Online Exclusive Article

A Community Peer-Volunteer Telephone Reminder Call to Increase Breast Cancer–Screening Attendance

Guido Goelen, MD, PhD, Gerlinde De Clercq, RN, MS, and Sophie Hanssens, RN, MSN

Purpose/Objectives: To assess the effect of a tailored telephone reminder call by community peer volunteers on mammography rates in women who do not attend a breast cancer–screening program.

Design: Individual-level randomized trial.

Setting: Four semirural communities in Belgium.

Sample: Women aged 50–69 years who had not had a mammogram.

Methods: Women in the usual care (control) arm received an invitation letter for screening mammography and an information leaflet; women in the intervention arm received usual care as well as a telephone reminder call. The call was tailored on four variables: individual mammography history, mailing of the invitation letter, mammography appointment date, and type of mammography facility in the area (e.g., mobile unit versus fixed site). Community peer volunteers made up to three attempts to call the women in the intervention arm.

Main Research Variables: Mammography rates verified by screening registration review and adverse events identified in contacts with peer volunteers, radiologists, and community workers of local authorities.

Findings: A total of 3,880 women were included in the study and individually randomized into control and intervention groups. Phone numbers were identified for 79% of the women in the intervention group, and 69% were contacted. Twenty-two percent had screening mammography, which was 4% higher than controls (relative risk = 1.22). No adverse effects were identified. An additional mammogram came at an average cost of 17 phone conversations and two hours of volunteer work.

Conclusions: The tested telephone reminder call is suitable for Belgian women.

Implications for Nursing: The telephone reminder call may be implemented in settings similar to the studied context.

One in eight women develops invasive breast cancer, and more than half are aged 40–69 years at diagnosis (Jemal et al., 2008). Mammography screening has been shown to reduce breast cancer mortality in women aged 50–69 years by about 30%, but its benefit for women aged 40–49 years is less clear (Armstrong, Moye, Williams, Berlin, & Reynolds, 2007; de Koning, 2003; Elmore, Armstrong, Lehman, & Fletcher, 2005; Gotzsche, & Nielsen, 2006). Population-based screening mammography programs as well as efforts to increase participation in the programs have been established in many countries (Klabunde & Ballard-Barbash, 2007).

Several interventions to increase mammography-screening rates have demonstrated value. Meta-analyses are available on the effect of individual-directed, physician-directed, access-enhancing, social networking, and multistrategy interventions (Denhaerynck et al., 2003; Legler et al., 2002; Mandelblatt & Yabroff, 1999, Miller, Livingstone, & Herbison, 2008; Ratner, Bottorff, Johnson, Cook, & Lovato, 2001; Sohl & Moyer, 2007; Stoddard et al., 2002; Yabroff & Mandelblatt, 1999; Yabroff, O'Malley, Mangan, & Mandelblatt, 2001). However, most of the published studies are from the United States, and, as Denhaerynck et al. (2003) cautioned in the case of direct-contact interventions, the mammography-screening rates realized by the strategies may differ depending on the healthcare system. Therefore, the results of U.S. studies cannot be generalized confidently to countries that have other healthcare systems, such as those used in Europe.

Nurses have contributed to the ongoing research related to interventions to improve breast cancer screening, such as in African American and Hispanic women (Fowler, Rodney, Roberts, & Broadus, 2005; Grindel, Brown, Caplan, & Blumenthal, 2004; Hall et al., 2005; Hall, Hall, Pfriemer, Wimberley, & Jones, 2007). However, the nursing literature lacks evidence from randomized, controlled trials to support these contributions, and the need to determine the effectiveness of reminder telephone calls for mammography screening has been suggested (Fowler et al., 2005).

The current study pertains to Belgium, a European country that has had a national breast cancer–screening program in place since June 2001. The program allows Belgian women to have a screening mammogram every two calendar years from the year of their 50th birthday until the year of their 69th birthday. The screening mammography may be obtained by physician referral or direct invitation at mobile mammography units or radiology centers accredited with the program. The procedure is covered in full by statutory Belgian sickness funds, membership in which is compulsory for all citizens.

The Belgian breast cancer–screening program had a target population of 1,281,656 women from 2005–2006 and a screening mammography rate of 28%; attendance was lower by physician referral (16%) than by direct invitation (84%) (Fabri & Remacle, 2008). An individual direct invitation, which includes an appointment for a screening mammogram, is mailed once every two years to Belgian women aged 50–69 years. Women are excluded if they have been screened in the past two years at the time the letter is scheduled to be sent. The screening program database includes an individual's personal screening mammography history as well as the appointments for a mammogram proposed in the direct invitation letters, which allows interventions to be tailored on those variables.

