Early detection of breast cancer

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October 2015, September 2009

This position statement applies to the early detection of breast cancer in asymptomatic women (women without breast changes). The statement does not apply to diagnostic tests used to assess individual women presenting with breast changes.

Summary of recommendations

- It is recommended that women of all ages, and regardless of whether they attend mammographic screening, are aware of how their breasts normally look and feel and report any new or unusual changes promptly to their general practitioner.
- No one method for women to use when checking their breasts is recommended over another.
- It is recommended to reduce the risk of death due to breast cancer that women aged 50–74 years attend the BreastScreen Australia Program for free two-yearly screening mammograms having considered the benefits and downsides.
- Mammographic screening is not recommended for women younger than 40 years of age.
- Women aged 40–49 years and 75 years and over are eligible to receive free screening mammograms through the BreastScreen Australia Program but they do not receive an invitation to attend. In deciding whether to attend for screening mammography, women in these age groups should balance the potential benefits and downsides for them.
- For women of all ages who are at increased risk† of developing breast cancer it is recommended that an individualised surveillance program be developed in consultation with the woman’s general practitioner and/or specialist.

It is important that women of all ages understand the importance of finding and treating breast cancer early. Detection of breast cancer while it is still small and confined to the breast provides the best chance of effective treatment for women with the disease.1, 2 Benefits of early detection include increased survival, increased treatment options and improved quality of life. For women, increasing age is one of the strongest risk factors for breast cancer with about 75% of cases found in women aged 50 years and older.3, 4 However, in younger women, tumours are likely to be larger and more aggressive and overall survival is lower than for older women with the disease.4,5

The early detection methods covered by this position statement are:

- breast awareness – awareness by a woman of the normal look and feel of her breasts
- clinical breast examination – physical examination of an asymptomatic woman’s breasts by a medical or allied health professional
- screening mammography – use of mammography in asymptomatic women to detect breast cancer at an early stage (BreastScreen Australia is the national mammographic screening program).

The position statement has two sections – a review of evidence to date about the benefits of these methods in reducing mortality from breast cancer, and recommendations based on this evidence.
Recommendations are made for women of different ages who are at population risk* and for women of all ages who are at increased risk† of developing breast cancer. In making the recommendations, Cancer Australia considered the importance of translating population-based evidence into messages that are relevant for individual women.

Evidence

Breast awareness

In Australia, even with a fully implemented mammographic screening program, more than half of breast cancers are diagnosed after investigation of a breast change found by the woman or by her doctor. This emphasises the importance of women being aware of the normal look and feel of their breasts and reporting unusual breast changes.

Historically, public health campaigns have promoted specific techniques that women should use to examine their breasts (‘breast self-examination’). However, meta-analyses and randomised controlled trials have shown no difference in the size or stage of breast cancers at diagnosis or in the number of deaths from breast cancer for women taught to use a systematic approach for breast self-examination compared with those who did not receive instruction. These trials were conducted in Russia and China and involved large numbers of women. While the applicability of these trials for Australia has been questioned it is unlikely that trials of a similar size will be repeated in the future. It is also unlikely that a suitable control group would be found within the Australian population who have not already been exposed to messages about breast awareness and breast self-examination. A UK study of over 63,000 women aged 45–64 has shown no difference in the number of deaths from breast cancer after 16 years of follow-up between women taught to use a systematic approach to breast self-examination compared with those who did not receive instruction.

In 2015 the International Agency for Research on Cancer (IARC) Working Group concluded that there was inadequate evidence that breast self-examination reduces breast cancer mortality when taught or when practiced competently and regularly.

Thus, while there is evidence that women can find breast changes due to early breast cancer, there is no evidence to promote the use of any one self-examination technique over another.

Clinical breast examination

There is no direct high-quality evidence from clinical trials that population-based screening using clinical breast examination is effective in reducing the number of deaths from breast cancer. Randomised controlled trials of screening at a population level using clinical breast examination compared to no screening have been undertaken (two in India and one in Egypt), but have not reported results on breast cancer mortality.

In 2015 the IARC Working Group concluded that there was inadequate evidence that clinical breast examination reduces breast cancer mortality, and noted that in three clinical trials of clinical breast examination compared to no screening, breast cancers detected at baseline and in the early years of the trials tended to be of a smaller size and less advanced stage in the group of women that had clinical breast examination.

For women who are not participating in regular mammographic screening, regular clinical breast examination may offer some benefit.

Mammography

Population-based screening using mammography is the best early detection method available for reducing deaths from breast cancer. Evidence of the benefit is strongest for women aged 50–69 years. For all women, there is a chance that mammography will either miss a change due to breast cancer (false negative) or that further tests will be performed to examine a change that is not...
due to breast cancer (false positive). The chance of false negative or false positive results is higher in younger women because their breast tissue is denser, making it more difficult to detect changes. Generally, breasts become less dense as women get older, particularly after the menopause, which is why mammograms become more effective as women get closer to 50 years of age.

**Benefits of mammography**

- It is estimated that around 8 deaths from breast cancer will be prevented for every 1000 women screened every two years from age 50 to age 74, based on evaluation of mammographic screening in Australia.\(^{23}\)
- Screening becomes more effective as women move through the 40–49 year decade.\(^{24, 25}\)
- There is no evidence that population-based screening mammography is beneficial for women younger than 40 years. In these women, the reduced accuracy of mammography produces a high risk of false positive and false negative results.\(^{26-30}\)

In 2015 the IARC Working Group concluded that there is sufficient evidence that mammography reduces breast cancer mortality in women aged 50-74 years, but limited evidence that mammography reduces breast cancer mortality in women aged 40-49 years.\(^{14}\)

**Other technologies**

The IARC Working Group noted that compared with mammography alone, mammography with tomosynthesis increases rates of detection of both in situ and invasive cancers and may reduce false positive screening outcomes, however evidence for a reduction in breast cancer mortality was inadequate and the radiation dose received with dual acquisition is increased.\(^{14}\)

Breast thermography, also known as thermal breast imaging, is a technique that produces ‘heat pictures’ of the breast. There is no current scientific evidence to support the use of thermography in the early detection of breast cancer and in the reduction of mortality.\(^{31}\) For more information, please refer to the Cancer Australia Position Statement on use of thermography to detect breast cancer.

