



## **Testing for Breast Cancer: Will the real breast screening test please stand up?**

### **Why screen for breast cancer?**

Breast cancer is the most commonly diagnosed cancer, and the second most common cause of cancer death, among Western Australian women. Screening for breast cancer, which involves routinely testing for the disease among women with no obvious symptoms, can increase the chance of finding breast cancer in its early stages when it is most treatable, thus reducing the number of deaths from breast cancer.

### **Weighing up the benefits and potential harms**

Because currently available screening tests are not 100% effective, there are also potential harms to screening. These include false reassurance and delayed treatment which may arise from false negatives (when a woman with cancer receives a negative test result); unnecessary anxiety and medical procedures as a result of false positives (when a woman without cancer receives a positive test result); and overdiagnosis (when cancer that would not have caused death or disability is detected by screening and subsequently treated). Given the potential for harm, the benefits and potential costs of a screening program need to be considered before it is implemented, and ongoing quality assurance is essential once the program begins.

### **Screening with mammography**

Evidence derived from high-quality research studies, including randomised controlled trials, has shown that screening using mammography reduces the number of deaths from breast cancer by approximately 25% among those invited for screening. Greatest benefit has been shown for women aged 50-69 years. Among women aged less than 40 years, there is inadequate evidence that mammographic screening (or any other screening test) reduces the number of breast cancer deaths. For this age group, the accuracy of mammography is reduced and thus the risk of harm arising from false test results increased.

Based on this evidence, the BreastScreen Australia program was implemented in 1991, offering free biennial mammographic screening to women over the age of 40. There is a substantial quality control program underpinning all components of the program, as well as an ongoing system to analyse and evaluate the results of the program. A major national review conducted into the program in 2009 found that for the target age group (women aged 50-69 years), participation in screening once every two years was associated with a 21-28% relative reduction in breast cancer deaths at the current national participation rate of 56%, and that test accuracy was maximised.

### **New commercial breast checking technologies**

Recently, an increase in the aggressive promotion and marketing of commercial technologies purported to assess women for early signs of breast cancer has been observed in Western Australia. These technologies include electrical impedance, thermography, microwave radiometry, computerised/mechanical imaging, computed tomography laser mammography, and self-examination kits. The commercial operators that provide services using these technologies typically market their product as safe, pain-free and suitable for all ages, including younger women. While some operators acknowledge the role of mammography, some also (or instead) imply or state explicitly that their technology is more accurate than mammography.

## Why are new commercial technologies of concern?

The organisations endorsing this summary cannot and do not claim that these new commercial technologies are ineffective. Their concerns are based on the fact that - for the most part - there is no, or insufficient, evidence of their effectiveness or potential harms. In other words, ***it is not known whether these new commercial technologies reduce the risk of death from breast cancer among women in any age group, or whether they are more effective than mammography.*** However, the way the new commercial technologies are marketed may lead women to believe that these technologies provide a legitimate and scientifically based 'test' for breast cancer that is equally effective to mammography. While participating in new commercial technologies instead of mammography may not pose any *immediate* harms, it may leave women at risk of missed cancers and false reassurance resulting from false positive test results, or unnecessary investigations from false positive test results. Because the accuracy of new commercial technologies is not known, it is unclear how low or high this risk is.

There are legitimate research programs that could provide evidence to indicate whether new breast screening technologies might perform better than the current 'gold standard' of mammography (Edith Cowan University are currently investigating the effectiveness of computed tomography laser mammography). Until such evidence becomes available, women are advised to use proven strategies for the detection of breast cancer.

## Women not eligible for participation in BreastScreen - what can they do?

For women not eligible to participate in the BreastScreen Australia Program, and indeed for all women in general, breast self-awareness and prompt reporting of symptoms to a GP is extremely important. Women are encouraged to be breast aware: this means becoming familiar with the normal look and feel of their breasts, so that they are able to notice any new changes and report them to their GP immediately. Women with a family history of breast cancer should discuss with their GP any concerns they may have and the most appropriate form of surveillance for them. For more information on breast awareness and family history of breast cancer, visit:

<http://nbocc.org.au/>

## Summary

Mammographic screening is a proven technology that contributes to a reduction in deaths from the disease. There are a range of unproven commercial technologies being promoted in the private marketplace. Women who purchase these services should be aware of the lack of evidence to demonstrate their effectiveness. Our motivation in raising these concerns is to prevent a scenario where a woman may rely on one of these unproven technologies to detect early signs of breast cancer, and subsequently develops a tumour which is detected too late for successful treatment. We consider that this scenario may occur unless action is taken to ensure that these businesses can only make claims that are substantiated by peer reviewed research.



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