

## Supplementary Online Content

Keating NL, Pace LE. Breast cancer screening in 2018: time for shared decision making. *JAMA*. doi:10.1001/jama.2018.3388

**eBox.** Selected Tools to Facilitate Shared Decisions About Breast Cancer Screening

**eReferences.** Sources From Which Estimates for Mammogram Benefits and Harms Were Based (in-print Table)

This supplementary material has been provided by the authors to give readers additional information about their work.

## **eBox. Selected Tools to Facilitate Shared Decisions about Breast Cancer Screening**

### **Women of All Ages**

#### **Healthdecision.org/University of Wisconsin Decision Tool**

Detailed tool that allows risk calculation for an individual patient that includes breast density, and shows estimates of benefits and harms for no, biennial, or annual mammograms.

<https://www.healthdecision.org/tool.html#/tool/mammo>

#### **Harding Center for Risk Literacy Fact Box: Early Detection of Breast Cancer by Mammography Screening**

See link to download a brief mammography fact box summarizing benefits and harms of screening for women aged  $\geq 50$  years.

<https://www.harding-center.mpg.de/en/fact-boxes/early-detection-of-cancer/breast-cancer-early-detection>

### **Women Aged 40-49 Years**

#### **Australian Decision Aid for Women Aged 40 Thinking about Starting Mammography Screening**

Includes link to personal worksheet to summarize risk factors (though without numeric risk estimates) and assess preferences. In randomized controlled trial, decision aid increased knowledge and reduced indecision about starting mammography screening, with fewer starting, without increasing anxiety.<sup>1</sup>

<http://www.mammogram.med.usyd.edu.au/>

#### **Weill Cornell Medical College Breast Cancer Screening Decisions: A Mammogram Decision Aid for Women ages 40-49**

Provides risk assessment and discussion of benefits and harms (although numbers for benefits/harms do not include overdiagnosis), has opportunity to express preferences and values. Pilot study suggested tool may support informed, individualized decisions and facilitate discussions about screening;<sup>2</sup> currently being evaluated in a larger study. Will soon be available as an app.

<http://www.breastscreeningdecisions.com/#/>

## Women Aged About 50

### Breast Cancer Screening: It's Your Choice. New Information to Help Women Aged About 50 Make a Decision

Booklet summarizing risks and benefits, including discussion of overdiagnosis. Studied in randomized trial; tool associated with higher rates of making an informed choice about screening, better knowledge, fewer positive attitudes about screening, and fewer women intending to be screened.<sup>3</sup>

<http://askshareknow.com.au/wp-content/uploads/2017/07/It%E2%80%99s-your-choice-New-information-to-help-women-aged-about-50-to-make-a-decision-includes-overdiagnosis.pdf>

## Women Aged $\geq 75$ Years

### Decision Aids for Women Aged 75-84 and Decision Aid for Women Aged 85+

Worksheet and booklet that assesses health status and summarizes risks and benefits. In pilot study, shown to increase knowledge of benefits and risks and decrease intent to be screened.<sup>4</sup> Currently being studied in a large randomized trial.

<http://www.bidmc.org/Research/Departments/Medicine/Divisions/GeneralMedicineandPrimaryCare/Research/Faculty/Schonberg.aspx>

### University of Sydney Decision Aid for Women Aged 70 and Older

Booklet summarizing risks and benefits including discussion of overdiagnosis. Also includes personal worksheet to help elicit values and preferences.

[http://www.psych.usyd.edu.au/cemped/docs/Mammogram\\_Decision\\_Aid.pdf](http://www.psych.usyd.edu.au/cemped/docs/Mammogram_Decision_Aid.pdf)

## Videos

### Harvard Medical School Video: Mammography: How to Make the Right Decision for You

5-minute video reviewing benefits and harms of breast cancer screening and highlighting the importance of individualized decisions that incorporate patient risk and values and preferences.

<https://www.youtube.com/watch?v=lTnw2CpeGN4&feature=youtu.be>

## Kaiser Health News Lazaris-Rifkin Breast Cancer Risk-Benefit Characterization Theatre

2-minute video that summarizes benefits and harms of breast cancer screening.

<https://www.youtube.com/watch?v=UZIY6Q4m-MM>

<sup>1</sup>Mathieu E, Barratt AL, McGeechan K, Davey HM, Howard K, Houssami N. Helping women make choices about mammography screening: an online randomized trial of a decision aid for 40-year-old women. *Patient Educ Couns* 2010;81:63-72.

<sup>2</sup>Elkin EB, Pocus VH, Mushlin AI, Cigler T, Atoria CL, Polaneczky MM. Facilitating informed decisions about breast cancer screening: development and evaluation of a web-based decision aid for women in their 40s. *BMC Med Inform Decis Mak* 2017;17:29.

<sup>3</sup>Hersch J, Barratt A, Jansen J, et al. Use of a decision aid including information on overdetection to support informed choice about breast cancer screening: a randomised controlled trial. *Lancet* 2015;385:1642-52.

<sup>4</sup>Schonberg MA, Hamel MB, Davis RB, et al. Development and evaluation of a decision aid on mammography screening for women 75 years and older. *JAMA Intern Med* 2014;174:417-24.

## **eReferences. Sources From Which Estimates for Mammogram Benefits and Harms Were Based (in-print Table)**

<sup>a</sup>Note the estimates shown in the in-print Table reflect best estimates, the true estimate likely falls within a large confidence interval around each number.

<sup>b</sup>Values for the number diagnosed with invasive breast cancer were based on SEER estimates of 10 y risk of breast cancer from SEER incidence statistics for diagnoses 2012-2014 (Source SEER Cancer Statistics Review 1975-2014, <https://surveillance.cancer.gov/devcan/>).

<sup>c</sup>Values for the number of breast cancer deaths estimates and also for the number of deaths averted because of mammogram were based on interactive spreadsheet in supplemental appendix from Welch and Passow, *JAMA Intern Med* 2014; 174:445-453, updated to include estimates of benefits by age group from Nelson HD, Fu R, Cantor A, Pappas M, Daeges M, Humphrey L. Effectiveness of breast cancer screening: systematic review and meta-analysis to update the 2009 US Preventive Services Task Force recommendation. *Ann Intern Med* 2016;164:244-55.

<sup>d</sup>Values for the number of women with false positive and also for the number of women with unnecessary biopsy were based on Hubbard RA, Kerlikowske K, Flowers CI, Yankaskas BC, Zhu W, Miglioretti DL. Cumulative probability of false-positive recall or biopsy recommendation after 10 y of screening mammography: a cohort study. *Ann Intern Med* 2011;155 :481-92 and Braithwaite RS, Chlebowski RT, Lau J, George S, Hess R, Col NF. Meta-analysis of vascular and neoplastic events associated with tamoxifen. *J Gen Intern Med* 2003;18:937-47.

<sup>e</sup>Values for the number of women diagnosed were based on the United Kingdom Independent Panel review entitled: The benefits and harms of breast cancer screening: an independent review. *Lancet* 2012;380:1778-86, suggesting that approximately 19% of cancers diagnosed during the screening period may be overdiagnosed.

Note these estimates reflect best estimates, the true estimate likely falls within a large confidence interval around each number.