



Radiology Rounds

A Newsletter for Referring Physicians
Massachusetts General Hospital
Department of Radiology



Volume 7, Issue 12

Special Issue - November 2009

Janet Cochrane Miller, D.Phil., Author

Raul N. Uppot, M.D., Editor

Special Issue

Response to the Recent US Preventive Services Task Force Recommendations for Mammography

- The US Preventive Services Task Force (USPSTF) has issued some new recommendations regarding screening mammography
- Mass General Imaging believes that the USPSTF recommendations are based on flawed analysis of the data and continues to support the scientifically based recommendations of the American Cancer Society for the early detection of breast cancer
 - Annual mammographic screening should begin at age 40
 - Women at high risk for developing breast cancer should have annual MRI screening in addition to mammography

In a press release from the American College of Radiology (ACR), James H. Thrall, MD, FACR, chair of the ACR Board of Chancellors and Radiologist-in-Chief at Massachusetts General Hospital said "I am deeply concerned about the actions of the USPSTF in severely limiting screening for breast cancer. These recommendations, in combination with recent CMS imaging cuts, jeopardize access to both long-proven and cutting-edge diagnostic imaging technologies. Government policy makers need to consider the consequences of such decisions. I can't help but think that we are moving toward a new health care rationing policy that will turn back the clock on medicine for decades and needlessly reverse advances in cancer detection that have saved countless lives."

A more detailed response describing the reasons behind the rejection of the USPSTF recommendations is in the following letter by Daniel B. Kopans, MD, Senior Radiologist, Breast Imaging Division, and Professor of Radiology, Harvard Medical School:

Dear MGH Provider

By now you have no doubt heard that the US Preventive Services Task Force (USPSTF) has withdrawn its support for mammography screening for women ages 40 to 49, and recommends that women ages 50 to 74 be screened every 2 years. It is unclear why the USPSTF decided to drop its support since the only important new data that have become available since 1997 (when the National Cancer Institute, once again, supported screening beginning at the age of 40) are national statistics that show that, as more women participate in mammography screening, the death rate continues to decrease. The USPSTF, incongruously, agreed that screening is saving lives, but decided that it would make the decision for women in their 40s because the members felt that the "harms" of screening (anxiety from having the test, breast compression, false positives, biopsies, and possible overtreatment) were worse than allowing women to die from breast cancer. These guidelines will likely result in women being denied access to screening, belying the medical community's goal of providing our patients with the information so that they can make "informed decisions."

It is clear that the USPSTF did not think through the consequences of its guidelines. In addition to denying women in their 40s access to mammography screening, the task force also told women in their 40s that they should not examine their own breasts (breast self examination - BSE) and should not allow a trained health care professional to examine their breasts (clinical breast examination - CBE). What does this leave for women in their 40s? The USPSTF is telling women to wait until their cancers are so large that they can no longer ignore them, and then bring them to their doctor's attention when there is no longer a chance for cure. Is this what we should advise our patients?

Furthermore, the USPSTF is withdrawing support for screening of women ages 50 to 74, annually, and advising that these women can wait two years between mammograms-essentially saying that it is fine to allow their cancers to grow an additional year before they are diagnosed. In her supporting editorial, Dr. Karla Kerlikowske clearly acknowledges that this will lead to increased deaths, but this is seen as reasonable because it reduces the false positive rate.

The USPSTF has misled American women and their physicians by suggesting that it has reviewed all of the pertinent literature and data on breast cancer screening and that its guidelines are "evidence based." In fact, the USPSTF has selected the information that suits its agenda. The death rate from breast cancer has decreased by 30% since 1990 due to the onset of annual mammography screening for women ages 40 and over in the mid 1980s. Prior to mammography screening, nothing had influenced the death rate since 1940. Studies in Sweden and the Netherlands (see references) have clearly shown that when mammography screening is introduced into the general population, the vast majority of the subsequent decrease in deaths is due to mammography screening, and not new therapies. Completely ignoring these direct measures, the USPSTF has chosen to rely on its own computer models while not even mentioning that other computer models disagree with its conclusions. What the task force has done is comparable to saying that since the highly sophisticated financial computer models never predicted the economic crash, it must not have happened. There is no justification for relying on computer models when there are direct data that bear on the question.

By relying on the number of screening studies needed to save one life, the USPSTF is clearly sending the message that it does not think it is worth saving women in their 40s, but it does not have the honesty to state this directly. If cost is the issue, then the USPSTF needs to factor in the cost of allowing breast cancers to be advanced before they are treated (necessitating more morbid and expensive therapy) not to mention the costs of losing these women to their families and society. The USPSTF needs to allow women to decide what is a reasonable cost and not deny them access to screening simply because the USPSTF does not feel it is worth it to save women from dying of breast cancer.

