Breast Cancer - Guideline Presentation

Speaker deck

OVERVIEW

We will review the following:

1. Background on Breast Cancer
2. Methods of the CTFPHC
3. Recommendations and Key Findings
4. Implementation of Recommendations
5. Conclusions
6. Questions and Answers

CTFPHC BACKGROUND

CTFPHC Working Group Members:

The Breast Cancer Working Group included members from the Canadian Task Force on Preventive Health Care (CTFPHC), the Public Health Agency of Canada (PHAC) and the Evidence Review Synthesis Centre (ERSC) at McMaster University.
Task Force Members:

- Marcello Tonelli (co-chair)
- Richard Birtwhistle (co-chair)
- James Dickenson
- Michel Joffres
- Harminder Singh

Public Health Agency of Canada:

- Sarah Connor Gorber *

Evidence Review and Synthesis Centre:

- Donna Fitzpatrick-Lewis *
- Nicole Hodgson*
- Donna Ciliska*
- Leslea Peirson *
- Mary Gauld*
- Yan Yun Liu*

*non-voting member

BREAST CANCER: OVERVIEW

Background

Of the newly diagnosed cases of breast cancer in Canada, 80% were in women over the age of 50 years and about 28% were in women aged 70 years or older with little variation by province.

In Canada and worldwide, regular screening for breast cancer with mammography, breast self-examinations and clinical breast examinations are widely recommended to reduce mortality due to breast cancer.

Although controversy exists over precisely which screening services should be provided and to whom, these methods are frequently used in contemporary practice.

Outcomes of screening for breast cancer such as tumor detection and mortality must be put into context of the harms and costs of false-positive results, over diagnosis and overtreatment. Consideration of benefits, harms and costs is complicated by variations in risk factors and the types and stages of cancer**.** Any positive result from screening has emotional costs such as anxiety and worry for patients and their families and financial costs to both the patient and the health care system as a result of additional and potentially unnecessary diagnostic tests. For women with positive results on screening tests, additional diagnostic tests will usually be recommended, such as further mammography, ultrasound and/or tissue sampling with core needle biopsy.

BREAST CANCER 2011 GUIDELINES

This guideline updates the previous guideline issued by the CTFPHC in 2001. The guideline provides recommendations for practitioners on preventive health screening for breast cancer in a primary care setting among women 40 years of age and older at average risk of disease. Average risk of disease is defined as those with no previous breast cancer, no history of breast cancer in a first-degree relative, no known mutations in the BCRA1/BCRA2 genes and no previous exposure of the chest wall to radiation. Recommendations are provided separately for women aged 40-49 years, 50-69 years, and 70-74 years.

Screening for Breast Cancer

METHODS OF THE CTFPHC

The CTFPHC is an independent panel of clinicians and methodologists with expertise in prevention, primary care, literature synthesis, and critical appraisal. The mandate of the CTFPHC is to apply the latest evidence in preventive health care research to primary care practice and policy across Canada.

The Breast Cancer Working Group is composed of 5 CTFPHC members who are supported by PHAC science officers to establish the guidelines research questions and analytical framework.

The Evidence Review and Synthesis Centre (ERSC) at McMaster University independently undertook a systematic review of literature based on this analytical framework, and prepared a systematic review of the evidence with GRADE tables. The ERSC consulted with field experts during this process and participated in working group and CTFPHC meetings.

CTFPHC Review Process

The CTFPHC review process is composed of an (i) internal review process and an (ii) external review process. The internal review process involves the guideline working group, the full CTFPHC, PHAC science officers and ERSC staff.

