



Effective Health Care Breast Cancer Risk Reduction Nomination Summary Document

Results of Topic Selection Process & Next Steps

- For the topic area, *Breast Cancer Risk Reduction*, the focus on the impact of routine screening, including the use of breast imaging modalities such as screening mammography and screening MRI on breast cancer, was found to be addressed by a guideline synthesis and three additional guidelines. Given that the existing guidelines cover this nomination, no further activity will be undertaken on this topic.
 - Guideline synthesis: Screening for breast cancer in women at average risk. In: National Guideline Clearinghouse (NGC) [Web site]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 1998 Dec (revised 2012 Dec).
 - This synthesis compared and contrasted guideline recommendations from the US Preventive Service Task Force (USPSTF), the American College of Obstetricians and Gynecologists (ACOG), and the Kaiser Permanente Care Management Institute (KPCMI).
 - Canadian Task Force on Preventive Health Care, Tonelli M, Gorber S, Joffres M, Dickinson J, et al. Recommendations on screening for breast cancer in average-risk women aged 40-74 years. CMAJ. 2011 Nov 22;183(17):1991-2001.
 - National Institute for Health and Care Excellence (2006) Familial breast cancer. CG41. London: National Institute for Health and Care Excellence.
 - Alberta Provincial Breast Tumour Team. Magnetic resonance imaging for breast cancer screening, pre-operative assessment, and follow-up. Edmonton (Alberta): Alberta Health Services, Cancer Care; 2012 Jan. 19.
- Chemoprevention for breast cancer prevention
 - We identified a systematic review supporting the 2013 USPSTF recommendation on chemoprevention with tamoxifen and raloxifene for breast cancer prevention.
 - Nelson H, Smith M, Griffin J, Fu R. Use of medications to reduce risk for primary breast cancer: a systematic review for the US Preventive Services Task Force. Ann Intern Med. 2013 Apr 16;158(8):604-14.
 - We identified limited data on exemestane and other aromatase inhibitors for the primary prevention of breast cancer, and a systematic review is not feasible at this time. This could be considered for new research in comparative effectiveness.
- The impact of modifiable lifestyle factors (e.g., diet, exercise, radiation, and toxins including alcohol) on the risk of breast cancer is not feasible for a systematic review due to the limited data at this time.

Topic Description

Nominator(s): Health care professional association

Nomination Summary: The nominator is concerned with the effectiveness of various lifestyle interventions, use of imaging modalities and administration of chemoprevention medications to reduce the risk of developing breast cancer.

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Population(s): Women without history of breast cancer

Intervention(s): Lifestyle interventions (e.g., diet, exercise, smoking cessation, alcohol intake reduction); imaging modalities (e.g., screening mammography, MRI) or clinical breast exams; chemoprevention medications (e.g., tamoxifen, raloxifene, exemestane, letrozole, anastrozole).

Comparator(s): Placebo, usual care, or other interventions

Outcome(s): Cancer incidence, mortality, harms

Key Questions from Nominator:

1. What is the impact of modifiable lifestyle factors (such as diet, exercise, smoking, exogenous hormones, radiation, and toxins including alcohol) on the risk of breast cancer?
 - a. Does the risk associated with these factors vary by age, race, ethnicity or breast cancer risk factors?
 - b. What are the benefits and harms of modifiable lifestyle factors?
2. What is the impact of routine screening including the use of breast imaging modalities such as screening mammography and screening MRI on the risk of dying from breast cancer?
 - a. Does the risk associated with these modalities vary by age, race, ethnicity or breast cancer risk factors?
 - b. What are the benefits and harms of routine use of breast imaging modalities?
3. What is the impact of the use of chemoprevention medications including tamoxifen, raloxifene and exemestane, on the risk of dying from breast cancer?
 - a. Does the risk associated with the use of these medications vary by age, race, ethnicity or breast cancer risk factors?
 - b. What are the benefits and harms of chemoprevention medications?

Considerations

- Not counting some kinds of skin cancer, breast cancer is the most commonly diagnosed cancer among US women, and the second leading cause of cancer death following lung cancer.
- In general, evidence-based clinical guidelines suggest that women ages 50-74 should receive a screening mammogram; however, the length of time between mammograms has yet to be agreed upon

and ranges between 1-3 years. There is much debate regarding the screening of women in younger age groups.

- Lifestyle factors may impact risk of breast cancer. These include diet, alcohol intake, smoking, physical exercise, and weight. Modification of these factors may improve health as well as decrease breast cancer risk. For example, regular physical exercise alone can lower breast cancer risk by 20%–40%.
- Tamoxifen and raloxifene are the only drugs currently approved by the US Food and Drug Administration (FDA) for breast cancer risk reduction. Both drugs belong to a class of drugs known as selective estrogen receptor modulators (SERMs), but they differ in their effects on tissues and organs as well as their side effects. Tamoxifen is used to reduce the risk of invasive breast cancer in high-risk women age 35 and older, whether or not they've gone through menopause. Raloxifene is used to reduce the risk of invasive breast cancer in high-risk women who are postmenopausal.
- A third drug currently in use for breast cancer risk reduction is the aromatase inhibitor exemestane. Aromatase inhibitors are commonly used to treat breast cancers that are hormone-receptor positive among postmenopausal women. However, this class of drugs is now the focus of studies looking at their use in the primary prevention of breast cancer although they are not yet approved for this use in the US.
- We identified 6 guidelines on screening for breast cancer. These guidelines recommend mammographic screening in women aged 50 to 74. Recommendations differ over the use of breast examinations and the length of time between mammograms in women aged 40 to 49. A lot of research has been conducted on routine screening, including the use of breast imaging modalities such as screening mammography and screening MRI, with mixed results. Breast cancer screening likely reduces breast cancer mortality; however, screening may also lead to over-diagnosis and overtreatment. Newer evidence does not appear to change or alter the recommendations from these guidelines.
- In terms of the impact of chemoprevention, we identified systematic review supporting the 2013 USPSTF recommendation on chemoprevention with tamoxifen and raloxifene for breast cancer prevention. The systematic review concluded that tamoxifen and raloxifene reduces the incidence of invasive breast cancer. The quantity of evidence that has been conducted since this literature review was published would not alter or change the USPSTF's findings. However, the review did not include aromatase inhibitors since these drugs are not FDA-approved for breast cancer reduction.
- Although a search of the literature identified clinical trials, including findings from the MAP.3 clinical trial, a large clinical trial on the use of exemestane for breast cancer prevention in postmenopausal women, the research on the use of aromatase inhibitors for primary breast cancer prevention remains too limited for a systematic review on the topic at this time.
- The available research on lifestyle interventions shows that there may be some effectiveness of diets in the prevention of breast cancer; however, much of the results come from observational studies of homogeneous populations. We identified limited evidence for other lifestyle factors. Therefore, this topic is not feasible for a full systematic review due to the limited data available for a review at this time.