

The Missing Piece of the Mammography Puzzle

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Background

Screening mammography guidelines, announced in mid-November by the United States Preventive Services Task Force (USPSTF), contradict the long-held advice of organizations such as the American Cancer Society and the American College of Obstetrics and Gynecology, which recommend that women begin getting annual mammograms at age 40. The specific USPSTF recommendations¹ are as follows:

- Recommended biennial screening mammography for women aged 50 to 74 years.
- Concluded that current evidence is insufficient to assess the additional benefits and harms of screening mammography in women 75 years or older.
- Recommended against teaching breast self-examination (BSE).
- Concluded that current evidence is insufficient to assess the additional benefits and harms of clinical breast examination (CBE) beyond screening mammography in women 40 years or older.
- Concluded that current evidence is insufficient to assess the additional benefits and harms of either digital mammography or magnetic resonance imaging (MRI) instead of film mammography as screening modalities for breast cancer.

Since the USPSTF's release of these recommendations, the professional and consumer media have been filled with controversy, confusion, and conflicting opinions about the legitimacy of the findings. This is due, in large part, to the recommendations' basis on projections of the cost and benefit related to screening these various populations. Official spokespersons decry the use of the term "cost," but the issue clearly carries implications on both patient health and economics.

Dr. Jeanne Mandelblatt, member and spokeswoman for the task force, told CBS News that "starting (screenings) at age 40 would prevent one additional death but also lead to 470 false alarms for every 1,000 women screened. Continuing mammograms through age 79 prevents three additional deaths but raises the number of women treated for breast cancers that would not threaten their lives."²

False Alarms and False Positives

The United States Preventive Services Task Force cannot be faulted on their meta-analysis or their observation that the number of malignancies found in the 40- to 49-year-old population is low relative to the number screened and the high false positive rate.

However, the proposed solution—reduction in screenings of the younger populations—begs another important question:

"How can we reduce the incidence of false positive results in a mammography screening program?"

Data analysis performed by NIA on behalf of client health plans, and in consultative work with the Centers for Medicare and Medicaid Services (CMS),³ reveals a startling variation in the number of indeterminate conclusions among interpreting radiologists. This raises an issue beyond screening guidelines and focused instead on the quality of the studies and their interpretation.

In light of the task force’s recommendations, it is important to consider the following:

- When interpreting a screening mammogram, a radiologist has three choices:
 1. Positive
 2. Negative
 3. Indeterminate (*some of which may include true positive studies*)
- The interpreting physician must resolve the indeterminate cases, and to do so, the physician’s choices are:
 1. Short interval repeat examination
 2. Additional views which will then constitute a “diagnostic” mammogram
 3. A breast ultrasound
 4. A breast MRI
 5. A biopsy
 6. Any combination of the above five courses of action
- Personal experience and NIA data analysis performed over the past several years indicates that there is a **wide variation in the “indeterminate rate” among interpreting radiologists**. From a health policy standpoint, these represent “positive” interpretations because they result in additional testing and consequently lead to a significant number of “**false positives**” in many cases and **costly work-ups** in all cases.⁴
- Nationally, approximately 10% of all screening mammograms will have interpretations of “indeterminate.”⁵
- In our assessment of rendering providers across multiple health plans (representing more than 400,000 screening mammograms in 2008), NIA identified a **wide and unacceptable variation** across interpreting radiologists—with “indeterminate” rates reaching as high as 80%+ (*see Figure 1*).
- This means that under “normal” circumstances, a patient would have a “**one in ten**” chance (per the national average) of requiring additional studies to confirm findings following a screening mammogram.
- However, if the patient selected a lower-performing practice with significantly higher indeterminate rates for her mammogram, she would have an “**eight in ten**” likelihood of being subjected to a cascade of further testing.