**Balancing the benefit**

While mammography is the most effective screening test, it is not one hundred percent accurate for the detection of breast cancer. Changes due to breast cancer may be missed, or women may undergo a number of investigations to examine a change that is not due to breast cancer. It has also been noted that some cancers that are detected may have never been found during the lifetime of the woman, had there not been a screening test. Diagnosis of these cancers has been referred to as ‘overdiagnosis’. For more information, please refer to the Cancer Australia Position Statement on overdiagnosis from mammographic screening\(^{13}\) and the BreastScreen Australia resource “BreastScreen and You”.\(^{32}\)

In addition there are individual patient factors that will influence a woman’s decision when weighing up the potential benefits and downsides of screening. Women may face issues such as the anxiety of waiting for test results, discomfort and inconvenience. In making recommendations to individual women, these issues should be balanced with the potential benefits of screening, taking account of the woman’s age, family history and any personal preference.

**Recommendations**

**Women at population risk**

**Breast awareness**

It is recommended that women of all ages, and regardless of whether they attend mammographic screening, are aware of how their breasts normally look and feel and report any new or unusual
changes promptly to their general practitioner. No one method for women to use when checking their breasts is recommended over another.

Breast changes to look for include:

- a new lump or lumpiness, especially if it’s only in one breast
- a change in the size or shape of the breast
- a change to the nipple, such as crusting, ulcer, redness or inversion
- a nipple discharge that occurs without squeezing
- a change in the skin of the breast such as redness or dimpling
- an unusual pain that doesn’t go away.

Clinical breast examination

A firm recommendation regarding clinical breast examination is not possible as there is no evidence to either encourage or discourage the use of clinical breast examination as a screening method for women of any age. Women who are eligible and are attending regular mammographic screening should be aware that no evidence is available as to whether clinical breast examination will provide additional benefit. Women who are not attending regular mammographic screening may gain some benefit from regular clinical breast examination, however this is the subject of ongoing research. Women should discuss their individual needs and preferences with their doctor. Women who are unsure about what is ‘normal’ for them should consult their general practitioner for advice.

Mammographic screening

Women younger than 40 years

- Mammographic screening is not recommended for women younger than 40 years of age.

Women aged 40–49 years

- Women aged 40–49 years are eligible to receive free mammograms through the BreastScreen Australia Program but they do not receive an invitation to attend. In deciding whether to attend for screening mammography, women in this age group should balance the potential benefits and downsides for them, considering the evidence that screening mammography is less effective for women in this age group than for older women.

Women aged 50–74 years

- It is recommended that women aged 50–74 years attend the BreastScreen Australia Program for free two-yearly mammograms.

Women aged 75 years and over

- Women aged 75 years and over are eligible to receive free mammograms through the BreastScreen Australia Program but they do not receive an invitation to attend. In deciding whether to attend for mammographic screening, women in this age group should balance the potential benefits and downsides of attending for them, considering their general health and whether they have other diseases or conditions that may impact on their decision.

General practitioners should discuss with all eligible women the possible outcomes of mammographic screening (both positive and negative) for them.

Women at increased risk of developing breast cancer

For women of all ages who are at increased risk of developing breast cancer it is recommended that an individualised surveillance program be developed in consultation with the woman’s general practitioner and/or specialist. Depending on age and risk for breast cancer, this might include regular clinical breast examination and breast imaging with mammography and/or ultrasound, with or without Magnetic Resonance Imaging (MRI). There is government funding available for the use of
MRI in the surveillance and diagnosis of women under 50 years of age at high risk of developing breast cancer, and who have no signs or symptoms of the disease. For more information see MRI in the surveillance and diagnosis of women under 50 years of age at high risk of developing breast cancer. For more information see MRI in the surveillance and diagnosis of women under 50 years of age at high risk of developing breast cancer.

Women should also be aware of the normal look and feel of their breasts and report any changes promptly to their general practitioner or specialist irrespective of whether they are having regular follow-up tests/examinations.

The IARC Working Group noted that women with a family history of breast cancer, with or without a known genetic predisposition, may benefit from intensified monitoring, with a combination of methods, from an earlier age and possibly at shorter intervals than women at average risk. For more information see Cancer Australia’s ‘Advice about familial aspects of breast cancer and epithelial ovarian cancer: A guide for health professionals’.

*Population risk describes the level of risk of developing breast cancer for women in the general population.

†Women are at increased risk of developing breast cancer if they have a strong family history of breast or ovarian cancer (two or more family members have had breast or ovarian cancer, especially if they are close relatives – mother, sister or daughter – and/or if they were younger than 50 when their cancer was diagnosed), are a carrier of a gene mutation known to predispose to breast cancer or have previously been diagnosed with invasive breast cancer, ductal carcinoma in situ or other high-risk pre-invasive breast disease. The risk of developing breast cancer for an individual woman can change as different life events unfold. For more information see Cancer Australia’s ‘Advice about familial aspects of breast cancer and epithelial ovarian cancer: A guide for health professionals’.

References

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