A tailored telephone reminder call was selected to be tested in the current study to improve mammography rates in women who had not attended the screening program. Computer modeling of various interventions in a hypothetical scenario of a broad and long-term implementation by Wu, Fung, Chan, and Lairson (2004) estimated tailored telephone counseling to be the most cost-effective intervention for nonadherent women aged 50–79 years. The financial cost of the intervention could be limited by having volunteers administer the telephone reminder call. Volunteers have been used effectively in telephone counseling and other interventions to promote mammography screening (Andersen et al., 2000; Andersen, Hager, Su, & Urban, 2002; Slater et al., 1998; Stockdale, Keeler, Duan, Derose, & Fox, 2000).

A telephone reminder call was developed in the current study and tested at three pilot sites in 2005. Healthcare personnel, volunteer breast cancer survivors, or peer volunteers performed the intervention at the respective sites. The peer volunteers were women from the same age group and community as the women targeted in the intervention. The reminder system seemed equally effective at the three pilot sites, as far as could be ascertained without randomized control. The peer-volunteer mode was selected for additional study because of its low cost and a large pool of potential volunteers. This article reports the results of a randomized, controlled trial designed to assess the effect of adding a tailored telephone reminder call by community peer volunteers to the direct invitation by letter on mammography screening rates among women aged 50–69 years who had not attended the Belgian breast cancer–screening program in previous years.

Methods

Setting

The study was set in Flanders, the larger and Dutch-speaking part of Belgium. The department of cancer prevention of the Vrije Universiteit Brussel participates in the implementation of the breast cancer–screening program in Flanders and was interested in a reminder system to complement the direct invitation. Fifteen communities were scheduled to have the individual direct invitation letters mailed to their 50–69-year-old female residents by the department in 2006.

The research team presented the option to have a telephone-reminder-call system support the direct invitation to the authorities of all 15 communities. The authorities of 10 communities declined, and 5 accepted. One of the five communities was considered too small by the research team to have a control group unaffected by the intervention. The small community had the reminder implemented without control and without inclusion of the data in the analysis. The other four communities were included in the study. Sites A and B had a local radiology center accredited with the program; sites C and D used a mobile mammography unit.

Ethical committee approval for the study was obtained at the Vrije Universiteit Brussel. The committee did not require informed consent from women in the target population of the breast cancer–screening program, as informed consent had not been considered necessary for women to be mailed the invitation to attend the breast cancer screening. The direct invitation was sent every two years, unless a woman declined in writing to be invited again. A reminder telephone call was considered to be less intrusive than the invitation letter.

Sample

Women in the four participating communities were scheduled to receive a direct invitation from the department of cancer prevention at the time of study if (a) they were born from 1937–1956, as identified in the population database of the federal government; (b) they had not had a mammogram in 2005 or 2006 registered in the screening program database; and (c) they had not declined to be invited in writing. Women who had had at least one screening mammogram since 2001, the start of the program and the registration, were excluded in accordance with the study's predetermined focus on women who had not attended the screening. All other women scheduled to receive a direct invitation in 2006 were surmised to have given passive consent and were included in the study.

Women included in the study sample were assigned a computer-generated random number. At each of the four sites, the 50% of women with the highest random numbers were assigned to the usual care (control) group; the other 50% were assigned to the intervention group. Usual care for women in the control groups was comprised of a direct invitation that included a personalized letter proposing an appointment for a screening mammogram plus an information leaflet. A toll-free telephone number was provided in the letter for women who wanted to change or cancel the appointment. Women in the intervention group received usual care and the telephone reminder call. Women in both arms were similarly exposed to environmental reminders and information pertaining to breast cancer screening.

Intervention

Volunteers were recruited through local contacts provided by the authorities of the four communities included in the study. Candidates were of the same birth cohort as the target population and were screened in the course of two mandatory two-hour training sessions by the first author. Training included an overview of breast cancer screening, the Belgian screening program, and the study design, as well as hands-on operation of the telephone-reminder-call system and study registration. Volunteers were not compensated for expenses, which was limited to travel to the local community hall on the days they attended the training sessions or made the reminder calls. Local authorities provided office space and telephones for the intervention. On-site support and supervision by the first author was in place about 20% of the time when volunteers made the reminder calls.

