BREAST SCREENING

a pocket guide

NHS
Cancer Screening Programmes

Breast Screening a pocket guide

This booklet is a simple guide to breast screening.

We hope you find it useful – whether you work for, or take an interest in, the NHS Breast Screening Programme.

Your comments about the pocket guide are welcome and should be sent to:

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NHS
Cancer Screening Programmes

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The NHS Breast Screening Programme

What is breast screening?

- Breast screening is a method of detecting breast cancer at an early stage. The first step involves an x-ray of each breast – a mammogram – which is taken while carefully compressing the breast. The mammogram can detect small changes in breast tissue which may indicate cancers too small to be felt either by the woman herself or by a GP.

What does the NHS Breast Screening Programme do?

- The NHS Breast Screening Programme provides free breast screening every three years for all women in the UK aged 50 and over. Around one-and-a-half million women are now screened in the UK each year.

- Women aged between 50 and 70 are routinely invited for breast screening every three years. Over the age of 70, women are encouraged to make their own appointments.

- The programme was commended by the Secretary of State for Health as 'one of the government's biggest success stories' in *The NHS Cancer Plan and the New NHS* published in 2004.

- To date over 19 million women have been screened and 117,000 cancers detected.

Does breast screening save lives?

- The NHS Breast Screening Programme is an effective part of the UK's efforts to reduce the death toll from breast cancer. It is estimated that the programme saves around 1,400 lives each year in England[1].

- For every 400 women screened regularly by the NHS Breast Screening Programme over a 10 year period, one woman fewer will die from breast cancer than would have died without screening.[1]

- An audit by the Association of Breast Surgery at the British Association of Surgical Oncologists (BASO) found that over 96 per cent of women whose invasive breast cancer was detected by screening are alive five years later.[2]

- The World Health Organisation's International Agency for Research on Cancer (IARC) concluded that mammography screening for breast cancer reduces mortality. The IARC working group (24 experts from 11 countries) evaluated all the available evidence on breast screening and determined that there is a 35 per cent reduction in mortality from breast cancer among screened women aged 50-69 years old.[3]

1 Screening for Breast Cancer in England :Past and Future NHS Cancer Screening Programmes, 2006 (NHSBSP Publication No 61)
2 Association of Breast Surgery at BASO June 2006
3 7th handbook on Cancer Prevention, IARC, Lyons 2002

When was the NHS Breast Screening Programme set up?

- The programme was set up by the Department of Health in 1988 in response to recommendations made by a working group in 1986. This group, known as the Forrest Committee, was set up to consider whether to implement a population screening programme in the UK and how it should be done. The NHS Breast Screening Programme was one of the first of its kind in the world and national coverage was achieved by the mid 1990s. The rate of cancers detected per 1,000 women screened and the standardised detection ratio have risen steadily. In 2003/04, statistics showed that for every 1,000 women screened, 7.9 cancers were detected and the standardised detection ratio was 1.38.[4]

How is the programme organised?

- There are over 85 breast screening units across the UK. Women are invited to a specialised screening unit, which can either be mobile, hospital-based, or permanently based in another convenient location such as a shopping centre. The smallest unit invites around 18,000 women each year and the largest around 167,000.

- The NHS Breast Screening Programme is nationally coordinated. It sets national standards which are monitored through a national quality assurance network. For England there is a national coordination office, based in Sheffield, and an advisory committee which oversees the programme and reports to ministers.

How much does the programme cost?

- In England the budget for the breast screening programme is approximately £75 million. This translates to approximately £37-50 per woman invited and £45-50 per woman screened.

4 NHS Breast Screening Programme Annual Review 2005

How has the breast screening programme been improved?

- Since the NHS Breast Screening Programme was introduced it has gone through a number of significant changes. These include the introduction of two-view mammography, in which two views of each breast are taken at every screen. This has led to an increase in the number of cancers detected by the programme. In addition, most films are now double read and the upper age limit for invitations has been raised from 64 to 70. Women over 70 are also eligible for screening and are encouraged to make their own appointments.

Why are women under 50 not invited?

