have a breast examination, more mammograms and ultrasound scans. You may also have a biopsy, which is when a small sample is taken from your breast with a needle to be checked under a microscope for cancer. You will usually get your results within a week.

Occasionally women will need another mammogram before they get their result
Sometimes technical problems mean that the mammogram is not clear enough to read. If this happens, you will be asked to have another mammogram to get a clearer picture of your breast.

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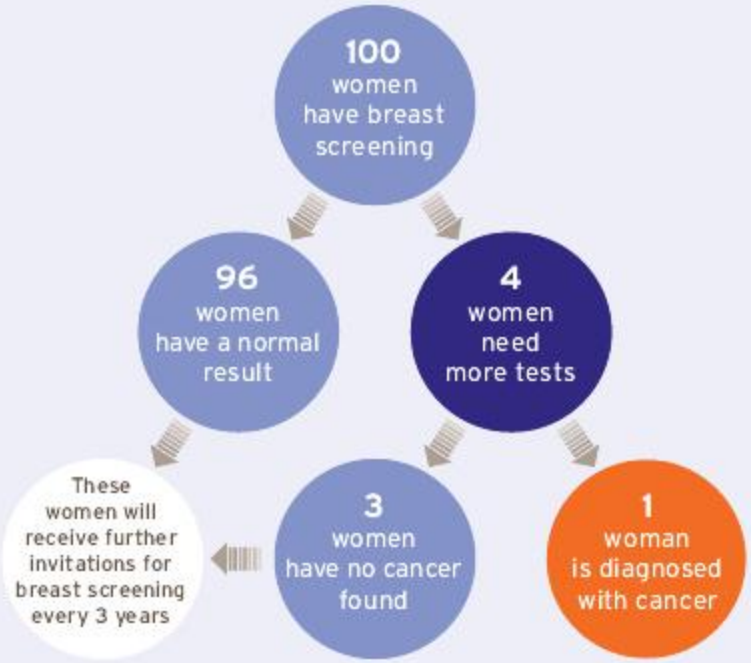
What happens to 100 women **each time** they have breast screening



If you are found to have breast cancer, it could be either non-invasive or invasive

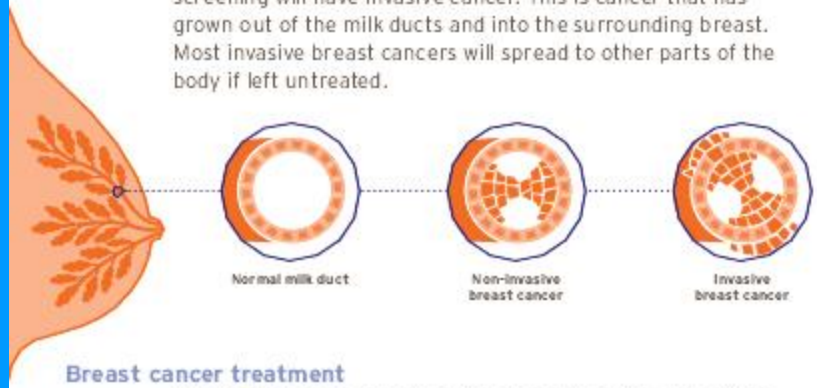
Non-invasive breast cancer

About 1 in 5 women diagnosed with breast cancer through screening will have non-invasive cancer. This means there are cancer cells in the breast, but they are only found inside the milk ducts (tubes) and have not spread any further. This is also called ductal carcinoma in situ (DCIS). In some women, the cancer cells stay inside the ducts. But in others they will grow into (invade) the surrounding breast in the future.

Doctors can't tell whether non-invasive breast cancers will grow into the surrounding breast or not.

Invasive breast cancer

About 4 in 5 women diagnosed with breast cancer through screening will have invasive cancer. This is cancer that has grown out of the milk ducts and into the surrounding breast. Most invasive breast cancers will spread to other parts of the body if left untreated.



Breast cancer treatment

Whether your cancer is invasive or non-invasive, you will be offered treatment and care from a team of breast cancer specialists. The treatment is likely to include surgery (which may mean a mastectomy), hormone therapy, radiotherapy and possibly chemotherapy too. These treatments can cause serious, long-term side effects.

Making a choice – the possible benefits and risks of breast screening

It is your choice whether or not you have breast screening. There are many different reasons why women decide whether or not to have screening. To help you decide, we've included information on the possible benefits and risks.

Screening saves lives from breast cancer
These lives are saved because cancers are diagnosed and treated earlier than they would have been without screening.

Screening finds breast cancers that would never have caused a woman harm
Some women will be diagnosed and treated for breast cancer that would never otherwise have been found and would not have become life-threatening. This is the main risk of screening.

Doctors cannot always tell whether a breast cancer that is diagnosed will go on to be life-threatening or not, so they offer treatment to all women with breast cancer. This means that some women are offered treatment that they do not need.

Saving lives from breast cancer
Screening saves about 1 life from breast cancer for every 200 women who are screened. This adds up to about 1,300 lives saved from breast cancer each year in the UK.

Finding cancers that would never have caused a woman harm
About 3 in every 200 women screened are diagnosed with a cancer that would never have been found without screening and would never have become life-threatening. This adds up to about 4,000 women each year in the UK who are offered treatment they did not need.

Overall, for every 1 woman who has her life saved from breast cancer, about 3 women are diagnosed with a cancer that would never have become life-threatening.

Researchers are trying to find better ways to tell which women have breast cancers that will be life-threatening and which women have cancers that will not.

Can breast screening have other risks?

- Most women who receive an abnormal screening result are found not to have breast cancer. These women experience unnecessary worry and some have distress which affects their ability to do their normal day-to-day activities at the time.
- X-rays can very rarely cause cancer. Having mammograms every 3 years for 20 years very slightly increases the chance of getting cancer over a woman's lifetime.
- Rarely, breast screening can miss cancers. It picks up most breast cancers, but it misses breast cancer in about 1 in 2,500 women screened.

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Breast Screening - Conclusion

- Marmot review recommends continuation of screening.
- New leaflet for more information but remains controversial.
- New research studies address important questions – answers will take years.
- If a patient asks – should I go for breast screening ……

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