



<b>Client</b>	HEALTH BENCHMARKS, INC. STANDARD ALGORITHM <i>Implemented for Blue Cross Blue Shield of Illinois</i>	
<b>Measure Title</b>	MAMMOGRAPHY SCREENING	
<b>Disease State</b>	Breast Cancer	<b>Indicator Classification<sup>1</sup></b> Screening
<b>Strength of Recommendation<sup>2</sup></b>	A – 50 and older B – 40 and older	
<b>Clinical Intent</b>	To ensure that all eligible women within a designated age group receive a mammography screening test at a clinically appropriate frequency.	
<b>Physician Specialties</b>	Family Practice, General Practice, Internal Medicine, Mixed Specialty, OB-Gynecology	

**Clinical Rationale**

**Disease Burden**

- In women, breast cancer is the second leading cause of cancer death falling behind lung cancer.[1]
- Beginning in the fourth decade of life, the risk of breast cancer increases with age.[2]

**Reason for Indicated Intervention or Treatment**

- Screening for breast cancer with mammography every 12-33 months significantly reduces mortality from breast cancer.[3]

**Evidence supporting Intervention or Treatment**

- Among women younger than 50, a meta-analysis conducted by the United States Preventive Services Task Force (USPSTF) found a 15 percent decrease in breast cancer mortality after 14 years of observation (RR 0.85, 95% CI 0.73-0.99).[2]
- Eight randomized, controlled trials have been conducted on breast cancer screening, all using mammography with or without clinical breast examination.[4-15] Screening mammography was associated with a 9% to 32% reduction in breast cancer mortality.[2] In their meta-analysis, the USPSTF found that the relative risk of breast cancer death among women of all ages randomized to screening was 0.84 (95% CI, 0.77-0.91).[2]
- One study, using a Markov model to compare the life expectancy of women undergoing different breast cancer screening strategies, found that the cost-effectiveness ratios were \$21,400 for women 50 to 69 years of age and \$105,000 for women in their 40s per year of life saved. Both are in an accepted range for cost-effectiveness.[16]

**Clinical Recommendations**

- In its second edition, the USPSTF recommended screening for breast cancer in women over the age of 50 every 1-2 years.[17]
- In its third edition, the USPSTF recommends screening for breast cancer in women over age 40 every 1-2 years. They note that the evidence for screening in all women over age 50 is stronger than for those women aged 40-49.[3]
- Several other organizations support screening with mammography starting at age 50: The Canadian Task Force on Preventive Health Care,

the American Academy of Family Physicians, and the American College of Preventive Medicine.[18-20]

- Reflecting the controversy around the appropriate age at which to begin screening, other organizations support screening with mammography and clinical breast exam starting at age 40: the American Medical Association, the American College of Obstetricians and Gynecologists, the American College of Radiology, and the American Cancer Society.[21-25]

<b>Source</b>	Health Plan Employer Data and Information Set (HEDIS®) 2007 Technical Specification
<b>Denominator</b>	Continuously enrolled women ages 42-69 years as of the end of the measurement year.
<b>Denominator Exclusion</b>	Members with two unilateral mastectomies or a bilateral mastectomy at any time in the member's history prior to the end of the measurement year.
<b>Numerator</b>	Members who received at least one mammogram during the measurement year or year prior.
<b>Interpretation of Score</b>	High score implies better performance
<b>Physician Attribution</b>	Score all physicians (in the selected specialties) who saw the member during the measurement year.
<b>References</b>	<ol style="list-style-type: none"><li>1. Jemal, A., et al., <i>Cancer statistics, 2005</i>. CA Cancer J Clin, 2005. <b>55</b>(1): p. 10-30.</li><li>2. Humphrey, L.L., et al., <i>Breast cancer screening: a summary of the evidence for the U.S. Preventive Services Task Force</i>. Ann Intern Med, 2002. <b>137</b>(5 Part 1): p. 347-60.</li><li>3. Berg, A.O. <i>Screening for Breast Cancer: USPSTF Recommendations and Rationale</i>. 2002 [cited 2004 October 15th].</li><li>4. Miller, A.B., et al., <i>Canadian National Breast Screening Study: 1. Breast cancer detection and death rates among women aged 40 to 49 years</i>. Cmaj, 1992. <b>147</b>(10): p. 1459-76.</li><li>5. Miller, A.B., et al., <i>Canadian National Breast Screening Study: 2. Breast cancer detection and death rates among women aged 50 to 59 years</i>. Cmaj, 1992. <b>147</b>(10): p. 1477-88.</li><li>6. Bjurstam, N., et al., <i>The Gothenburg breast screening trial: first results on mortality, incidence, and mode of detection for women ages 39-49 years at randomization</i>. Cancer, 1997. <b>80</b>(11): p. 2091-9.</li><li>7. Andersson, I. and L. Janson, <i>Reduced breast cancer mortality in women under age 50: updated results from the Malmo Mammographic Screening Program</i>. J Natl Cancer Inst Monogr, 1997(22): p. 63-7.</li><li>8. Tabar, L., et al., <i>The Swedish Two-County Trial twenty years later. Updated mortality results and new insights from long-term follow-up</i>. Radiol Clin North Am, 2000. <b>38</b>(4): p. 625-51.</li><li>9. Frisell, J., et al., <i>Followup after 11 years--update of mortality results in the Stockholm mammographic screening trial</i>. Breast Cancer Res Treat, 1997. <b>45</b>(3): p. 263-70.</li><li>10. Alexander, F.E., et al., <i>14 years of follow-up from the Edinburgh randomised trial of breast-cancer screening</i>. Lancet, 1999. <b>353</b>(9168): p.</li></ol>