Figure 1. Prevalence of Indeterminate Findings

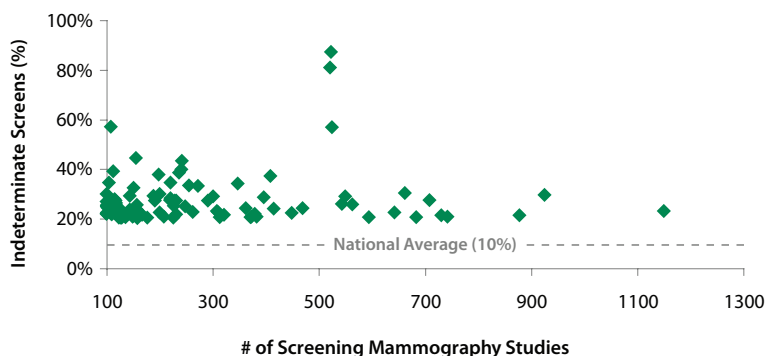
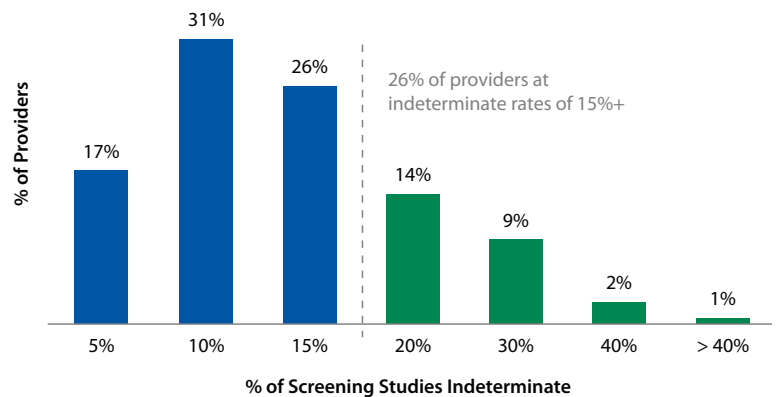


Figure 1 represents providers in multiple health plans across the country whose indeterminate rates significantly exceed the national average. This NIA data is representative of more than 400,000 screening mammograms in calendar year 2008.

- An eight-fold variation in practice patterns is unacceptable and poses jeopardy to both patient well-being and health care economics. Further, this variation raises an issue within mammography that goes far beyond age-based screening guidelines.
- This is further emphasized by NIA findings that 26% of providers have an indeterminate rate of greater than 15% (see Figure 2), confirming that the issue of variation in “indeterminate” findings is not restricted to a small number of outliers.

Figure 2. Provider Indeterminate Rates



The Solution

While NIA acknowledges the value of the findings of the United States Preventive Services Task Force, we are reticent to accept their consequent recommendations in the absence of broad, general consensus, and we believe there is a better solution to achieve the Task Force’s stated objectives.

As information about practice variation is added to the discussion, NIA suggests that the remedy to resolving the cost/benefit challenge is **not** to implement new policies or abandon current screening guidelines. Rather, we must seek to elucidate and correct a serious issue in radiology quality—the significant non-clinical and potentially harmful variation that exists among interpreting mammographers.

This is the same issue addressed by NIA through our ongoing efforts to identify and manage practice variation in collaboration with our customer health plans. In the case of mammography, our efforts can effectively solve for the issue of unacceptable indeterminate rates.

This comprehensive and proactive solution seeks to improve screening outcomes with focused performance improvement among providers, rather than imposing restrictions on early detection.

For more information or to learn more about NIA’s radiology benefits management solutions, call 1-877-NIA-9762.

1. *Effects of Mammography Screening Under Different Screening Schedules Model Estimates of Potential Benefits and Harms.* Mandelblatt J, Conin K, et al., U.S. Preventive Services Task Force. published in *Annals of Internal Medicine* in November 2009 (*Ann Intern Med* 2009;151:738-747. <http://www.annals.org>). Accessed November 2009.
2. <http://www.cbsnews.com/stories/2009/11/19/earlyshow/health/main5710326.shtml>
3. HHS-500-2005-00024i, Task Order 2 (Lewin Project # 4565.01).
4. Indeterminate rates are calculated when a screening mammogram is immediately followed by an additional and related study. This calculation may include a small number of follow-ups to true positive interpretations of the initial screening study.
5. Yankaskas BC, Cleveland RJ, et al, Association of Recall Rates with Sensitivity and Positive Predictive Values of Screening Mammography *AJR* 2001; 177:543-549.