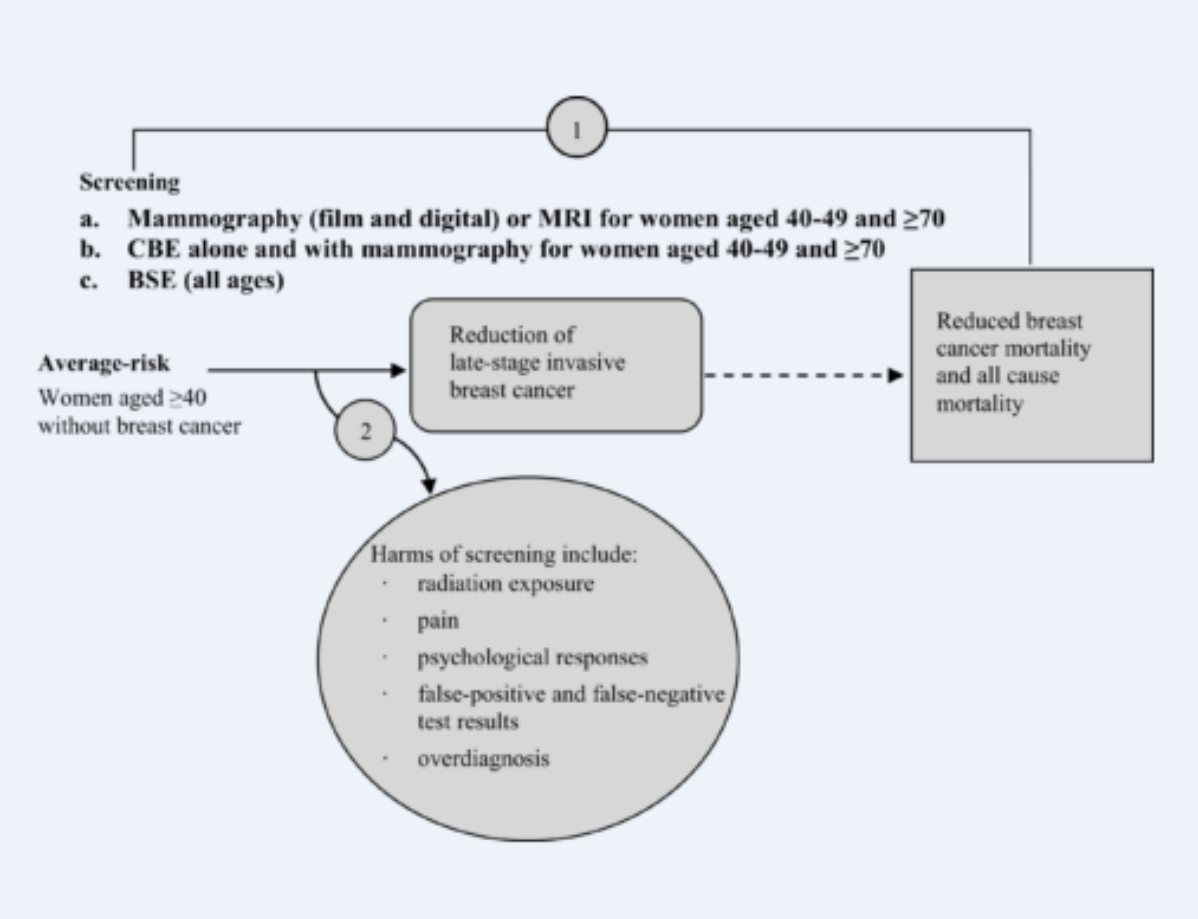
The external review process involves review of the guidelines by key stakeholders from generalist and disease specific organizations, federal, provincial and territorial stakeholders. The Canadian Medical Association Journal (CMAJ), where most of the CTFPHC guidelines are published, undertakes its own independent peer review journal process.

Research Questions

The systematic review for screening for breast cancer included 2 key research questions (with 6 sub-questions) and 4 supplemental or contextual questions.

For more detailed information please access the systematic review www.canadiantaskforce.ca

ANALYTICAL FRAMEWORK: SCREENING



The analytical framework outlines the scope of the evidence review and guideline recommendations. The purpose of the analytical framework is to show practicing physicians what the guideline includes and does not include and to visually display the relationship between the key concepts.

This guideline applies to average-risk women aged 40 years or older without a current diagnosis of breast cancer.

As outlined in the analytical framework, this guideline looks at the impact of screening (mammography, CBE alone and with mammography, and BSE) on primary outcomes (e.g., reduction of late-stage invasive breast cancer, reduced breast cancer mortality and all-cause mortality) as well as associated adverse effects (e.g., radiation exposure, pain, psychological responses, false-positive and false-negative test results, and over-diagnosis).