The marked decrease in deaths that accompanies mammography screening has been a major advance for women's health. This is a remarkable achievement, and now the USPSTF, deciding that it thinks that women should be allowed to die from their breast cancers, is trying to turn back the clock 20 years. The following material is a summary of the data that the USPSTF ignored. The task force clearly failed to understand randomized, controlled trials of screening, and its negligent exclusion of data that does not support its agenda is unconscionable. Women should be informed of the "harms" of screening, but they should be provided a clear explanation of the proven benefits so that they can make "informed decisions" for themselves.

Facts

1. There are no data (NONE) that support the idea that any of the parameters of screening change abruptly at age 50 or any other age, so there is no scientific support for using the age of 50 as any but an arbitrary threshold. The detection rate of breast cancer parallels the prior probability of breast cancer in the population, increasing steadily with increasing age with no abrupt change at any age. The myth of age 50 is due to data grouping to make it appear that there is a sudden change at the age of 50 when in fact there is none.
2. The randomized, controlled trials (RCT) of mammography screening have demonstrated a statistically significant mortality reduction for screening of women ages 40 to 74.
3. The RCTs provide an underestimate of the benefit of screening since women who are allocated to the screening arm who refuse the invitation to be screened (noncompliance) and die of breast cancer are still counted as deaths in the screened group, while women allocated to be unscreened controls whose lives are saved by mammograms that they get outside the trial (contamination) are still counted as unscreened controls. It is not clear that the members of the USPSTF actually understand that the trials underestimate the benefit since none of the members of the group has any expertise in mammography screening.
4. In its calculations, the USPSTF chose the lowest possible estimate of benefit (15%). In fact, in the United States, the death rate from breast cancer is down by 30% and in Sweden it is down by 40%. The USPSTF used computer modeling that showed that between 23% and 65% of the decrease in deaths is due to mammography screening, choosing to believe that most of the benefit is due to improved therapies while ignoring the direct evidence from Sweden and the Netherlands that shows that the vast majority of the decrease in deaths is due to mammography screening.

5. Even though the RCTs were not designed to evaluate women ages 40 to 49, breaking women ages 40 to 49 out as a separate subgroup shows:
 - o Gothenberg: 44% statistically significant mortality reduction for women under the age of 50
 - o Malmo: 35% statistically significant mortality reduction for women under the age of 50
 - o The Swedish trials combined: 29% statistically significant mortality reduction for women under the age of 50
 - o The population based trials: 26% statistically significant mortality reduction for women under the age of 50

The USPSTF ignored all of these. In Sweden, when mammography screening was introduced into the general population of women in their 40s, the death rate for these women decreased by 40%. The USPSTF also ignored this.

6. The USPSTF seems to believe that breast cancer is not a major problem for women in their 40s. It clearly does not realize that at least 40% of the years of life lost to breast cancer are due to cancers diagnosed while women are in their 40s.
7. The USPSTF acknowledges (page 720) that the death rate in the U.S. has decreased since 1990 "by 2.9% per year overall and by 3.3% for women ages 40 to 50 years." Data from Sweden and the Netherlands clearly show that most of the decrease is due to early detection with only a small component due to newer therapies, yet the USPSTF would deny these women access to early detection
8. There is no test that does not have false positives. Our goal is "informed decision making" yet the USPSTF is telling women ages 40 to 49 that it is making the decision for them.
9. There is no question that many breast cancers are likely "overtreated." However, this is true for clinically apparent cancers and not simply mammographically detected cancers. Furthermore, it is not the fault of early detection, but rather a therapeutic issue that many investigators are working hard to address with no clear answers as yet. Not all bacterial pneumonias need to be treated with antibiotics, but we do not want to risk someone's life by undertreating. Women should not be deprived of the chance to be cured of breast cancer because a committee decides that they should not have that chance.
10. The USPSTF suggests that only women at high risk should be screened in their 40s. In fact there are no data that support mammography screening based on risk. None of the RCTs were stratified by risk, so there is no scientific evidence that screening only high risk women will save lives. Furthermore, most women who develop breast cancer are not at high risk, so screening only high risk women will miss 75% to 90% of breast cancers.

I would be happy to discuss these issues with anyone and would be more than willing to debate the science in a public forum. The lives of our patients are at stake. The USPSTF decision ignores the science and will result in unnecessary deaths.

Daniel B. Kopans, M.D.

Senior Radiologist, Breast Imaging Division and Professor of Radiology, Harvard Medical School.

Email: DKopans@partners.org

References

U.S. Preventive Services Task Force (2009) *Screening for Breast Cancer: U.S. Preventive Services Task Force Recommendation Statement* 151:716-726.

