



# Prevention Brief

VA National Center for Health Promotion and Disease Prevention  
Office of Patient Care Services, Veterans Health Administration

<http://www.prevention.va.gov>

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## Breast Cancer Screening

### Bottom Line

- Offer screening to women ages 50-70.
- Discuss the risks/benefits of screening with patients < 50 or >70.
- Mammography (film or digital) remains the standard method of screening for average risk women of all ages.
- Genetic testing is recommended only for women with a high-risk family history.

Breast cancer remains the most commonly diagnosed cancer among adult women in the US. Fortunately, mortality from breast cancer has been on a decline since the early 1990s. During this time, breast cancer incidence had remained stable but fell sharply in 2003 compared to the previous year. One hypothesis for this decline is the rapid decrease in the use of hormone replacement therapy (HRT) that occurred following results from the Women's Health Initiative, which demonstrated a small,

but significant, increase in breast cancer among users of HRT.

Genetic mutations remain an important risk factor, but for a relatively small segment of the population. In 2005, the United States Preventive Services Task Force (USPSTF) recommended against routine genetic testing for women without a "high-risk" family history.

For the rest of the population, risk can be reduced by avoiding excess alcohol, maintaining a healthy weight and getting

regular physical activity.

In addition to helping patients adopt and maintain healthy lifestyles, screening for early stage disease remains a strategy to reduce mortality from breast cancer. This prevention brief will provide an update on screening for breast cancer among average risk adult women.

## Who Should Get Screened?

### Risk Prediction Tool

*Gail Model:*

<http://www.cancer.gov/bcrisktool>

*Uses the following factors:*

- age, race/ethnicity
- age at menarche & 1<sup>st</sup> birth
- family history
- history of carcinoma in situ
- history of breast biopsy

High-risk is defined as  $\geq 1.7\%$  five-year risk of cancer

*Frame risks both positively and negatively to aid interpretation:*

A 3% five-year risk of cancer is the same as a 97% risk of NOT getting cancer over the next 5 years.

For average risk women, the controversy surrounding what age to start screening hasn't been resolved by any new research, but organizations, providers, and patients may be becoming more adept at handling the "uncertainty" inherent in this literature. Most agree that the net benefit of mammography screening is lower for women in their 40's with a number needed to screen of ~ 500-1,800 over 14-20 years to prevent 1 breast cancer death. As women age, the net benefit of screening increases because cancer risk increases as does the accuracy of mammography, which means fewer harms related to false positives and false negatives.

The USPSTF recommends mammography with or without a clinical breast exam every 1-2 years for women  $\geq 40$  years. The American College of Physicians (ACP) recently issued a clinical practice guideline on screening mammography in women aged 40-49 years. This guideline recommends that clinicians base screening decisions in this age group on benefits and harms, as well as the patient's individual risk and preferences. Success with the VHA's breast cancer screening performance indicator can be achieved by screening women aged 50-69 at least every 2 years.

The net benefit of screening past age 70 varies with the

individual patient and should be determined by the patient's health status and life expectancy.

Several clinical prediction tools have been developed to help clinicians assess a patient's breast cancer risk.[SIDEBAR] These tools can help identify high-risk women who might be candidates for genetic testing, chemoprevention, and/or additional screening. These tools are good for estimating the risk of cancer within a population, but they aren't terribly useful for discriminating which individual patients will get breast cancer and which won't. A patient identified as "high-risk" by the Gail Model has a much greater likelihood of NOT getting breast cancer than getting it.

## Screening Modalities

### Conventional Wisdom Teaching Breast Self-Exam

Teaching patients to examine their own breasts is widely advocated and is quite appealing as a strategy to prevent breast cancer deaths.

The problem is that the evidence shows no mortality benefit from teaching patients to do routine monthly breast self-exam.



So, don't feel too badly about not spending a lot of time teaching women to do routine self-exams. Do encourage them to promptly report any changes they notice in their breasts.

Mammography remains the predominant strategy for breast cancer screening. Traditional film mammography remains the most commonly used modality in practice, but newer modalities including digital imaging, ultrasound, MRI, and computer-aided detection are being evaluated for use in routine screening.

Of the new modalities, none appears to be the "best" since test performance is a function of patient age, breast density, and the experience of the technicians and interpreting radiologists. Below find a summary of the various new modalities:

- Digital mammography – uses digital technology to capture and display traditional mammographic views. The best study to date comparing digital to traditional film

mammography found similar sensitivity and specificity. In sub-group analyses, digital mammography outperformed film in women < 50, women with dense breasts, and pre or peri-menopausal women. (Pisano et al., 2005). The cost of digital mammography is up to 4 times the cost of film-based systems.

- Computer-aided detection (CAD) – uses software to analyze digital images to highlight suspicious areas to the interpreting radiologist. Although approved by the FDA in 1998, a recent study found that CAD is less accurate, leads to more breast biopsies, and has no impact on cancer detection. (Fenton et al., 2007)
- MRI\* – studies of MRI in high-risk women suggest that MRI has a higher

sensitivity, but lower specificity than traditional mammography resulting in more false-positives and subsequent call-backs and biopsies. It requires IV contrast, is time-consuming, and is up to 10 times as costly as traditional mammography. Its future role is probably limited to very high risk women.

- Ultrasound\* – hasn't been evaluated as a modality for general screening. Screening examination techniques have not yet been standardized and microcalcification detection is less than optimal. This modality is best used for evaluating palpable or mammographically identified masses.

\* not FDA-approved for use in screening

## Additional Resources

### Patient Tools

- NCP Monthly Topics  
*Breast Cancer Prevention*  
*Breast Cancer Screening*  
[http://www.prevention.va.gov/MPT\\_April2007.asp](http://www.prevention.va.gov/MPT_April2007.asp)
- Interactive mammography tutorial  
<http://www.nlm.nih.gov/medlineplus/mammography.html>
- Breast Cancer Screening Fact Sheet  
<http://www.cancer.gov/cancertopics/factsheet/Detection/screening-mammograms>

### Clinician Tools

- Breast Cancer Risk Calculator  
<http://www.cancer.gov/bcrisktool>
- Shared Decision Making Tool for Breast Cancer Screening for Ages 40-49  
[http://www.aafp.org/online/etc/medialib/aafp\\_org/documents/clinical/patient\\_ed/mammography.Par.0001.File.tmp/breast\\_cancer\\_long.pdf](http://www.aafp.org/online/etc/medialib/aafp_org/documents/clinical/patient_ed/mammography.Par.0001.File.tmp/breast_cancer_long.pdf)
- *Research-tested interventions to increase mammography uptake*  
[http://rtips.cancer.gov/rtips/rtips\\_search.do?topicid=4&choice=default&cg](http://rtips.cancer.gov/rtips/rtips_search.do?topicid=4&choice=default&cg)

### Additional Reading

- Fenton *NEJM* 2007;356(14):1399
- Pisano *NEJM* 2005;353(17):1773
- Elmore *JAMA* 2005;293(10):1245
- Clinical Practice Guideline from the American College of Physicians:  
<http://www.annals.org/cgi/reprint/146/7/511.pdf>
- NCI PDQ Breast Cancer Screening  
<http://www.cancer.gov/cancertopics/pdq/screening/breast/healthprofessional>
- Recommendations from the US Preventive Services Task Force:  
<http://www.ahrq.gov/clinic/uspstf/uspstf.uspsbrca.htm>
- Recommendations from the Task Force on Community Preventive Services:  
<http://www.thecommunityguide.org/cancer/screening/default.htm>

