

“Should I Have a Screening Mammogram Now?”

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While breast cancer screening is widely recommended for women aged 50 to 69, it has been a controversial issue over the past two decades when it relates to women aged 40 to 49. The majority of published findings concerning the efficacy of screening younger women are derived from studies that were not designed to address this specific issue and generally lack statistical power (due to small sample sizes). The best single study was done in Canada and involved more than 50,000 women randomly assigned to annual screening by mammography and breast clinical examination, or to usual care, for five years. The final results of the National Breast Screening Study-1, published in September 2002 after 11 to 16 years of followup, failed to show any benefit of mammography.

What are the criteria for cancer screening?

One way to consider the issue of screening women aged 40 to 49 is to reflect on criteria widely acknowledged throughout the world since being published by the World Health Organization (WHO) in 1968. Applied to cancer screening, these include:

- the condition should be an important health problem;
- there should be a recognizable latent or early symptomatic stage (with early diagnosis leading to better prognosis);

Anna’s Anxiety

Anna, 43, comes to your office for an annual checkup. She feels in good health, except for an occasional morning cough that she attributes to heavy smoking. Recently, she started to worry about breast cancer after her friend of the same age was diagnosed with the disease.



Recommendations for mammography, issued by different medical societies or women’s groups she found on the Internet, are conflicting.

Can you clarify the situation for her?

For more on Anna, go to page 65.

- there should be a suitable test for the condition (simple, sensitive, and specific);
- screening has a demonstrated impact on mortality;
- the risks are acceptable for the population; and
- the cost-benefit ratio is acceptable.

Additional criteria, such as adequate facilities for treatment and capacity of the health system to support screening as a continuous process, have been added by different organizations. Table 1 compares the WHO criteria and what is known for women aged 40 to 49 and 50 to 69.

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Table 1

Comparative analysis by criteria for women aged 40 to 49 and women aged 50 to 69

<u>WHO criteria</u>	<u>40 to 49</u>	<u>50 to 69</u>	<u>Comments</u>
Importance of the problem	Yes, less	Yes	Although the number of cases looks quite elevated among women aged 40 to 49, the rate is much less when the population size is taken into account. (the baby-boom effect).
Better prognosis when found early	Yes	Yes	
Suitable test for screening	Yes (less sensitive)	Yes	Mammography is a slightly less sensitive test for younger women, due to higher breast density. There are also more false positive tests and a lower positive predictive value.
Impact on mortality reduction	Inconsistent (\pm 15% or less)	25% to 35%	According to the WHO expert working group, we can expect a mortality reduction of around 25% for women aged 50 to 69 (according to RCT results based on intention to treat) or around 35% for women effectively screened.
Acceptable risks	Yes, less	Yes	Pain, inconvenience, anxiety, unnecessary procedures due to false positive result, overdiagnosis of CIS, and false reassurance are all negative consequences that can unfavour screening, particularly for younger women, where positive predictive value is less.
Cost-benefit ratio	Unknown	Yes	More difficult to assess for younger women due to disputed impact.

WHO: World Health Organization
 RCT: Randomized controlled trial
 CIS: Carcinoma in situ

Screening women aged 40 to 49 is likely to remain a controversial issue for some time, mainly due to its ambiguous impact on mortality reduction and because people give different weight to the risks. For example, an anxious

women may prefer to have a negative biopsy than remain in doubt. On the other hand, many women overestimate their risk of breast cancer and the benefits of mammography (Table 2).¹ Even the U.S. Preventive Services Task Force,



Table 2

Short-term probability of manifesting breast cancer in Canada

	Within 1 year	Within 10 years
At 30 years	1 in 5,000	1 in 238
At 40 years	1 in 1,250	1 in 80
At 50 years	1 in 556	1 in 51
At 60 years	1 in 417	1 in 38
At 70 years	1 in 323	1 in 34

which changed its position in 2002 to a B recommendation for all women aged 40 and over, admits that the evidence is weak and the absolute benefit for women aged 40 to 49 is likely small. A major randomized trial underway in the U.K. involves 195,000 women, aged 40 or 41 at recruitment, followed for 10 years with either annual mammography or usual care. Results are expected in 2005.

What are the recommendations in Canada?

