

Does Telephone Scheduling Assistance Increase Mammography Screening Adherence?

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Mammography screening is widely recommended for the early detection of breast cancer, and when performed regularly, can decrease breast cancer-related mortality.^{1,2} The United States Preventive Services Task Force (USPSTF) recommends screening mammography every 2 years in women aged 50 to 74 years, and individualized decision making between ages 40 and 49.³ Through October 2015, the American Cancer Society recommended annual screening for women 40 years or older.⁴ Although primary care providers recommend mammograms, many women are not getting screened. Many insurers provide primary care practices with a quality report listing patients lacking any billing record for key preventive and chronic care services; practices that successfully utilize this information to improve quality are eligible for value-based payment incentives. Primary care practices must find effective approaches to improve patient adherence to preventive services, including mammography screening.

Research has shown that patient navigation can increase utilization of preventive services.⁵ Individuals who serve as patient navigators have played an important role in coordinating medical care and scheduling appointments.^{6,7} Study results have shown that mammography rates increased when women received outreach, including letters, e-mails, or telephone calls, compared with those who received usual care.⁸⁻¹¹ However, more research is needed to define the role and feasibility of the patient navigator so that future research can rigorously compare the effectiveness and cost effectiveness of navigation programs.¹²

We conducted a patient navigation program focusing on scheduling mammograms for women who lacked adherence despite mailed outreach letters. Our objectives were: 1) to describe a patient navigation process utilized within a primary care practice to promote mammography screening, and 2) to determine the result of the navigation program and estimate the time required to increase mammography screening in a commercially insured patient population enrolled in a health

ABSTRACT

Objectives: The 2 objectives were: 1) describe the use of a patient navigation process utilized to promote adherence to mammography screening within a primary care practice, and 2) determine the result of the navigation process and estimate the time required to increase mammography screening with this approach in a commercially insured patient population enrolled in a health maintenance organization.

Study Design: An evaluation of a nonrandomized practice improvement intervention.

Methods: Women eligible for mammography (n = 298) who did not respond to 2 reminder letters were contacted via telephone by a navigator who offered scheduling assistance for mammography screening. The patient navigator scheduled appointments, documented the number of calls, and confirmed completed mammograms in the electronic health record, as well as estimated the time for calls and chart review.

Results: Of the 188 participants reached by phone, 112 (59%) scheduled appointments using the patient navigator, 35 (19%) scheduled their own appointments independently prior to the call, and 41 (22%) declined. As a result of the telephone intervention, 78 of the 188 women reached (41%) received a mammogram; also, all 35 women who had independently scheduled a mammogram received one. Chart documentation confirmed that 113 (38%) of the cohort of 298 women completed a mammogram. The estimated time burden for the entire project was 55 hours and 33 minutes, including calling patients, scheduling appointments, and chart review.

Conclusions: A patient navigator can increase mammography adherence in a previously nonadherent population by making the screening appointment while the patient is on the phone.

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maintenance organization (HMO). The HMO in this study reimburses for quality indicators based on submission of health data. We hypothesized that a phone call plus scheduling assistance would facilitate completion of mammograms for women who had not responded to prior mailed outreach.

METHODS

Setting

Jefferson Family Medicine Associates (JFMA) is a large, academic primary care practice located in the densely populated urban environment of Philadelphia, PA, at Thomas Jefferson University. The HMO of all participants is among the major insurers for the JFMA patient population. Institutional review board approval was obtained from Thomas Jefferson University.

Patient Navigator

The patient navigator received an associate degree in health information technology and a Registered Health Information Technician certification through the American Health Information Management Association.

Participants

Participants were enrolled in commercial HMO insurance, received primary care at JFMA, and were at least 2 years past their recommended mammogram.

Mammogram Outreach

We used a nonrandomized, practice improvement intervention study approach. All women were mailed 2 letters encouraging mammography screening during the year before selection for patient navigation ([eAppendix](#) [available at www.ajmc.com]). This group of women without documentation of mammography screening in their medical records in the past 2 years received a call in English, during business hours, from the patient navigator between September 2012 and February 2013. The navigator asked each patient if she had ever received a mammogram and, if yes, when and where. If a patient had a prior mammogram, the navigator asked her to send the results from other locations to JFMA. If the patient did not have a recent mammogram, the navigator informed the patient about the mammography recommendation and encouraged her to make an appointment. Women who agreed were asked follow-up questions, including the best time for an appointment and about past or current problems. Women were put on hold or occasionally called