The names and addresses of the women of the 1937–1956 birth cohort in the four participating communities had been provided to the department of cancer prevention by the government. The data were necessary for sending the invitation letters. The lists of names and addresses also had been used to assign women to intervention and control groups. Phone numbers of the women in the intervention group were identified in publicly available databases of telephone companies by means of the woman's name and address.

Volunteers attempted to call women with an identified phone number up to three times Monday through Friday of the week preceding their appointment for a screening mammogram, as proposed in the invitation letter. Attempts were made on at least two different days, with the first two calls occurring from 10 am–4 pm and the third call from 6–8 pm.

An eventual telephone contact consisted of a brief conversation scripted by the research team. Callers introduced themselves and asked whether the invitation letter had been received and understood, whether additional information was needed, and whether the woman planned to attend the appointment. Volunteers had been explicitly instructed to keep the conversation neutral and not suggest by tone of voice or content (in cases of incidental, extended conversations) that the woman should have a screening mammogram. Any inquiries that volunteers were not confident to address were directed to a dedicated toll-free number at the department of cancer prevention.

Adverse Events

Complaints that might indicate adverse events were monitored by the personnel of the department of cancer prevention in weekly contacts with community workers of local authorities and the staff of local radiology centers and the mobile mammography unit. In addition, volunteer callers were queried about any possible adverse effects indicated in telephone conversations as an integrated part of the support and supervision provided by the first author. An indication of adverse effects had been identified in this way at the pilot site operated by breast cancer survivors: during a call, one man told a volunteer that he considered the intervention to be a breach of his wife's privacy and that they wished to be left alone. The husband did not pursue the matter further, and the complaint was not considered important enough for the implementation of the study to be cancelled.

Data Collection and Statistical Analyses

Volunteers recorded the time they started and ended work on each of the days that they made reminder calls. Women in intervention group had individual records that included their first and family name, address, phone number if identified, and the date of the appointment for a mammogram proposed in the direct invitation letter. Volunteers recorded the date and time of each attempted call and, if successful, the answers to the questions pertaining to the receipt and understanding of the invitation letter, need for additional information, and planned attendance.

The study outcome was a screening mammogram obtained by the target women within four weeks of the date proposed in the direct invitation, verified by screening database review. A chi-square test was used in the analysis of differences in mammography use.

Results

Setting, Sample, and Randomization

The four participating communities were located west of Brussels, Belgium. Their mean populations were 493–668 people per km^2. Therefore, the study was set in semirural communities (i.e., neither in urban nor in rural environments). Overall, about 35% of women in the 1937–1956 birth cohort had had at least one screening

mammogram and about 2% had declined to be invited; 63% were eligible for inclusion. Women invited for the first two screening weeks at site A and the last three screening days at site C could not be included for the following reasons. At site A, the necessary desks and phones to be manned by the volunteers were not supplied by local authorities in that period. At site C, the names of the women who were invited could not be retrieved from the database of the screening program at that particular time. The remaining 3,880 eligible women were included in the study and assigned to control or intervention arms as detailed previously. Randomization was successful as assessed by comparing the distribution over age groups, areas of residence, and appointment dates in the intervention and control groups. Women in the control group were not contacted to collect additional data.

Volunteer Recruitment, Training, and Support

Sufficient community peer volunteers were recruited. Candidates had various levels of education, but all had extensive community contacts and tended to do other volunteer work. Volunteers attended two training sessions and executed a number of telephone calls in accordance with the study protocol during the second training session. All candidates were accepted. The volunteers from each community collaboratively operated the reminder system from that point. Support by the first author consisted mainly of help with practical issues such as the registration by the volunteers of their activities. Supervision focused on adherence to the study protocol, such as the number and timing of the calls and the neutrality of the conversations as described previously.

Telephone Reminder Call

Reminder calls were attempted from February–September 2006. Actual calls were concentrated in a single week in the two communities that used the mobile mammography unit but were spread over five to six weeks in the communities with local radiology centers. Volunteers had telephone contacts with 69% of the women in the intervention group, which corresponds to 87% of women with an identified phone number. Telephone contacts were made in 59% and 20% of cases on the first or second daytime attempts, respectively, and in 20% of cases in the evening. Almost all respondents stated that they had received and understood the invitation letter. Some women requested additional information, but volunteers mostly dealt with such situations confidently. Exceptions were directed to the toll-free line of the department of cancer prevention.

Peer volunteers perceived the work to be useful and personally satisfying. They had the distinct impression that almost all of the women they contacted appreciated their efforts. No adverse effects of the intervention could be identified in the contacts with volunteers, community workers of local authorities, and personnel of the radiology centers.