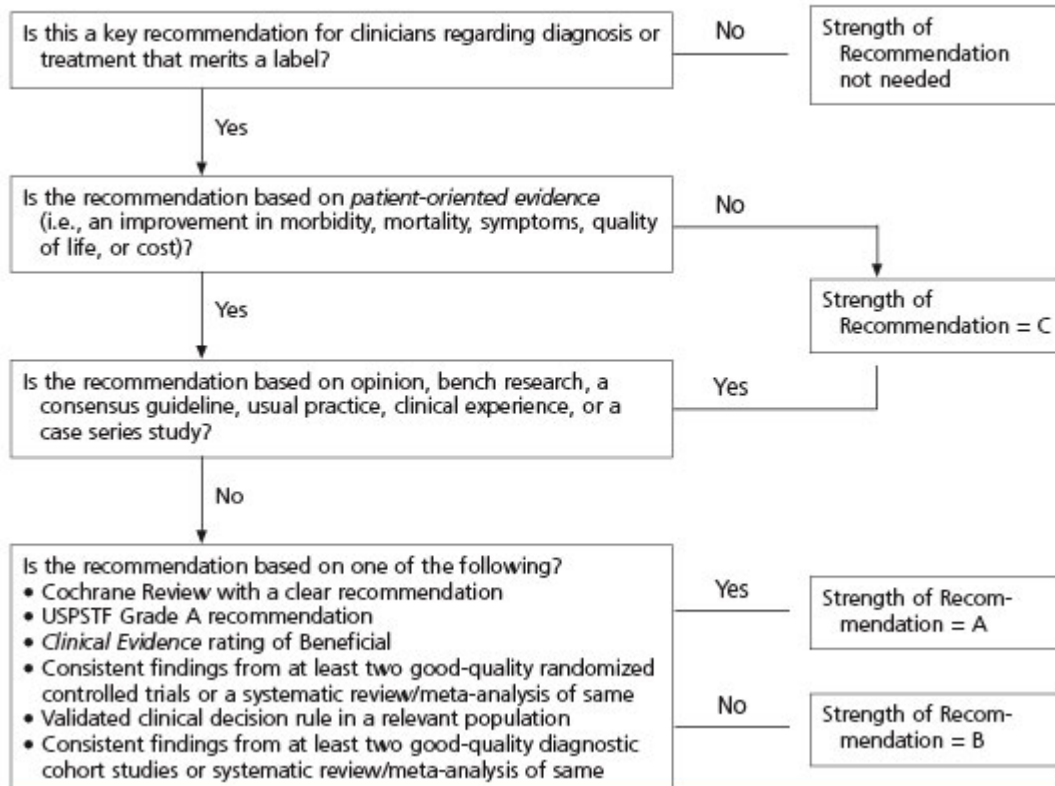
- 1903-8.
11. Shapiro, S., *Periodic screening for breast cancer: the HIP Randomized Controlled Trial. Health Insurance Plan. J Natl Cancer Inst Monogr*, 1997(22): p. 27-30.
  12. Miller, A.B., et al., *Canadian National Breast Screening Study-2: 13-year results of a randomized trial in women aged 50-59 years. J Natl Cancer Inst*, 2000. **92**(18): p. 1490-9.
  13. Miller, A.B., et al., *The Canadian National Breast Screening Study: update on breast cancer mortality. J Natl Cancer Inst Monogr*, 1997(22): p. 37-41.
  14. Miller, A.B., et al., *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 Part 1): p. 305-12.
  15. Nystrom, L., et al., *Breast cancer screening with mammography: overview of Swedish randomised trials. Lancet*, 1993. **341**(8851): p. 973-8.
  16. Salzmann, P., K. Kerlikowske, and K. Phillips, *Cost-effectiveness of extending screening mammography guidelines to include women 40 to 49 years of age. Ann Intern Med*, 1997. **127**(11): p. 955-65.
  17. DiGuseppi, C., ed. *Guide to Clinical Preventive Services*. Second Edition ed. 1996, Williams and Wilkins: Baltimore.
  18. CTFPHE. *Canadian Guide to Clinical Preventive Health Care*. 1994 [cited 2004 October 15]; Available from: <http://www.ctfphc.org/index.html>.
  19. Ressel, G., *Introduction to AAFP Summary of Recommendations for Periodic Health Examinations. American Academy of Family Physicians. Am Fam Physician*, 2002. **65**(7): p. 1467.
  20. Ferrini, R., et al., *Screening mammography for breast cancer: American College of Preventive Medicine practice policy statement. Am J Prev Med*, 1996. **12**(5): p. 340-1.
  21. AMA. *Report 16 of the Council on Scientific Affairs: Mammographic Screening in Asymptomatic Women*. 1999 [cited 2004 October 15]; Available from: <http://www.ama-assn.org/ama/pub/article/2036-2346.html>.
  22. ACOG Committee Opinion. *Primary and preventive care: periodic assessments. Obstet Gynecol*, 2003. **102**(5 Pt 1): p. 1117-24.
  23. Feig, S.A., et al., *American College of Radiology guidelines for breast cancer screening. AJR Am J Roentgenol*, 1998. **171**(1): p. 29-33.
  24. Leitch, A.M., et al., *American Cancer Society guidelines for the early detection of breast cancer: update 1997. CA Cancer J Clin*, 1997. **47**(3): p. 150-3.
  25. *The American Cancer Society, Cancer Prevention & Early Detection: Facts & Figures 2005*. 2005.