- Women under 50 are not offered routine screening. This is because mammograms are not as effective in pre-menopausal women as the density of the breast tissue makes it more difficult to detect problems, and also because the incidence of breast cancer is lower in this age group.

- The average age of the menopause in the UK is 50. As women go past the menopause the glandular tissue in their breast 'involutes' and the breast tissue is increasingly made up of only fat. This is clearer on the mammogram and makes interpretation of the x-ray more reliable. Breast cancer is also far more common in post-menopausal women and the risk continues to increase with age.

- Women can ask their GP to refer them to a hospital breast clinic if they are concerned about a specific breast problem or otherwise worried about the risk of breast cancer. This is not part of the NHS Breast Screening Programme, which uses a routine call and recall system to invite well women aged over 50. However, the same techniques are used in both breast screening clinics and hospital breast clinics for diagnosing breast cancer and many staff work in both settings.

Does breast screening have any risks?

- Any x-ray involves radiation but mammograms only require a very low dose. It is about the same as the dose a person receives by flying from London to Australia and back. The benefits far outweigh the risks. Breast screening physicists monitor the level of radiation to ensure that it remains within safety limits while still providing a good quality image.

- Mammography is the most reliable way of detecting breast cancer early but, like other screening tests, it is not perfect. Breast screening has both benefits and limitations. That is why a leaflet entitled, ***'Breast Screening – THE FACTS'*** has been developed.

- ***'Breast Screening – THE FACTS'*** aims to help women make an informed choice about whether or not to accept their invitations for breast screening. All eligible women receive this leaflet with their invitation.

- The leaflet has been produced in Braille, in large print and on audio CD in English. It has also been translated into 18 languages: Arabic, Bengali, Cantonese, Farsi, French, Greek, Gujarati, Hindi, Italian, Kurdish, Polish, Portuguese, Punjabi, Somali, Spanish, Ukrainian, Urdu and Vietnamese.

- The leaflet is part of the programme's Informed Choice initiative, originally outlined in the NHS Cancer Plan (2000). The leaflet aims to make the limitations of screening better understood. It also addresses the need to inform patients about the use of personal information for audit, as advised in General Medical Council guidance as well as tying in with the Data Protection Act, the Human Rights Act and Disability Discrimination Act.

What happens at a breast screening unit

The invitation

- Every woman registered with a GP will receive her first invitation to attend for a mammogram at her local breast screening unit some time between her 50th and 53rd birthdays. She will then be invited every three years until her 70th birthday. The NHS call and recall system holds up-to-date lists of women compiled from GP records and records levels of attendance and non-attendance. Women aged over 70 are encouraged to make their own appointments.

- Every effort is made to minimise women's anxiety at all stages of screening. Invitation and recall letters are carefully worded and include a contact telephone number for those who have questions.

At the unit

- On arrival, the woman is greeted by a receptionist or mammographer who checks her personal details (name, age and address). In the examination room, the mammographer will answer any questions, explain the procedure and then carry out the mammogram. The whole visit takes about half an hour.

The mammogram

- The mammogram is a low dose x-ray. Each breast is placed in turn on the x-ray machine and gently but firmly compressed with a clear plate. Two views of each breast are taken at every screen. Compression is needed to keep the breast still and to get the clearest picture with the lowest amount of radiation possible. Most women find this uncomfortable and some feel short-lived pain. Research has shown that for most women it is less painful than having a blood test and compares with having blood pressure measured.

The results

- The mammograms are examined and the results sent to the woman and her GP within two weeks.

- In 2003/2004, around 8.5 per cent of women attending for a first screen, and around 3.8 per cent of those attending a subsequent screen, were asked to go to an assessment clinic for a further mammogram, either for technical reasons (if the picture was not clear enough) or because a potential abnormality was detected.[4]

Further investigation

- At an assessment clinic more tests are carried out. These might include a clinical examination, more mammograms at different angles (or with magnification) or an examination using ultra sound. Fine-needle aspiration cytology may be carried out. This involves drawing off some breast cells through a very fine needle for laboratory analysis. Another common technique used in the clinics is core biopsy, whereby some of the breast tissue can be removed and taken away for analysis. This is always done under local anaesthetic.