Take-Away Points

- As value-based payment becomes more widespread, primary care practices must find effective approaches to improve patient adherence to preventive services, including mammography screening.
- Since other practices have utilized patient navigation to increase mammography screening with mixed results, more research is needed to understand which methods are best for specific populations.
- A primary care-based quality improvement intervention that focused on directly scheduling mammogram appointments was described, including the patient navigator, participants, outreach calls, clinical outcomes, and estimated project time.
- We found that direct scheduling can increase mammography adherence in a previously nonadherent population.

back while the navigator contacted Jefferson-Honickman Breast Imaging Center at Thomas Jefferson University Hospital and made an appointment for them. Patients were given the appointment date, time, address, and instructions. Those with symptoms—for example, breast pain or tenderness—were referred to their primary care physicians. Patients who lacked insurance were referred to social work services at the breast imaging center.

The navigator made 3 types of calls: outreach, reminder, and rescheduling. Women were called up to 4 times during the outreach component, with a maximum of 4 voicemails per patient. Reminder calls were made a couple of days prior to mammography appointments, and up to 2 rescheduling calls were made after missed appointments.

Mammograms were considered completed if they were done within 6 months after the last phone call. Allscripts Enterprise electronic health record (EHR) was used to access results shared with the breast imaging center within the Jefferson Health System. Documentation of a prior mammogram was verified using the EHR.

Calculating Project Time

All 3 call types—outreach, reminder, and rescheduling calls—were documented in Excel. The navigator estimated the average time per call type and estimated the average time per person for chart review. The call-time estimates were multiplied by the total for each call type and added together for the total estimated call time. The chart review estimate was multiplied by the total number of patients to calculate the total estimated chart review time. The total estimated call time was added to the total estimated chart review time to calculate the total estimated project time.

RESULTS

Participants

Women ($n = 298$) were aged 42 to 71 years (mean = 52.30; SD = 7.05). The [Table](#) summarizes demographic characteris-

■ **Table.** Demographics and Completed Mammograms

Demographics	Totals		Completed Mammogram After Telephone Intervention ^a		Documentation of Prior Mammogram ^b	
	(n = 298)		(n = 78)		(n = 176)	
	No.	(%)	No.	(%)	No.	(%)
Age range, years						
42-49	144	(48)	42	(29.2)	71	(49.3)
50-59	111	(38)	26	(23.4)	77	(69.4)
60-71	43	(14)	10	(23.3)	28	(65.1)
Race/ethnicity						
African American	220	(74)	60	(27.3)	130	(59.1)
White	46	(16)	9	(19.6)	28	(60.9)
Asian	13	(4)	5	(38.5)	7	(53.8)
Hispanic	12	(4)	3	(25.0)	8	(66.7)
Other/do not know	7	(2)	1	(14.3)	3	(42.9)

^aMammograms were considered completed if done up to 6 months after calls were completed.
^bDocumentation of a prior mammogram only included mammograms that were in patients' medical records and therefore, may be an underestimation of those women with prior mammograms.

tics. The average driving distance between patients' home zip code and the zip code of the practice was 7.78 miles (SD = 7.48).

Telephone Calls

A total of 844 calls were made: 739 outreach, 66 rescheduling, and 39 reminder. The mean number of outreach calls per patient was 2.48, the median was 2, and the range was 1 to 4. Of those called, 188 (63%) women were reached by phone. The percent yield of each outreach attempt was 28%, 29%, 21%, and 15% reached, respectively.

Estimated Project Time

Total project time was approximately 55 hours and 33 minutes for 298 patients (about 11.2 minutes per patient). The outreach calls required approximately 15 minutes when the patient was scheduling an appointment, and 1 minute without scheduling; 103 scheduling calls and 636 calls without scheduling were estimated at 36 hours and 21 minutes.

The rescheduling calls required approximately 10 minutes when rescheduling an appointment, and 1 minute without rescheduling. There was an estimated time burden of 2 hours and 50 minutes with rescheduling and 49 minutes without rescheduling, for a total estimated time of 3 hours and 39 minutes. Reminder calls required approximately 1 minute, which was estimated at 39 minutes.

Chart review required approximately 3 minutes per patient, which was estimated at 14 hours and 54 minutes.