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<sup>1</sup> **Indicator Classification** (Adapted from Health Plan Employer Data Information Set (HEDIS®) technical specifications)

<b>Diagnosis</b>	Measures applicable to patients receiving diagnostic workups for a symptom or condition that delineate appropriate laboratory or radiological testing to be performed (e.g. evaluation of thyroid nodule; pregnancy test in patients with vaginal bleeding or abdominal pain)
<b>Effectiveness of Care</b>	
<b>Prevention</b>	Measures applicable to asymptomatic individuals that are designed to prevent the onset of the targeted condition (e.g. immunizations).
<b>Screening</b>	Measures applicable to asymptomatic patients who have risk factors or pre-clinical disease, but in whom the condition has not become clinically apparent (e.g. pap smears; screening for elevated blood pressure).
<b>Disease Management</b>	Measures applicable to individuals diagnosed with a condition that are part of the treatment or management of the condition (e.g. cholesterol reduction in patients with diabetes; radiation therapy following breast conserving surgery; appropriate follow-up after acute event).
<b>Medication Monitoring</b>	Measures applicable to patients taking medications with narrow therapeutic windows and / or potential preventable significant side effects or adverse reactions (e.g. thyroid stimulating hormone (TSH) testing after levothyroxine dose change; hepatic enzyme monitoring for patients using antimycotic pharmacotherapy)
<b>Medication Adherence</b>	Measures applicable to patients taking medications for chronic conditions that are designed to assess patient adherence to medication (e.g. adherence to lipid lowering medication).
<b>Utilization</b>	Measures applicable to patients receiving treatment for a symptom or condition that advocate appropriate utilization of laboratory and pharmaceutical resources (e.g. conservative use of imaging for low back pain; inappropriate use of antibiotics for viral upper respiratory infection).

### Strength of Recommendation Based on a Body of Evidence



**FIGURE 2.** Algorithm for determining the strength of a recommendation based on a body of evidence (applies to clinical recommendations regarding diagnosis, treatment, prevention, or screening). While this algorithm provides a general guideline, authors and editors may adjust the strength of recommendation based on the benefits, harms, and costs of the intervention being recommended. (USPSTF = U.S. Preventive Services Task Force)