- About 95 per cent of women are reported as normal after the first mammogram and will be routinely invited for screening three years later. Of those recalled for further investigation around one in six will be found to have cancer.

4 NHS Breast Screening Programme Annual Review 2005

Open biopsy

- Some women (less than one per cent), may need an open biopsy.[5]

What happens if cancer is found?

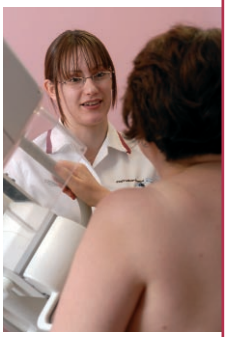
- If a woman is found to have cancer she will be referred to a consultant surgeon for a discussion of the options available to her. This is essential before any decisions are made on treatment. Many women have a choice about which treatment they receive depending on the type and location of their cancer.

Is there anyone to talk to?

- Assessment clinics have a specialist breast care nurse available to give advice and help to women who are currently undergoing diagnostic tests or who have been diagnosed as having breast cancer.

Treatment

- This usually involves some form of surgery: a lumpectomy where just the lump and a small amount of surrounding tissue is removed, or a mastectomy where the whole breast is removed. Surgery is likely to be followed by radiotherapy, chemotherapy or hormone therapy, or a mixture of these. The exact course of treatment will depend on the type of cancer found and the woman's preferences. Women may also be offered the opportunity to participate in research.



5 Department of Health Statistical Bulletin, Breast Screening Programme, England: 2004-05

Breast cancer

What is the incidence of breast cancer?

- In 2003 there were 36,509 new cases of female breast cancer diagnosed in England. Breast cancer in men is rare with around 300 cases diagnosed in the same year.[6]

- One in 9 women will develop breast cancer at some time in their life. The risk up to the age of 70 has been estimated at one in 15.[7]

- In 1988, when screening was introduced, incidence rose sharply in the screened age group (50 to 64 years) with a 40 per cent increase between 1987 and 1992.[7] This is because women were having cancer detected several years earlier than they would have done without screening.

Age factors

- The incidence of breast cancer increases with age. 80 per cent of cases occur in post-menopausal women.

- Breast cancer is extremely rare in the teens or early twenties and uncommon in women under 35. After this age the risk begins to increase, rising sharply after the menopause (at around the age of 50).

Worldwide

- Breast cancer is the most common cancer in women worldwide. It accounts for about 25 per cent of all female malignancies and the proportion is higher in women in western, developed

6 National Statistics, Cancer statistics: registrations of cancers diagnosed in 2003, England. MBI no.34 The Stationery Office

7 National Statistics, Cancer trends in England and Wales 1950-1999. SMPS No. 66 The Stationery Office

countries. Incidence has been rising in many parts of the world, including the USA, Canada, Europe, the Nordic countries, Singapore and Japan.[8]

- Over one million new cases occur each year worldwide.[8]

How many people die from breast cancer in England & Wales?

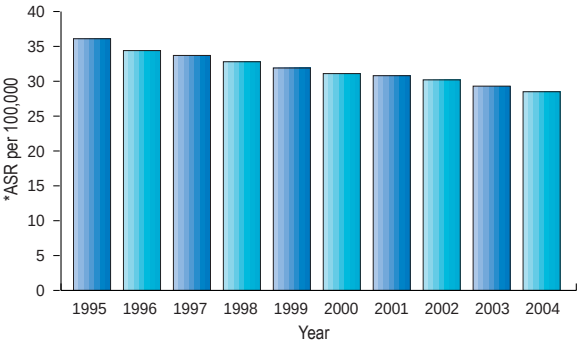
- 11,209 women and around 67 men died from breast cancer in 2003.[9]
- By 1999, overall mortality from breast cancer was just over 20 per cent lower than the levels in the mid-1980s.[10]
- By 2003, breast cancer accounted for 17 per cent of all female cancer deaths both in England and the UK.[9]

Survival

- The latest survival figures for England show that an average of 80 per cent of women diagnosed with breast cancer in 1998 to 2001 were alive five years later.[11] Women who are diagnosed with breast cancer do not all go on to die from the disease.
- An audit by the Association of Breast Surgery at the British Association of Surgical Oncologists (BASO) found that over 96 per cent of women whose invasive breast cancer was detected by screening are alive five years later.[12]
- The stage at which a woman has breast cancer diagnosed greatly influences her survival chances. In general the earlier the detection, the greater the chance of survival.

