

Do Reminders Improve Mammography Screening Rates?

Barr JK, Franks AL, Lee NC, et al. A randomized intervention to improve ongoing participation in mammography. *Am J Manag Care* 2001;7:887-94.

Study Overview

Objective. To determine whether mail or telephone reminders for patients can increase the rate of breast cancer screening with mammography.

Design. Randomized controlled trial.

Setting and participants. Participants included 1908 women aged 50 to 75 years currently enrolled in a large group-model HMO. All participants underwent a bilateral mammogram during the first quarter of 1994 and no subsequent mammogram during the next 18 to 21 months. Baseline characteristics (eg, age, insurance status, number and type of physician visits) of the 2 intervention groups and the control group were similar.

Interventions. Participants were randomized to receive either a mail reminder, a telephone reminder, or routine publicity on mammography screening. Participants in the mail reminder group were notified that their mammogram due date was approaching and were encouraged to make an appointment with their physicians. Trained personnel contacted participants in the telephone reminder group, who were also offered the opportunity to schedule an appointment with their physicians. The staff spent an average of 7.5 minutes per subject in the telephone reminder group. Participants in the routine publicity group received a bulletin discussing breast health and announcing a lottery with prizes for women who obtained a mammogram within the recommended 2-year period.

Main outcome measure. Proportion of women in each group who received a mammogram after the intervention period and within 2 years of the initial mammogram date.

Main results. Multivariate analysis showed that the participants in the telephone reminder group were significantly more likely to receive a subsequent mammogram compared to the routine publicity group (relative risk [RR], 1.39 [95% confidence interval [CI], 1.25 to 1.54]). Mail reminders were no more effective than a routine publicity campaign in increasing the screening rate (RR, 1.08 [95% CI, 0.94 to 1.21]). Having more than 3 primary

care visits or any gynecology visit also significantly increased the likelihood of receiving a subsequent mammogram.

Conclusion. Telephone reminders are effective in improving rates of screening mammography. Mail reminders did not appear to influence the screening rate.

Commentary

This generally well-designed study supports the notion that interventions on a population level can positively impact on the appropriate utilization of medical resources. In this study, telephone reminders provided by trained personnel significantly improved the usage rate of screening mammograms in an HMO population. Given the well-established benefit of regular mammography screening for women aged 50 to 70 years, this result merits consideration by policy makers. Several issues, however, need to be addressed before these results can be fully integrated into clinical practice. One of these concerns is the results' validity. Mail reminders in this study had no effect on the screening mammography rate. As the authors acknowledged, several features of the general publicity campaign are difficult to distinguish from mail reminders. Thus, any potential effects from the mail reminders might have been obscured by the effect of the publicity campaign. It is therefore possible that a statistically significant effect could have been seen in the mail reminder group if it had been compared to a true control group. Further, patients belonging to the same medical practice tend to behave in a similar way. If this was indeed the case, each observation in this study cannot be considered independent. When this clustering effect is accounted for, the statistical significance seen in the telephone intervention group may be diminished. Reanalysis of the data using the generalized estimating equations approach would put this issue to rest.

Another issue is the study's generalizability. Baseline patient characteristics, such as race and socioeconomic status, were not provided in the study. This information would make it easier for readers to generalize the results to a non-HMO population. Also, yearly screening mammography for women older than 50 years is now recommended by several national practice guidelines. The results of this study, in which mam-

mography was only recommended every 2 years, may not be readily generalizable to other health care systems that recommend annual screening mammography.

Finally, when the participants in the intervention groups were contacted by either mail or telephone, their next mammograms were due in 3 to 6 months. Therefore, this study did not address how patients would react towards mail or telephone reminders if they were told they were late for their screening mammograms. This issue is important to consider as other health plans might find it more economical to focus their intervention only on patients who are overdue for a mammogram.

Applications for Clinical Practice

Telephone reminders have the potential to increase the rate of

breast cancer screening. However, further research is needed before this intervention can be widely adopted by health care systems. It would be helpful if data on patient attitudes and medical and family history could be collected for the multivariate analysis. This information would allow the authors to identify subgroups within their population that could be targeted for greater benefit from the reminder interventions. Also, a careful cost-effectiveness analysis would greatly enhance the applicability of this study. Such an analysis would indicate the number of patients an HMO would have to contact by telephone in order to save 1 life through early breast cancer detection. The cost per quality-adjusted life year for this intervention could then be calculated.

—Review by Eric Poon, MD

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