Health Evidence™
Helping public health use best evidence in practice since 2005

Date this evidence summary was written:

July 2009

Evidence Summary Title:

Should women be routinely taught breast self-examination to screen for breast cancer?: Evidence and implications for public health

Review Quality Rating: 8 (strong)

Review on which this evidence summary is based:
Baxter, N. (2001). **Preventative health care, 2001 update: Should women be routinely taught breast self-examination to screen for breast cancer?** *CMAJ: Canadian Medical Association Journal, 164*(13), 1837-1846.

Review author contact information:
Nancy Baxter with the Canadian Task Force on Preventive Health Care; resident in general surgery at the University of Toronto, Toronto, ON; Division of General Surgery, University of Toronto, St. Michael's Hospital, 30 Bond St. 16CC-040, Toronto, ON, M5B 2H9; phone #: 416-864-5168; Fax #: 416360-0637; E-mail: baxtern@smh.toronto.on.ca

This is an evidence summary written to condense the work of the authors of this systematic review, referenced above. The intent of this summary is to provide an overview of the findings and implications of the full review. For more information on individual studies included in the review, please see the review itself.

Review content summary

The goal of this review was to evaluate the evidence related to the effectiveness of breast self-examination (BSE) to screen for breast cancer and to provide recommendations for routine teaching of BSE to women in various age groups as part of the Canadian Task Force on Preventive Health Care recommendations for periodic health examinations. Two randomized-controlled trials and five case-control/cohort studies were included in the review. The findings were synthesized narratively and the results summarized in tables according to age group. Recommendations for women younger than 40 years and older than 70 years were not presented as there was a lack of evidence to adequately assess BSE effectiveness in this population. The reviewers stress however, that even though the evidence indicates no benefit from routine BSE instruction, some women will ask to be taught. In this case, the potential benefits and harms should be discussed with the woman and proper technique demonstrated. Future RCTs on BSE effectiveness should be continued until adequate power is achieved, and a well-designed trial of BSE effectiveness in a population receiving screening techniques of proven effectiveness would be beneficial to the Canadian population.

Comments on this review's methodology

This review is of strong methodological quality. A clear research question guided this review, inclusion criteria were adequately outlined, and a thorough search strategy employed. Electronic databases such as MEDLINE, PreMEDLINE, CINAHL, and the Cochrane Library were searched for articles published between 1966 to October 2000, and to ensure all relevant articles were retrieved, references of key papers were searched and experts consulted as well. The review's principal author rated the quality of the evidence and included the criteria in an appendix. Quality rating, however, was limited to study design. The findings of this analysis were reviewed through an iterative process by members of the review team. The task force sent the final review and recommendations to 4 independent experts, and their feedback was incorporated in the final draft of the manuscript. Reviews are discussed according to study type, and the strengths and weaknesses of individual studies are included in this discussion as well as clinical recommendations.

Why this issue is of interest to public health

Breast cancer is the most frequently diagnosed cancer among Canadian women.[1,2] It accounts for 30% of all new cancer cases each year, and is the leading cause of person-years of life lost for women.[1] An estimated 22,400 women will be diagnosed with breast cancer and 5,300 women will die from the disease in 2008.[2] Although BSE has been widely promoted, researchers have been unable to find evidence that it reduces mortality from breast cancer.[3] In contrast, there is good evidence of harm from BSE instruction.[1,3] Because most women with breast cancer have no other identifiable risk factors, the effectiveness of teaching BSE should be demonstrated in the general population if it is to affect disease burden.[1] Since the release of recommendations by the Canadian Task Force on Preventive Health Care in 2001 women have been confused about the value of regular breast self-examination (BSE).[3] Despite the fact that many breast tumours are found by highly-screened women themselves, many self-detected tumours are not found during formal BSE.[1] In one study, only 7.6% of women with breast tumours who were practising regular BSE actually detected the tumour by means of self-examination. An important discussion given that debate of BSE's worth is ongoing nationally and internationally. For instance, while the Canadian Cancer Society continues to recommend regular BSE, the Public Health Agency of Canada, and the Society of Obstetricians of Gynaecologists of Canada concluded that routine teaching of breast self-examination does not reduce mortality and likely increases benign biopsy rates. Given the ongoing debate surrounding the issue of BSE, it is essential that public health practitioners provide women with sound recommendations that truly promote health.

Evidence and implications

Evidence points identified in the table below are not presented in order of the strength of the evidence.