ELIGIBLE STUDY TYPES

The primary population of interest for the breast cancer screening guideline was women 40 years and older, without pre-existing breast cancer and not considered to be at high-risk for breast cancer. High risk of breast cancer was determined on the basis of family history of breast or ovarian cancer or other personal risk factors.

The studies included were in English and in French.

Studies on the effectiveness of screening included randomized control trials (RCTs) or meta-analyses with breast cancer mortality or all-cause mortality as outcomes. Studies of various designs and multiple data sources were included to examine the harms of screening. Grey literature was included if it incorporated recent and relevant Canadian data. Studies excluded from the systematic review included those focusing on costs of improving screening rates, dual review of screening mammography, and populations at high-risk for breast cancer.

GRADE METHODOLOGY

The CTFPHC utilizes the GRADE system for providing clinical practice guideline recommendations based on a systematic review of the available evidence. The **GRADE** acronym stands for: **G**rading of **R**ecommendations, **A**ssessment, **D**evelopment and **E**valuation.

The GRADE system is composed of two main components:

1. **The quality of the evidence**: The quality of the evidence measures the degree of confidence that the available evidence correctly reflects the theoretical true effect of the intervention or service. It is graded as high, moderate, low or very low based on how likely further research is to change our confidence in the estimate of effect.
2. **The strength of recommendation:** The strength of the recommendation (strong/weak) is based on the quality of supporting evidence, the degree of uncertainty about the balance between desirable and undesirable effects, the degree of uncertainty or variability in values and preferences, and the degree of uncertainty about whether an intervention represents a wide use of resources.

GRADE: How is the strength of the recommendations graded?

The strength of the recommendations (strong or weak) is based on four factors:

1. The quality of the supporting evidence
2. The certainty about the balance between desirable and undesirable effects
3. The certainty or variability in the values and preferences of individuals
4. The certainty about whether the intervention represents a wise use of resources

Interpretation of Recommendations

Implications	Strong,Recommendation	Weak,Recommendations
For patients	Most individuals would want the recommended course of action; Only a small proportion would not.	The majority of individuals in this, situation would want the suggested course of action but many would not.
For clinicians	Most individuals should receive the intervention.	Recognize that different choices will be appropriate for individual patients; Clinicians must help patients make management decisions consistent with values and preferences.
For policy makers	The recommendation can be adapted as, policy in most situations.	Policy making will require substantial debate and involvement of various stakeholders.

This is a standard GRADE table which outlines how weak or strong recommendations should be interpreted and implemented by different groups or stakeholders. It is important to consider the strength of the recommendations when interpreting the CTFPHC guidelines for implementation in clinical practice, for policy, or for patients in decision making.

Screening for Breast Cancer
RECOMMENDATIONS & KEY FINDINGS

Breast Cancer Screening Recommendations: CBE, BSE, and MRI

The following is an overview of the CTFPHC recommendations on Breast Cancer Screening using clinical breast exam (CBE), Breast self-exam (BSE), and magnetic resonance imaging (MRI).

Clinical Breast Exam (CBE)

1. We recommend not routinely performing clinical breast exams alone or in conjunction with mammography to screen for breast cancer. This is a weak recommendation with low quality evidence

   Basis of the recommendation: The CTFPHC based this recommendation on the lack of evidence of clinical breast exam efficacy in decreasing mortality and concerns with the potential harms of clinical breast exams, including false-positives, anxiety and distress associated with false-positive results, and delays in cancer diagnosis due to false-negative results. Clinical breast exams remain appropriate only when women present with, or physicians have concerns about, abnormal breast changes.

Breast Self-Exam (BSE)

2. We recommend not advising women to routinely practice breast self-exam. This is a weak recommendation with moderate quality evidence.

   Basis of the recommendation: The CTFPHC based this recommendation on the lack of evidence indicates breast self-exams reduce mortality due to breast cancer or all-cause mortality. Further, two moderate quality RCTs show that breast self-exam increases the incidence of having a breast biopsy that shows no evidence of cancer. Additional concerns with the potential harms of breast self-exams are similar to those of clinical breast exams and include false-positives, anxiety and distress associated with false-positive results, and delays in cancer diagnosis due to false-negative results.