In 2001, the Canadian Task Force on Preventive Health Care (CTFPHC) changed its recommendation (from D to C) to reflect the uncertainty around the advantages and risks of mammography. A shared decision-making strategy is encouraged between physicians and average-risk patients.

While most experts would recommend annual



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Answering Anna's Questions

There is no clear answer to this question. A risk assessment and good clinical examination are the first steps. For women with no particular risk factor, shared decision-making is encouraged, taking into account other factors, such as the degree of anxiety, general health condition, and attitude towards health. The physician—considering at this point that it cannot be described as either “very effective” or “never effective” at a population level—must correct any misconception about the true risk of cancer and the value of mammography.

mammography screening to all women at higher risk, the ideal age at which to start screening and the use of other adjunct tests, such as ultrasound or magnetic resonance imaging (MRI), are uncertain at the moment. Several projects are underway to define the best strategy in terms of surveillance for these women. While none of the provincial or territorial breast cancer screening programs currently include women aged 40 to 49 in their recruitment strategy, most jurisdictions would accept women aged 40 to 49 with a medical referral. This cautious attitude reflects the fact that public health measures, applied to large, healthy populations, require a stronger level of evidence than interventions in clinical settings.

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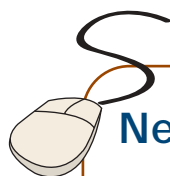
Risk evaluation

Most women who develop breast cancer do not carry any specific risk factor or strong family history. Besides a few rare conditions—such as chest irradiation during youth or early adulthood and hyperplasia with atypia found on previous breast biopsy—family history remains the most important consideration. While having one close relative diagnosed with breast cancer after 50 years slightly increases the risk, having multiple relatives with breast cancer—all from the maternal side or the paternal side—elevates the risk significantly, especially if they were younger than 50 when diagnosed. Other signs of a possible genetic inheritance of one of the breast cancer susceptible genes BRCA1 or BRCA2, include:

- associated ovarian cancer,
- male breast cancer,
- ashkenazi ancestry, and
- bilateral cancer.

In these cases, a genetic evaluation could be considered.

Among the scales developed to assess the risk of breast cancer in a research context, the Gail model is probably the most often used, although it has some limitations. An electronic version of that model is widely available. CME



Net Readings

1. Health Canada: Breast Cancer
www.hc-sc.gc.ca/pphb-dgspsp/ccdpc-cpcmc/bc-cds/pub_e.html
2. Canadian Task Force on Preventive Health Care
www.ctfphc.org/
3. Breast cancer risk assessment tool
<http://bcra.nci.nih.gov/brc/>

Reference

1. Adapted from Bryant HE, Brasher PM: Risks and probabilities of breast cancer: Short-term versus lifetime probabilities. *CMAJ* 1994; 150(2):211-6.

Suggested Readings

1. Fletcher SW, Elmore JG: Mammographic screening for breast cancer. *N Engl J Med* 2003; 348(17):1672-80.
2. International Agency for Research on Cancer. IARC Handbooks of Cancer prevention. Vol. 7, Breast Cancer Screening. IARC Press, Lyon. 2002.
3. Miller AB, To T, Baines CJ: The Canadian National Breast Screening Study-1: Breast cancer mortality after 11 to 16 years of follow-up. A randomized screening trial of mammography in women age 40 to 49 years. *Ann Intern Med* 2002; 137(5 Pt1):305-12.
4. Ringash J, with the Canadian Task Force on Preventive Health Care: Preventive Health Care, 2001 update: Screening mammography among women aged 40-49 years at average risk of breast cancer. *CMAJ* 2001; 164(4):469-76.
5. U.S. Preventive Services Task Force: Screening for breast cancer: recommendations and rationale. *Ann Intern Med* 2002; 137(5 Pt1):344-6.

Take-home message



- Breast cancer screening is still a controversial issue for women aged 40 to 49. The Canadian Working Group on Preventive Health Care issued a C recommendation in 2001 for women aged 40 to 49 at average risk.
- Annual screening mammography is generally recommended for women at higher risk, but the ideal age to start screening and the proposed regimen rely more on opinion than data.
- Most screening programs in the world target women aged 50 to 69, where stronger evidence in favour of screening has been demonstrated.