What's the evidence?	Implications for practice and policy:
1. Breast self-examination (BSE) BSE is a method of self-inspection and palpation of the breast and axilla. 1.1. There is no conclusive evidence of: 1.1.1. most effective BSE technique 1.1.2. best teaching and reinforcement methods 1.1.2.1. though increased intervention improved compliance with BSE 1.1.3. optimal frequency 1.2. It is estimated that BSE detects 26% (sensitivity) of all cancer tumours among screened women 1.2.1. In women aged 35-39 BSE detects 41% (sensitivity) of all breast cancer tumours among screened women 1.2.2. In women aged 60 – 74 BSE detects 21% (sensitivity) of all breast cancer tumours among screened women	**1. Breast self-examination (BSE)** 1.1. BSE should not be promoted to effectively detect breast cancer tumours in women 1.2. Women who perform BSE should receive training on thorough BSE
2. Breast self-examination (BSE) and mortality (7 studies) 2.1. In 7 studies there was no reduction in breast cancer mortality (deaths) in women who regularly performed BSE compared to those who did not perform BSE.	**2. Breast self-examination (BSE) and mortality** 2.1. BSE should not be promoted in order to reduce breast cancer mortality
3. Breast self-examination (BSE) and stage of cancer (2 studies) 3.1. In 2 studies, women who regularly performed BSE did not find tumours that were smaller or find the tumours at an earlier stage (i.e., aggressiveness and spread) compared to those who did not perform BSE	**3. Breast self-examination (BSE) and stage of cancer** 3.1. BSE should not be promoted to improve early detection of breast cancer
4. Breast self-examination (BSE) and potential harms (3 studies) 4.1. Women who attended clinics who taught BSE had significantly higher rates of benign (no cancer) biopsies compared to women who attended clinics not teaching BSE 4.1.1. The rate of benign biopsy was 91% among women who attended clinics who taught BSE and 61% among women who attended clinics not teaching BSE, meaning the absolute risk increase was 30% among those attending clinics that taught BSE. 4.2. One study showed that women who perform BSE had significantly greater number of physician visits (7.5%) compared to those who did not perform BSE (3.8%), meaning the absolute risk increase was 3.7% for those performing BSE. 4.2.1. After 5 years, the BSE trained women had higher rates of benign (no cancer) biopsies - (0.21%) compared to the control group (0.14%), meaning the absolute risk increase after 5 years of benign biopsies was 0.7%. 4.2.1.1. The true risk of a benign biopsy ranged from 10%-90% more likely (RR 1.5, 95% CI [1.1 – 1.9]). 4.2.2. After 5 years, the BSE trained women had higher rates of benign needle biopsies (0.57%) compared to the control group (0.32%), meaning the absolute risk increase after 5 years for benign needle biopsies was 0.25%. 4.2.3. No more malignant (invasive) cancers were found among the BSE trained women compared to the control group following biopsies	**4. Breast self-examination (BSE) and potential harms** 4.1. Women who perform BSE should be informed of the risk of unnecessary biopsies and related potential harm 4.2. BSE should not be promoted widely as this results in unnecessary physician visits and related increases in unnecessary biopsies

4.3. BSE trained women experienced negative psychological impacts including increased worry, anxiety and depression	
5. Cost Benefit or Cost-effectiveness information 5.1. BSE training and promotion are costly programs to implement, with little evidence of benefit and some evidence of harm. BSE programs may increase unnecessary health service utilization and treatment.	**5. Cost Benefit or Cost-effectiveness information** **5.1.** BSE training and promotion are not cost-effective.
General Implications • Breast self-examination does not decrease mortality from breast cancer among women • Breast self-examination is not effective in identifying early stage tumours in women • Women are at risk of harm from BSE including unnecessary breast biopsies and emotional duress • BSE is not cost effective • The teaching of BSE is not recommended among any age group at this time	
Legend: CI – Confidence Interval; OR – Odds Ratio; RR – Relative Risk ***for definitions see the healthevidence.org glossary http://www.healthevidence.org/glossary.aspx*	

References used to outline issue

1. Baxter N. (2001). Preventive health care, 2001 update: Should women be routinely taught breast self-examination to screen for breast cancer. *Canadian Medical Association Journal, 164*(13), 1837-1846.
2. Public Health Agency of Canada. (2008). *Organized breast cancer screening programs in Canada: Report on program performance in 2003 and 2004.* Retrieved from http://www.phac-aspc.gc.ca/publicat/2008/obcsp-podcs-03-04/pdf/obcsp-podcs-03-04-eng.pdf
3. Society of Obstetricians and Gynaecology. (2006). Breast self-examination. *Journal of Obstetrics and Gynaecology Canada, 28*(8), 728–730.

Other quality reviews on this topic

- Bailey, T.M., Delva, J., Gretebeck, K., Siefert, K., & Ismail, A. (2005). A systematic review of mammography educational interventions for low-income women. *American Journal of Health Promotion*, *20*(2), 96-107.
- Legler, J., Meissner, H.I., Coyne, C., Breen, N., Cholette, V., & Rimer, B.K. (2002). The effectiveness of interventions to promote mammography among women with historically lower rates of screening. *Cancer Epidemiology, Biomarkers & Prevention, 11*(1), 59-71.
- Ringash, J. (2001). Preventative health care, 2001 update: Screening mammography among women aged 40-49 years at average risk of breast cancer. *Canadian Medical Association Journal, 164*(4), 469-476.
- Armstrong, K., Moye, E., Williams, S., Berlin, J.A., & Reynolds, E.E. (2007). Screening mammography in women 40 to 49 years of age: A systematic review for the American college of physicians. *Annals of Internal Medicine, 146*(7), 516-526

Related links

- Canadian Breast Cancer Initiative (CBCI) http://www.phac-aspc.gc.ca/ccdpc-cpcmc/bc-cds/cbci_main_e.html
- Canadian Cancer Society Research Institute http://www.cancer.ca/research/
- Canadian Medical Association Journal. *Clinical practice guidelines for the care and treatment of breast cancer* http://www.cmaj.ca/cgi/content/full/158/3/DC1
- Public Health Agency of Canada. (2007). *Health topics: Breast cancer* http://www.phac-aspc.gc.ca/ccdpc-cpcmc/topics/cancer_breast-eng.php

Suggested citation

Greco, L., McRae, L., Dobbins, M. (2009). Should women be routinely taught breast self-examination to screen for breast cancer?: Evidence and implications for public health. Hamilton, ON: McMaster University. Retrieved March 11, 2010, from *healthevidence.org:* www.healthevidence.org/documents/byid/15291/Baxter2001_EvidenceSummary_EN.pdf