Kerlikowske, K. (2009) Evidence-Based Breast Cancer Prevention: The Importance of Individual Risk. *Ann Intern Med* 151:750-752

The USPSTF ignored all of the fundamental information contained in the following papers:

The Randomized Controlled Trials of Screening

Duffy SW, Tabar L, Smith RA. (2002) The Mammographic Screening Trials: Commentary on the Recent Work by Olsen and Gotzsche. *CA A Cancer J Clin.* ;52:68-71.

Screening Reduces Death Rate in the General Population

Kopans DB. (2002) Beyond Randomized, Controlled Trials: *Organized Mammographic Screening Substantially Reduces Breast Cancer Mortality.* *Cancer* 94: 580-581.

Tabar L, Vitak B, Tony HH, Yen MF, Duffy SW, Smith RA. (2001) *Beyond randomized controlled trials: organized mammographic screening substantially reduces breast carcinoma mortality.* *Cancer* 91:1724-31

Duffy SW, Tabar L, Chen H, Holmqvist M, Yen M, Abdsalah S, Epstein B, Frodis Ewa, Ljungberg E, Hedborg-Melander C, Sundbom A, Tholin M, Wiege M, Akerlund A, Wu H, Tung T, Chiu Y, Chiu Chen, Huang C, Smith RA, Rosen M, Stenbeck M, Holmberg L. (2002) *The Impact of Organized Mammography Service Screening on Breast Carcinoma Mortality in Seven Swedish Counties.* *Cancer* 95:458-469.

Otto SJ , Fracheboud J, Looman CWN, Broeders MJM, Boer R, Hendriks JNHCL, Verbeek ALM, de Koning HJ, and the National Evaluation Team for Breast Cancer Screening. (2003) *Initiation of population-based mammography screening in Dutch municipalities and effect on breast-cancer mortality: a systematic review* *Lancet* 361:411-417.

Feig S. (1995) *Estimation of Currently Attainable Benefit from Mammographic Screening of Women Aged 40-49 Years.* *Cancer* 75:2412-2419.

Swedish Organised Service Screening Evaluation Group. (2006) *Reduction in breast cancer mortality from organized service screening with mammography: 1. Further confirmation with extended data.* *Cancer Epidemiol Biomarkers Prev* 15:45-51.

Screening Women Ages 40-49

Kopans DB, Halpern E, Hulka CA. (1994) *Statistical Power in Breast Cancer Screening Trials and Mortality Reduction Among Women 40-49 with Particular Emphasis on The National Breast Screening Study of Canada.* *Cancer* 74:1196-1203.

Shapiro S. (1977) *Evidence on Screening for Breast Cancer from a Randomized Trial.* *Cancer* 39:2772-278

Hendrick RE, Smith RA, Rutledge JH, Smart CR. (1997) *Benefit of Screening Mammography in Women Ages 40-49: A New Meta-analysis of Randomized Controlled Trials.* *Monogr Natl Cancer Inst*;22:87-92.

Kopans DB, Moore RH, McCarthy KA, Hall DA, Hulka C, Whitman GJ, Slanetz PJ, Halpern EF. (1998) *Biasing the Interpretation of Mammography Screening Data By Age Grouping: Nothing Changes Abruptly at Age 50.* *The Breast Journal*;4:139-145

Kopans DB. (2005) *Bias in the Medical Journals: A Commentary.* *Am. J. Roentgenol* 185: 176 - 182.

Kopans DB. (2005) *Informed decision making: age of 50 is arbitrary and has no demonstrated influence on breast cancer screening in women.* *Am J Roentgenology*;185:177-82

Kopans DB. (1990) *The Canadian Screening Program: A Different Perspective.* *Am. J. Roentgenol* 155:748-749

Yaffe MJ. (1993) *Correction: Canada Study. Letter to the Editor* *JNCI* 85:94

Tarone RE. (1995) *The Excess of Patients with Advanced Breast Cancers in Young Women Screened with Mammography in the Canadian National Breast Screening Study.* *Cancer* 75:997-1003.

Screening Interval

Michaelson JS, Halpern E, Kopans DB. (1999) *Breast Cancer: Computer Simulation Method for Estimating Optimal Intervals for Screening*. *Radiology* 21:551-560.

American Cancer Society Recommendations

Saslow, D, Boetes, C, Burke, W, *et al.* (2007) *American cancer society guidelines for breast screening with MRI as an adjunct to mammography*. *CA Cancer J Clin* 57: 75-89

Smith, RA, Saslow, D, Sawyer, KA, *et al.* (2003) *American Cancer Society guidelines for breast cancer screening: update 2003*. *CA Cancer J Clin* 53: 141-69

©2009 MGH Department of Radiology

Janet Cochrane Miller, D. Phil., Author

Raul N. Uppot, M.D., Editor