Appointments/Scheduling

Of the 188 participants reached by phone, 112 (59%) made mammography appointments after the telephone intervention, 35 (19%) independently scheduled a mammogram prior to the navigator's call, and 41 (22%) declined (Figure). Of the 35 women who independently scheduled a mammogram between the formation of the quality report and when calls were made, all received mammograms. Of the 112 women for whom the patient navigator arranged appointments, 78 (70%) women received a mammogram and 34 (30%) did not. It took 59 days, on average, for the 78 women to receive a mammogram after contact with our navigator. There was no difference in age or driving distance between women who scheduled or declined an appointment or between those who completed a mammogram or not. Among African American women reached by phone (n = 112), 88 (79%) scheduled an appointment during the phone intervention, and 84 (75%) completed a mammogram.

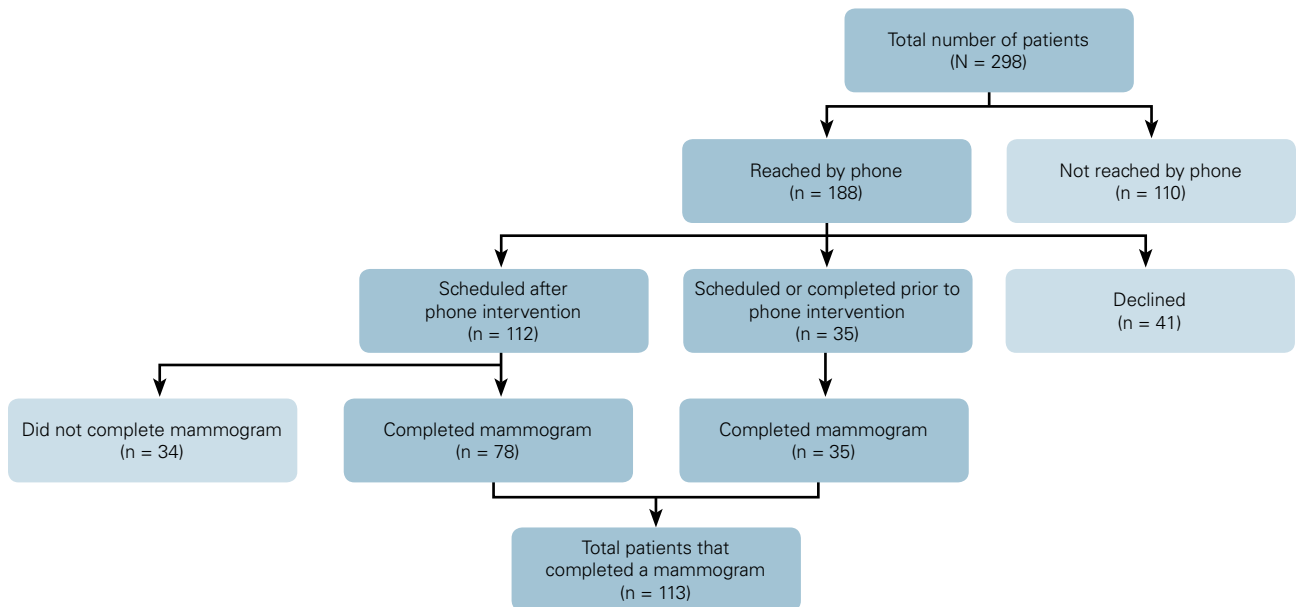
Clinical Outcomes

In all, 113 (38%) of the initial 298 medical charts were updated with a mammogram. Of the women who completed a mammogram within 6 months after the telephone intervention (n = 78), 42 (54%) were in the age range of 42 to 49 years (Table). Twenty-one (27%) of the women who completed a mammogram after the telephone intervention did not have prior chart documentation of mammography; this subgroup (mean age = 49 years) had been JFMA patients for at least 2 years, and approximately 10 years on average. Ten women lost health insurance and were connected with social work services at Jefferson-Honickman Breast Imaging Center; 4 of these women received a mammogram.

DISCUSSION

This quality improvement project was designed to increase mammography adherence among patients enrolled in a commercial HMO that provided practices with quality reports to facilitate better compliance with practice guidelines. This project also provides insight into the patient navigator's role in direct telephone scheduling within a primary care practice. The patient navigator spent the equivalent of approximately 7 full workdays on

■ **Figure.** Flowchart of Patients During the Mammogram Scheduling Process



this project, with the hours spread out over time and integrated with other nonrelated projects. We did not address the outreach cost, which depends on pay scales and reimbursements. We offer this data to health systems so that they can complete their own cost calculation.

