

## **Screening women aged 40-49 years: A summary of the evidence for health professionals**

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### **Background**

Breast cancer is the leading cause of cancer deaths in Australian women. An organised mammographic screening program has the potential to reduce deaths by up to 30% in women aged 50-69 years.<sup>1</sup>

However, the benefit of screening women aged 40-49 years has been less clear. In Australia, BreastScreen policy about screening women aged 40-49 years was initially based on the recommendations of an NHMRC Working Party on Age Issues in Mammography Screening.<sup>2</sup> The policy was revised in June 1998 and now states that:

*Mammographic screening through BreastScreen Australia is available to women aged 40-49 years who have decided, based on current knowledge and personal choice, that they wish to attend. However, at this time, it does not appear that the size of the benefit in terms of deaths prevented balanced against the possible downsides for women, is sufficient to actively encourage women aged 40-49 years into the Program. Recruitment strategies and publicity materials about the Program will continue to be directed at asymptomatic women aged 50-69, where the evidence is that screening has the greatest potential to prevent mortality from breast cancer.*

### **What is the benefit of screening in women aged 40-49 years?**

The evidence about the benefit of screening women aged 40-49 years has been summarised in a review commissioned by the NHMRC National Breast Cancer Centre, *Review of the evidence about the value of mammographic screening in 40-49 year old women* by Irwig L, Glasziou P, Barratt A and Salkeld G.<sup>3</sup> The report concluded that there is some benefit of screening women aged 40-49 years, with the benefit being greater later in the decade, and in those women with a strong family history.

Irwig et al estimated a relative reduction in mortality of 15% for screened women aged 40-49 years (95% confidence intervals 0-29%).<sup>3</sup> They estimated that, among 10,000 women offered screening every two years from 40 years of age, about seven deaths would be prevented at 13 year follow-up. These estimates are based on a meta-analysis of trial data assuming two yearly screening and an 80% participation rate.

New data are continuing to emerge. In addition, the wide confidence intervals around the estimate of a 15% reduction in mortality indicate that the true impact of screening in this age group may be anywhere between no effect and a 29% reduction.

It should also be noted that these estimates are not derived from trials designed specifically to compare the benefit of commencing screening at 40 years with that of starting at 50 years. The first randomised trial designed to compare the impact of commencing screening at different ages has been established in the United Kingdom. Results will not be available for some years yet.

### **How does this benefit compare to screening women 50-69 years?**

The benefit of screening women aged 40-49 years is approximately one-third of that in women aged 50-69 years.

Screening 10,000 women aged 50-69 over 10 years will result in the prevention of approximately 18 deaths from breast cancer; the data currently available suggest that screening 10,000 women aged 40-49 years will result in the prevention of approximately seven deaths.

### **Is the benefit the same through the 40-49 decade?**

The data available from the current trials do not allow a formal comparison of the benefit of screening women aged 40-44 years with that of screening women aged 45-49 years.

Breast cancer is more common among women aged 45-49 years than among those aged 40-44 years and mammography becomes more effective in detecting cancers as women reach menopause. It therefore seems likely that the benefit of screening will increase as women move through the decade. From modelling exercises, Irwig et al estimated that screening women over the age of 45 years will save half as many lives again as screening women under 45 years.<sup>3</sup>

### **What is the benefit of screening women with a strong family history of breast cancer?**

The benefits of screening women aged 40-49 years are likely to be greater among those women with a strong family history of breast cancer.

Irwig et al modelled these effects and estimated that, for women aged 40-49 years at *moderate risk* (as defined by the NHMRC National Breast Cancer Centre guidelines<sup>4</sup>) about 15 deaths per 10,000 women screened might be prevented.<sup>3</sup> For women at *high risk*,<sup>4</sup> up to 30 deaths per 10,000 women might be prevented.

### **Are the more recent trials showing greater benefit from screening in this age group?**

It has been suggested that improvements in mammography in recent years will mean that screening is becoming increasingly effective in finding cancers; this might be particularly important in considering the benefits of screening in women aged 40-49 years.

It is not yet known whether newer mammography techniques will result in a greater mortality benefit than that observed in the original trials. A comparable period of follow-up is required before this question can be adequately addressed and this is still limited in the more recent trials. However, if newer mammography techniques are more effective, more recent trials might be expected to show a greater reduction in mortality from screening women aged 40-49 years. Irwig et al found that there was no difference in the magnitude of the effect by the date of commencement of the trials.<sup>3</sup>

For example, the Gothenburg study which was published in 1997 showed a 44% reduction in mortality from breast cancer among women aged 40-49 years after 11 years of follow-up.<sup>5</sup> Although this benefit appears to be greater than that reported in earlier studies, the results were not significantly different to those of the other trials. The analysis of Irwig et al is consistent with the effect reported in the Gothenburg study.

### **What are the downsides for women of beginning screening in this age group?**

There are downsides of mammographic screening. All women may experience possible anxiety, inconvenience, cost and discomfort to varying degrees and these are similar for women aged 40-49 years and for women over the age of 50.

However, these downsides must be balanced against a smaller potential benefit in women aged 40-49 years. In addition, some of the other downsides of screening appear to be greater for women aged 40-49 years. Estimates of the magnitude of the downsides in Australia are difficult because of the lack of recent national data about the screening program. Some national data are available from the pilot phase, but these may overestimate the downsides since the program was still in its early stages.

It appears that mammographic screening will miss more breast cancers in women aged 40-49 years than in women aged 50-69 years. About 25% of

women aged 40-49 years who have invasive cancer will be incorrectly advised that their mammograms are clear (that is, they will be given a false negative result).<sup>6</sup> This is compared to a false negative rate of 7-8% for women aged 50-69 years.

In addition, there will also be substantial rates of further investigations. Irwig et al estimated that about 5% of women will be reported as having an abnormal mammogram at each screening and will require further investigation; ultimately, about 95% of these women will not have breast cancer.<sup>3</sup>

Based on data from the pilot phase, it is estimated that for every 10,000 women aged 40-49 years screened over a 10 year period: 2,000 women would be recalled for assessment; 230 women would require biopsies (including fine needle aspiration and core biopsies); 100 invasive cancers would be diagnosed, and a further 21 women would be diagnosed with ductal carcinoma in situ.

### **What should women be advised about participating in screening in this age group?**

A survey of women's views showed that the majority of women want the opportunity to access screening services when they are aged 40-49 years.<sup>7</sup> They want to be fully informed of the benefits and downsides so they can make an informed decision about when to begin screening.

It is therefore recommended that women be provided with as much information as they need about the benefits and downsides of participating in mammographic screening when aged 40-49 years.

For some women, evidence of a small benefit will mean they wish to begin screening at 40 years of age; other women may judge that it is not worth beginning screening until later in the decade or when they turn 50 years of age.

Women in the 40-49 year age group will need to weigh these issues up for themselves and in doing so, they will need to take into account:

- their age, bearing in mind that the benefits of screening may increase throughout the decade;
- their family history, in consultation with their general practitioner or specialist; and
- their own personal concerns about their risk of developing breast cancer and their assessment of the possible downsides.

## References

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