Intervention Effectiveness

Site A, the first community to implement the intervention, had the highest mammography rates but no intervention effect (see Table 1). Sites B, C, and D showed significant effect. Overall, 4% more women in the intervention group had a screening mammography than control (22% versus 18%), corresponding with a relative risk of 1.22. Volunteers put in 144 hours of work and had 1,336 telephone conversations with women in the intervention group, resulting in 77 additional screenings (see Table 2). Two hours of volunteer time and 17 telephone contacts were needed on average to realize an additional screening mammogram, but the numbers varied by site.

Discussion

Use of the Belgian screening program database allowed the telephone reminder call to be tailored on four variables: personal mammography history as registered

Table 1. Intervention Implementation and Effectiveness by Site[a]

	Intervention Arm										
	Telephone Numbers Identified		Women Contacted by Telephone		Women Screened		Women Screened in Control Arm		Additional Screenings		
Site[b]	n	%	n	%	n	%	n	%	n	%	p
A (n = 474)	381	80	336	71	152	32	147	31	5	1	0.7
B (n = 590)	463	78	401	68	137	23	109	18	28	5	0.04
C (n = 345)	270	78	227	66	66	19	44	13	22	6	0.02
D (n = 531)	427	80	372	70	80	15	58	11	22	4	0.04
Total (N =1,940)	1,541	79	1,336	69	435	22	358	18	77	4	0.002

[a] Intention-to-treat analysis, including all individuals in the study sample

[b] Sites A and B used a local radiology center for mammogram screenings; sites C and D used a mobile mammography unit.

Table 2. Volunteer Data by Site

Variable	Site[a] A (n = 5)	B (n = 6)	C (n = 7)	D (n = 10)	Total (N = 28)
$\bar{X}$ volunteer hours	42	50	24	28	144
$\bar{X}$ hours per additional screening	8.4	1.8	1.1	1.3	1.9
Telephone contacts per additional screening	67	14	10	17	17

[a] Sites A and B used a local radiology center for mammogram screenings; sites C and D used a mobile mammography unit.

in the screening program database, recent mailing and presumed receipt of the direct invitation letter, date of the mammography appointment proposed in the letter, and the type of mammography facility in the area (i.e., mobile versus fixed site). The tailoring and the fact that consent was presumed for all women aged 50–69 years living in the study communities allowed the intervention to be implemented without contacting eligible women beforehand. As a result, the intervention more closely resembled an eventual large scale and long-term implementation, which may be an advantage. However, baseline characteristics of the participants were not collected, which is a limitation of the current study.

The reminder call was implemented successfully by community peer volunteers, who were recruited in sufficient number at each site. Quality assurance was limited to in-person, on-site monitoring of adherence to the study protocol by the first author for part of the time that volunteers were making calls. Measures such as random monitoring of recorded calls would have allowed the reliability of the telephone intervention implementation to be assessed systematically. The measures also might have allowed indications of adverse effects to be identified. However, current efforts to identify adverse effects were not limited to supervision by the first author but also included weekly contacts by department of cancer prevention personnel with the community workers of local authorities and the fixed site as well as with personnel in the mobile mammography unit. The four communities included in the study, the community that had the reminder implemented without inclusion of the data, and the three pilot sites total a relative broad implementation of the tested reminder call.

No adverse effects were indicated, except for the complaint reported in the methods section. A telephone reminder call probably is not expected to cause serious adverse effects, and a variety of strategies involving either direct personal or telephone contact have been studied. Denhaerynck et al. (2003) included 21 reports of randomized, controlled trials of direct contact strategies to improve mammography-screening attendance in their meta-analysis. However, the finding that only one person expressed displeasure with the telephone call because of privacy invasion was surprising. To the contrary, volunteers had the distinct impression that most people they contacted appreciated their efforts.

The telephone reminder call caused a 22% increase in mammography screening among women who had not attended the Belgian breast cancer–screening program in previous years. A number of issues should be considered when interpreting this result. Women aged 50–51 years may not have been nonattenders, as they had only recently become eligible to participate. However, the sample still had about 90% nonattenders of at least one screening round of the program. The four communities in the study were self-selected, and the intervention effect may have been different in the 10 communities that declined. All eligible communities were semirural communities; therefore, the intervention may be less effective or more difficult to implement in urban or rural communities. Finally, the study was set in the Belgian context, and other countries may have different health care and breast cancer screening.