Noteworthy successes resulted from this project and appeared directly related to the interaction between the patient navigator and patients. Direct scheduling over the telephone between the patient navigator and the patient appeared to increase mammography screening, especially among African American women. Some women received their first documented mammogram, providing baseline mammography results. Patients may have viewed the process as more convenient than scheduling the mammogram themselves because the navigator streamlined the process. A lack of prior screening for the women in their forties may have been related to conflicting guidelines about when women should start breast cancer screening—an issue that received attention after the release of the 2009 USPSTF mammography guidelines.³

Limitations

The patient navigator faced various challenges related to contacting patients and collecting data: 110 of the 298 patients (37%) could not be contacted. Additionally, yield was low during the fourth outreach attempt ($\leq 15\%$), and assessment of the effectiveness was limited by incorrect phone numbers and/or unanswered calls. Telephone outreach was completed in English; the patient population

contained limited language diversity, but this may have limited patient recruitment and generalizability. Due to the time between data abstraction and initial calls, some women who had already received or scheduled mammograms were called unnecessarily; real-time mammography completion data would reduce unnecessary effort by the patient navigator. Finally, data collection deficiencies in the EHR may have underestimated prior mammograms since not all mammograms are documented, especially if completed at nonaffiliated institutions.

Certain aspects of the study may limit its generalizability. The nonrandomized study design poses a threat to internal validity, and the lack of control group limits the ability to assert causality. All participants lived in the same region, were enrolled at the same primary care practice, and had the same insurance. This study included a high proportion of African Americans and a high proportion of women in their forties. Future studies may help address whether outreach is effective in other populations. However, many practices are under constraints to maximize quality dollars without research funding.

Recommendations

Telephone outreach and direct scheduling by primary care practices appears to be an effective strategy for increasing mammograms among women nonadherent to written outreach. Practices may want to call the imaging center scheduler before conducting the study to connect with a single individual they can call directly rather

than waiting in queue. However, practices may want to limit outreach calls to 3 attempts and call patients during weekends and off hours to achieve a higher rate of return. Accurate patient contact information in the EHR also ensures more productive results.

Future research may expand upon the effectiveness of patient navigators by utilizing telephone, e-mail, and mail outreach for mammography screening, especially in women without prior screening.⁸⁻¹¹ Other practices that use a patient navigator with different patient populations and locations may provide insight into effectiveness and cost-effectiveness in other practice settings.¹² A randomized study design that compares standard treatment versus calling patients to make an appointment for them would be useful for learning more about the effectiveness of this approach.

CONCLUSIONS

This study provides a detailed description of the process needed to conduct a patient navigation project within a primary care practice, including estimated time, number of calls, and verification within the EHR. The findings indicate that patient navigators can be effective at increasing mammography screening rates in hard-to-reach women if appointments are scheduled while they are on the phone.

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(CAP, MS); drafting of the manuscript (CAP, MS, KH); critical revision of the manuscript for important intellectual content (CAP, MS, CC, KH); provision of patients or study materials (KH); administrative, technical, or logistic support (CAP, SB); and supervision (KH).

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eAppendix

JEFFERSON FAMILY MEDICINE ASSOCIATES

January, 2012

Dear Family Medicine Patient:

It has come to our attention after reviewing your medical record that you have not had a mammogram within the last year and have not had a cervical cancer screening in the past three years.

Mammogram

Pap test

Breast cancer is the most common cancer you may face as a woman. Breast cancer can occur at any age, but it is more likely to occur after age 40 and even more as you get older. The best defense against breast cancer is to find it as early as possible, when it is easiest to treat.

It is also very important to have regular Pap tests to prevent cancer of the cervix from ever occurring. The Pap test looks for changes in the cervix that might lead to cancer. If cancer does occur, the Pap test can find it early when it is easier to treat.

If you are due for a mammogram, a script is included with this letter. Please contact the “Breast Imaging Center” at 215-955-5400 as soon as possible to make an appointment.

If you are due for a Pap test, please make an appointment as soon as possible with your personal physician at one of the following numbers:

Jefferson Family Medicine: 215-955-7190

Jefferson OB/GYN Association: 215-955-6776

Jefferson Center for Women’s Medical Specialties: 215-955-5000

THANK YOU