8 Globcan 2000
9 Cancer Research UK , September 2005
10 National Statistics, Cancer trends in England and Wales 1950-1999. SMPS No.66, The Stationery Office
11 Office for National Statistics, May 05
12 Association of Breast Surgery at BASO June 2006

Mortality from female breast cancer at all ages, England and Wales 1995 - 2004



(*Age standardised rates per 100,000 based on the European Standard Population)

Source: Table 5, series DH2 No.31, Mortality Statistics: National Statistics 2005

What are the causes of breast cancer?

- It is not clear exactly what causes breast cancer but it is thought that there are many risk factors, some already well established and some still being investigated.

- Age is strongly linked with breast cancer. The risk of breast cancer increases with age.

- Two breast cancer genes have been identified: BRCA1 and BRCA2. These genes have been found in approximately 85 per cent of families with four or more cases of breast cancer diagnosed under the age of 60. However, only about five per cent of all breast cancer cases (fewer than 2,000 per year) are thought to be caused by breast cancer genes. This factor is being intensively investigated.

- There is a higher risk of breast cancer in the south of England and in Wales than in the north of the UK. The risk of breast cancer also appears to be higher in women from more affluent backgrounds.

- There is an increase in risk when people move from low risk to high risk countries. For example, Japanese immigrants to the USA increase their risk of breast cancer and acquire incidence rates similar to the American population within two generations. This suggests that risk may be linked to environmental and behavioural factors.

Risk factors

- being female
- increasing age
- previous history of breast cancer
- having proven benign breast disease in the past
- not breastfeeding long term
- current use of hormone replacement therapy or oral contraceptives
- having a family history of breast cancer
- having no children or few children
- having children at late ages (especially over 30)
- early puberty
- having a later menopause
- obesity (for post-menopausal women only)
- high consumption of alcohol

Key research in breast screening

The NHS Breast Screening Programme is evidence-based. Where aspects of it needed further investigation, research trials were set up. Details of the key research are below.

How often women should be screened

- The Frequency Trial concluded that the NHS Breast Screening Programme had got the interval between screening and invitations about right at three years, compared with more frequent screening. The trial was organised through the United Kingdom Coordinating Committee on Cancer Research (UKCCCR) and was supported by the Medical Research Council, Cancer Research UK and the Department of Health.[13]

Age at which women are screened

- The World Health Organisation's International Agency for Research on Cancer (IARC) concluded that there was sufficient evidence for the efficacy of breast screening of women between 50 and 69 years. For women aged 40-49 years, the group concluded there was only limited evidence for a reduction in mortality.

- The age trial considered what benefit, if any, would be gained by screening women under 50 years of age. 65,000 women aged 40 and 41 were invited for annual screening for seven years after which they were automatically invited every three years as part of the NHS Breast Screening Programme. A control group of 130,000 women, who were not invited for screening

13 The frequency of breast cancer screening: results from the UKCCCR randomised trial, European Journal of Cancer, 2002; 1458-1464

but received usual NHS care, were monitored for breast cancer over this period. The trial started in 1991 and was funded through the UKCCCR. Planned to run for 15 years, it is coordinated by the Cancer Screening Evaluation Unit (CSEU) of the Institute of Cancer Research. Final results are expected by 2007.

The Sloane Project

- One in five breast cancers will be found when still within the milk duct. This is called Ductal Carcinoma In Situ (DCIS). It is not certain whether all of these will ever spread to the surrounding breast tissue and there is uncertainty about the treatment required.