Strengths of the study were the large sample used in this individual-level randomized, controlled trial; the systematic identification of women eligible for inclusion; and the ability to calculate unbiased mammography screening rates. All individuals randomized in the control and intervention arms were counted in the analysis, including women who could not be contacted and women who had had a diagnostic mammogram. The latter two categories might not have been included if candidate participants had been contacted beforehand to collect baseline characteristics and give informed consent.

The 22% increase in mammography screening rates is in the lower range of the effects reported in recent meta-analyses of tailored and direct-contact strategy results in mostly American studies (Denhaerynck et al., 2003; Sohl & Moyer, 2007). The numbers of phone conversations and hours of volunteer work needed to realize one additional screening mammography varied by site, possibly because each site had its own team of volunteers or because of matters specific to the individual communities. The current study did not explore the possible reasons for the variation.

The tested reminder was implemented with limited effort in Belgium. In addition, the intervention seems suited for long-term implementation. The financial cost is limited if the reminder is operated by volunteers; expense then can be determined mainly by the cost of phone conversations and office space. As a result, the telephone reminder call may be a good candidate for widespread implementation in contexts that are comparable to the

Belgian setting. However, a comparison of the effectiveness of a similarly tailored mail reminder to the currently tested telephone intervention may be worthwhile.

The authors gratefully acknowledge the cooperation of the women invited to be screened, as well as the volunteers and local authorities of the communities of Aalst, Affligem, Erpe-Mere, Haaltert, Lede, Ninove, Roosdaal, and Pepingen. In addition, they thank Katelijne De Rijck, MD, and Gerlinde Huybrecht, MS, for helping with the intervention and for commenting on the manuscript.

Guido Goelen, MD, PhD, and Gerlinde De Clercq, RN, MS, are faculty members in the Department of Nursing and Midwifery at the Vrije Universiteit Brussel in Brussels, Belgium; and Sophie Hanssens, RN, MSN, is a faculty member in the Department of Nursing and Midwifery at the Vrije Universiteit Brussel in Brussels and a nurse in the Department of Medical Oncology at the UZ Brussel in Brussels. No financial relationships to disclose. Goelen can be reached at gugoelen@vub.ac.be, with copy to editor at ONFEditor@ons.org. (Submitted May 2009. Accepted for publication August 17, 2009.)

Digital Object Identifier: 10.1188/10.ONF.E312-E317

References

Andersen, M.R., Hager, M., Su, C., & Urban, N. (2002). Analysis of the cost-effectiveness of mammography promotion by volunteers in rural communities. *Health Education and Behavior, 29,* 755–770. doi: 10.1177/109019802237942

Andersen, M.R., Yasui, Y., Meischke, H., Kuniyuki, A., Etzioni, R., & Urban, N. (2000). The effectiveness of mammography promotion by volunteers in rural communities. *American Journal of Preventive Medicine, 18,* 199–207. doi: 10.1016/S0749-3797(99)00161-0

Armstrong, K., Moye, E., Williams, S., Berlin, J.A., & Reynolds, E.E. (2007). Screening mammography in women 40 to 49 years of age: A systematic review for the American College of Physicians. *Annals of Internal Medicine, 146,* 516–526.

de Koning, H.J. (2003). Mammographic screening: Evidence from randomised controlled trials. *Annals of Oncology, 14,* 1185–1189. doi: 10.1093/annonc/mdg319

Denhaerynck, K., Lesaffre, E., Baele, J., Cortebeeck, K., Van Overstraete, E., & Buntinx, F. (2003). Mammography screening attendance: Meta-analysis of the effect of direct-contact invitation. *American Journal of Preventive Medicine, 25,* 195–203. doi: 10.1016/S0749-3797(03)00201-0

Elmore, J.G., Armstrong, K., Lehman, C.D., & Fletcher, S.W. (2005). Screening for breast cancer. *JAMA, 293,* 1245–1256. doi: 10.1001/jama.293.10.1245

Fabri, V., & Remacle, A. (2008). *Programma Borstkankeropsporing, verslag nr. 6 van het Intermutualistisch Agentschap* [Breast Screening Program, report number 6 of the Intermutualistic Agency]. Retrieved from http://www.nic-ima.be/library/documents/quality%20projects/MA%206%20NL%20Rapport.pdf

Fowler, B.A., Rodney, M., Roberts, S. & Broadus, L. (2005). Collaborative breast health intervention for African American women of lower socioeconomic status. *Oncology Nursing Forum, 32,* 1207–1216. doi: 10.1188/05.ONF.1207-1216

Gotzsche, P.C., & Nielsen, M. (2006). Screening for breast cancer with mammography. *Cochrane Database of Systematic Reviews, 7,* CD001877.