Magnetic Resonance Imaging (MRI)

3. We recommend not routinely screening with MRI. This is a weak recommendation with no evidence.

   Basis of the recommendation: The CTFPHC based this recommendation on the lack of any evidence evaluating whether screening women of average risk using MRI scans reduces morality as compared to mammography or no screening. Further, no RCT has assessed the effect on breast cancer mortality of screening with MRI for women of average risk.

Breast Cancer Screening Recommendations: Mammography

The following is an overview of the CTFPHC recommendations on breast cancer screening using mammography. Note that these recommendations are for both digital or film mammography. Since no studies show that the type of mammography influences the anticipated reduction in mortality associated with screening, either is acceptable.

Recommendation Criteria

The following recommendations apply to women aged 40 – 74 years who are at average risk for breast cancer. The recommendations do not apply to those at higher risk of breast cancer. Women are considered high risk if they have a personal history of breast cancer or a first degree relative with a history of breast cancer; have a known BRCA1/BRCA2 mutation; and/or have prior chest wall radiation.

No recommendations were made for women aged 75 years and older due to lack of evidence for this age group. It is possible that screening might reduce breast cancer mortality in this group, depending on the woman's overall health; however, given the small absolute reduction in mortality associated with screening, benefit is unlikely among people with limited life expectancy.

For women 75 and older, the CTFPHC suggests that the impact of the woman's overall health should be taken into account and during joint decision making about whether to proceed with screening.

Mammography (40-49 years)

4. For women 40-49 years of age we recommend not routinely screening with mammography. This is a weak recommendation with moderate quality evidence.

   Basis of the recommendation: This CTFPHC recommendation places a relatively low value on a very small absolute decrease in mortality and reflects concerns with false-positive results, the incidence of unnecessary biopsies, and over diagnosis of breast cancer. Although mammography is associated with a significant reduction in the relative risk of death from breast cancer in this age group (RR=15%), the absolute benefit is lower than for older women. In the judgment of the CTFPHC, the balance of potential benefit and potential harm does not justify routine screening in women aged 40-49. Clinicians should discuss the benefits and harms with their patients and must help each woman to make a decision that is consistent with her values and preferences.

Mammography (50-69 years)

5. For women 50-69 years of age we recommend routinely screening with mammography every 2 to 3 years. This is a weak recommendation with moderate quality evidence.

   Basis of the recommendation: The CTFPHC based this recommendation on the findings that mammography is associated with a significant reduction in relative risk (relative benefit = 21%) and that the absolute benefit of screening remains small but is greater than for women 40-49 years of age. In the judgment of the CTFHC, the larger absolute benefits for women 50-69 years of age justify

a weak recommendation for screening. Clinicians should discuss the benefits and harms with their patients and must help women to make a decision that is consistent with her values and preferences.

Mammography (70-74 years)

6. For women 70-74 years of age we recommend routinely screening with mammography every 2 to 3 years. This is a weak recommendation with low quality evidence.

   Basis of the recommendation: The CTFPHC based this recommendation on the finding that the reduction in relative risk of death from breast cancer associated with mammography for women 70-74 years of age is statistically non-significant (relative benefit = 32%); however, the point estimate for relative risk is similar to that seen for younger women. Given the higher absolute risk in this age group, absolute benefits of mammography are likely to be similar to those seen among women aged 50-69 years. In the judgment of the CTFPHC, most women 70-74 years of age should receive screening but many should not receive it. Clinicians should discuss the benefits and harms with their patients and must help each woman to make a decision that is consistent with her values and preferences.

Harms of Screening

This table presents data on estimates of adverse outcomes for screening. The duration of 11 years was chosen because it is the approximate median duration of follow-up during the included randomized trials. Data assumes that re-screen rates stay constant over-time. The cancer detection rates that were used in these calculations may vary in provinces where screening frequencies differ.