- The NHS Breast Screening Programme is funding the Sloane Project to improve the quality of care for women with screen-detected DCIS and other non-invasive breast cancers and atypical hyperplasias. It is a prospective audit, which aims to obtain good quality data from all UK breast screening units, and so produce the largest database in the world. By adding to our knowledge of the diagnosis, treatment and clinical outcomes of these diseases, the Sloane Project will provide an evidence base to inform the management of women with DCIS. Data collection for the project began in April 2003 and is due to continue until March 2008.

Genetic trials

- The identification of two of the genes (BRCA1 and BRCA2) involved in inherited breast cancer has caused great public interest. A multi-centre trial, Magnetic Resonance Imaging for Breast Screening (MARIBS), will compare regular mammographic screening and regular Magnetic Resonance Imaging (MRI) for women with a high risk of carrying one of these genes. It is being coordinated by the Institute of Cancer Research and is funded by the Medical Research Council and NHS Research and Development.

Million Women Study

- This study is looking at the links between hormone replacement therapy (HRT), breast cancer and other diseases. The study, which is one of the world's largest ever cohort studies, has recruited one million women from amongst those invited for breast screening. Findings from the study have highlighted the relationship between HRT and breast cancer. Other factors being investigated include diet, childbirth, breastfeeding, vitamin and mineral supplement use, contraceptives and family history of illness.

Digital mammography

- Future developments in the breast screening programme will include the introduction of digital mammography. A multi-disciplinary steering group, set up in 2004, has undertaken an evaluation and clinical assessment of equipment currently available. There has also been a study of the acceptability to women of digital screening. This has looked at their perceived pain or discomfort and levels of satisfaction with the experience when compared with conventional mammography. Recommendations on commissioning and routine testing of full field digital mammography have also been prepared.

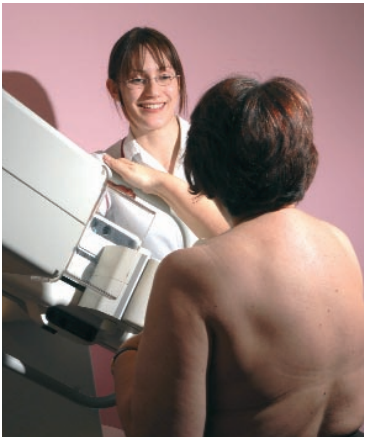
New Ways of Working in the NHS Breast Screening Programme

- In February 2002 all major stakeholders involved in the development, monitoring and evaluation of the 'New Ways of Working Project' agreed that the four tier model of service delivery based on occupational standard was safe, robust and effective.

- The four tiers are:

  - Consultant / Lead practitioner
  - Advanced practitioner
  - Practitioner
  - Assistant practitioner

- It was agreed that this model should be implemented throughout the breast screening service in England.



Breast awareness

Breast awareness is about encouraging women to become more aware of their bodies generally and to get to know their own breasts. This is an important issue for all women in their mid twenties and onwards as learning how their breasts look and feel at different times will help women know what is normal for them and recognise any irregular changes.

What should a breast look and feel like?

- There is no such thing as a standard breast and what is normal for one woman may not be for another. One woman's breasts will also look and feel different over time depending on the time of the month and the age of the woman.

What about routine breast self examination?

- The Department of Health's policy on breast awareness, which has strong support from the nursing and medical professions, encourages women to check their breasts for what is normal for them but does not recommend routine self examination to a set technique.

- There is no scientific evidence to show that a formally taught, ritual self examination, performed at the same time each month, reduces the death rate from breast cancer or is more effective than a more relaxed breast awareness.

What to look for

- A 'Be Breast Aware' leaflet, produced by the NHS Breast Screening Programme and Cancer Research UK, sets out a five-point plan for women.
    1. Know what is normal for you.
    2. Look and feel.
    3. Know what changes to look and feel for.
    4. Report any changes without delay.
    5. Attend for breast screening if aged 50 or over.

Copies of this leaflet can be obtained free of charge from:
Department of Health publications orderline
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