Grindel, C.G., Brown, L., Caplan, L., & Blumenthal, D. (2004). The effect of breast cancer screening messages on knowledge, attitudes, perceived risk, and mammography screening of African American women in the rural South. *Oncology Nursing Forum, 31,* 801–808. doi: 10.1188/04.ONF.801-808

Hall, C.P., Hall, J.D., Pfriemer, J.T., Wimberley, P.D., & Jones, C.H. (2007). Effects of a culturally sensitive education program on the breast cancer knowledge and beliefs of Hispanic women. *Oncology Nursing Forum, 34,* 1195–1202. doi: 10.1188/07.ONF.1195-1202

Hall, C.P., Wimberley, P.D., Hall, J.D., Pfriemer, J.T., Hubbard, E., Stacy, A.S., & Gilbert, J.D. (2005). Teaching breast cancer screening to African American women in the Arkansas Mississippi River Delta. *Oncology Nursing Forum, 32,* 857–863. doi :10.1188/05.ONF.857-863

Jemal, A., Siegel, R., Ward, E., Hao, Y., Xu, J., Murray, T., & Thun, M.J. (2008). Cancer statistics, 2008. *CA: A Cancer Journal for Clinicians, 58,* 71–96. doi: 10.3322/CA.2007.0010

Klabunde, C.N., & Ballard-Barbash, R. (2007). Evaluating population-based screening mammography programs internationally. *Seminars in Breast Disease, 10,* 102–107. doi: 10.1053/j.sembd.2007.09.007

Legler, J., Meissner, H.I., Coyne, C., Breen, N., Chollette, V., & Rimer, B.K. (2002). The effectiveness of interventions to promote mammography among women with historically lower rates of screening. *Cancer Epidemiology, Biomarkers and Prevention, 11,* 59–71.

Mandelblatt, J.S., & Yabroff, K.R. (1999). Effectiveness of interventions designed to increase mammography use: A meta-analysis of provider-targeted strategies. *Cancer Epidemiology, Biomarkers and Prevention, 8,* 759–767.

Miller, D., Livingstone, V., & Herbison, P. (2008). Interventions for relieving the pain and discomfort of screening mammography. *Cochrane Database of Systematic Reviews, 1,* CD002942.

Ratner, P.A., Bottorff, J.L., Johnson, J.L., Cook, R., & Lovato, C.Y. (2001). A meta-analysis of mammography screening promotion. *Cancer Detection and Prevention, 25,* 147–160.

Slater, J.S., Ha, C.N., Malone, M.E., McGovern, P., Madigan, S.D., Finnegan, J.R., . . . Lurie, N. (1998). A randomized community trial to increase mammography utilization among low-income women living in public housing. *Preventive Medicine, 27,* 862–870. doi: 10.1006/pmed.1998.0370

Sohl, S.J., & Moyer, A. (2007). Tailored interventions to promote mammography screening: A meta-analytic review. *Preventive Medicine, 45,* 252–261. doi: 10.1016/j.ypmed.2007.06.009

Stockdale, S.E., Keeler, E., Duan, N., Derose, K.P., & Fox, S.A. (2000). Costs and cost-effectiveness of a church-based intervention to promote mammography screening. *Health Services Research, 35*(5, Pt. 1), 1037–1057.

Stoddard, A.M., Fox, S.A., Costanza, M.E., Lane, D.S., Andersen, M.R., Urban, N., . . . Rimer, B.K. (2002). Effectiveness of telephone counseling for mammography: Results from five randomized trials. *Preventive Medicine, 34,* 90–99. doi: 10.1006/pmed.2001.0960

Wu, J.H., Fung, M.C., Chan, W., & Lairson, D.R. (2004). Cost-effectiveness analysis of interventions to enhance mammography compliance using computer modeling (CAN*TROL). *Value in Health, 7,* 175–185. doi: 10.1111/j.1524-4733.2004.72326.x

Yabroff, K.R., & Mandelblatt, J.S. (1999). Interventions targeted toward patients to increase mammography use. *Cancer Epidemiology, Biomarkers and Prevention, 8,* 749–757.

Yabroff, K.R., O'Malley, A., Mangan, P., & Mandelblatt, J. (2001). Inreach and outreach interventions to improve mammography use. *Journal of the American Medical Women's Association, 56,* 166–173, 188.