To save one life from breast cancer over 11 years:

	Screening every 2-3 years	Unnecessary breast biopsy	False positive mammogram
Women aged 40-49 years	**2100 women**	**75 women**	**690 women**
Women aged 50-69	**720 women**	**26 women**	**204 women**

years			
Women aged 70-74 years	**450 women**	**11 women**	**96 women**

Frequency of Screening

The trials included in the evidence review screened women at intervals ranging from 12 to 33 months (median 22 months). The optimal frequency of screening cannot be determined at present, but data from the sole randomized trial comparing different screening intervals (United Kingdom Coordinating Committee on Cancer Research (UKCCCR)) suggest no significant difference between screening intervals of one year and three years. However, that trial was not adequately powered to detect a small benefit of more frequent screening.

Pooled analysis suggests that the effect of screening on mortality is similar in trials with a screening interval of 24 months or more and those with a screening interval of less than 24 months. Further stratified analysis suggested that the benefit of screening appeared similar in trials with screening intervals of 33, 24 and 12 months.

Therefore, for women aged 50-74 years, the CTFPHC suggests a screening interval of two to three years, which appears to preserve the benefit of annual screening but reduces the adverse effects, inconvenience and cost.

Comparison of Guidelines

This table compares the current CTFPHC guideline with previous CTFPHC (2001), US Preventive Services Task Force (2009), BreastScreen Australia and National Health Service (NHS) in the United Kingdom screening program guidelines.

The current guideline differs from previous recommendations made by the CTFPHC by lengthening the screening interval from one year to two to three years and recommending against clinical breast exam. The USPSTF and BreastScreen Australia recommend routine screening for women aged 50-74 years every two years; the NHS recommends routine screening every three years. No guidelines recommend either breast self-exam or clinical breast exam. The explanation for these differences may be varying judgments about the quality of available evidence.

Screening for Breast Cancer

IMPLEMENTATION OF RECOMMENDATIONS

Values and Preferences

From qualitative studies, the CTFPHC found that most women value mammography for perceived reduction in mortality. In a survey of 1,528 US women at the time of a screening appointment, 97% believed that a false-positive (FP) result would not deter them from continuing with regular screening. Most would have been willing to be recalled more often for either a non-invasive (86%) or an invasive (82%) procedure if it might increase the chance of detecting a cancer earlier. Women preferred the inconvenience and anxiety associated with a higher recall in return for a possibility of detecting breast cancer earlier.

However, few women considered issues of further testing or harm arising from false-positives in their decision making. Women who have experienced a false-positive reading will have higher levels of anxiety and fear related to the possibility of having a breast cancer diagnosis. This psychological distress following a false-positive is real, often transient, but persistent in many women.

Although available data suggest that some women would prefer to undergo screening despite its potential harms, many would not. These data show that determining the preferences of individual women about the relative importance of potential benefits and potential harms is critical in determining who should undergo screening. The majority of women prefer to be jointly involved in decision making with their health care providers, but some would undergo screening if recommended by their providers.

KT TOOLS

The CTFPHC creates KT tools to support the implementation of guidelines into clinical practice. A risk and benefits poster, patient algorithm and patient FAQ have been developed for the breast cancer screening guideline. These tools are freely available for download in both French and English on the website: www.canadiantaskforce.ca

CTFPHC Mobile App Now Available

The app contains guideline and recommendation summaries, knowledge translation tools, and links to additional resources.

Key features include the ability to bookmark sections for easy access, display content in either English or French, and change the font size of text.

CONCLUSIONS

There is no evidence that screening women at average risk with MRI, CBE or BSE reduces the risk of mortality or other clinically relevant adverse outcomes.

For women aged 40 – 49 years we recommend not routinely screening with mammography (Weak recommendation; moderate quality evidence)

For women aged 50 – 69 years we recommend routinely screening with mammography every 2 to 3 years (Weak recommendation; moderate quality evidence)

For women aged 70 – 74 years we recommend routinely screening with mammography every 2 to 3 years (Weak recommendation; low quality evidence)

The reduction in mortality associated with screening mammography is relatively small for women aged 40-74 years at average risk of breast cancer. A greater reduction in mortality is seen with mammography for women at average risk aged 50-74 years than among similar women aged 40-49 years. Additionally, harms of overdiagnosis and unnecessary biopsy may be greater for younger women than for older women. Providers should discuss the trade-off between benefits and harms, as well as patient's values and preferences.

More information

For more information on the details of this guideline or to access the KT tools please refer to the evidence review in the resources section of the website www.canadiantaskforce.ca**.**