

# Effects of Standardized Outreach for Patients Refusing Preventive Services: A Quasiexperimental Quality Improvement Study

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**I**nterventions that increase healthcare providers' recommendations to patients to obtain preventive services have been proved to increase the use of these services.<sup>1</sup> However, some patients refuse effective preventive services when they are offered.<sup>2-4</sup> How the healthcare delivery system should address these refusals is unclear. Clinicians must respect patient autonomy even when patients make choices to forgo beneficial tests or treatments.<sup>5</sup> However, if patients lack adequate information about why a test or treatment is recommended, their voiced refusal may indicate a spurious preference, meaning it is not the choice they would make if they had better information. Concerns have been raised that brief office visits may not provide adequate opportunity for clinicians to educate patients about the host of services that may be of benefit to them.<sup>6-8</sup> The information provided by clinicians during office visits may be difficult for some patients to understand, particularly those with lower literacy or socioeconomic status.<sup>6,9-12</sup> Patients may hold misconceptions about preventive services that lead them to believe that the services are undesirable, would not benefit them, or may be harmful.<sup>13-15</sup> Patients may refuse a medical service if they think that a perceived barrier has not been addressed.<sup>11,14-17</sup> Standardized educational outreach and care facilitation could address these concerns and lead some patients who initially refused a service to accept it.

As part of a larger multifaceted quality improvement intervention,<sup>18,19</sup> we sought to implement a system of care to ensure that the following goals were met among patients who had refused a recommended preventive service: (1) the patients received clear educational material that provided the essential rationale justifying the need for the preventive service, (2) the information was written at a low-literacy level, (3) some common misconceptions about the service were specifically addressed, and (4) patients had the opportunity to discuss barriers to receiving the service with a nonclinician care manager. This study compares the receipt of refused preventive services among patients receiving care during the period when outreach was conducted at this practice site and during a subsequent period when no outreach was performed.

## METHODS

### Setting and Eligible Patients

We performed this study at a large academic primary care inter-

**Objective:** To determine the effect of standardized outreach on the receipt of preventive services for patients whose physicians record that the patient refused the service.

**Study Design:** Prospective observational study of a quality improvement intervention using a nonrandomly assigned comparator group.

**Methods:** Patients from a large internal medicine practice with recorded refusals to preventive services were included. A nonclinician care manager mailed plain-language educational brochures, attempted telephone contact, and provided logistical assistance. The primary patient outcome was the time from refusal to first receipt of a refused service (colorectal cancer screening, breast cancer screening [mammography], cervical cancer screening, osteoporosis screening [bone density testing], or pneumococcal vaccination). We compared the time to completion of refused services during the period when outreach was performed (February 8, 2008, to November 25, 2008 [outreach cohort]), and during a subsequent period when refusals were recorded but no outreach was performed (November 26, 2008, to December 1, 2009 [nonintervention cohort]), using Cox proportional hazards regression models adjusted for patient characteristics. We recorded the time spent performing outreach.

**Results:** In total, 407 patients refused 520 preventive services in the outreach cohort, and 378 patients refused 510 services in the nonintervention cohort. After 6 months of follow-up, 6.1% of the outreach cohort and 4.8% of the nonintervention cohort had received a refused service (adjusted hazard ratio, 1.3; 95% confidence interval, 0.7-2.5). The care manager spent 214 hours performing the outreach.

**Conclusions:** Standardized educational outreach was not a promising strategy for improving preventive services use among patients who have refused services recommended by their physician. The amount of time required to perform the outreach was substantial.

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### Take-Away Points

This study examined the effects of standardized outreach on the receipt of preventive services for patients whose physicians record that the patient refused the service. A prospective observational study design included a nonrandomly assigned comparator group.

- This intervention, which included mailed plain-language educational brochures, attempted telephone contact, and assistance with scheduling, led to few patients (6.1%) obtaining the refused service over 6 months.
- The receipt of refused services did not significantly differ between the outreach cohort and the nonintervention cohort.
- The care manager time required to perform this outreach was substantial.

cohort. We stopped performing outreach after 10 months because the ongoing resources that were required did not seem justified. We selected patients who had refusals documented during the period immediately following the intervention, November 26, 2008, to December 1, 2009, as a comparator nonintervention cohort (excluding patients who were already included in the outreach cohort).

nal medicine practice in Chicago, Illinois, using a commercial electronic health record (EHR) (EpicCare, spring 2007 version; Epic Systems Corporation, Verona, WI). Northwestern University's institutional review board approved the study. Thirty-nine attending physicians, 1 nurse practitioner, and more than 120 residents worked at the clinic during this time.

We previously reported the details of the overall quality improvement context within which this study took place.<sup>18</sup> Physicians received quarterly reports of the quality of care received by their primary care patients and had point-of-care reminders provided by the clinical decision support system in the EHR. Physicians were encouraged to record preventive services that patients reported receiving from other providers. Physicians were asked to record standardized exceptions that explained why a service that seemed to be indicated was not performed. We suggested that physicians record a medical exception when a service was not recommended because of a contraindication, an intolerance, or a suspected lack of clinical benefit because of a patient's clinical condition. We encouraged physicians to record a patient refusal when they recommended a test or treatment but the patient actively refused. We advised physicians not to record an exception when there was a transient reason for not performing a service or if the patient intended to obtain the service elsewhere. Because recording of exceptions turned off computerized reminders, physicians were advised that they should not record an exception if they wanted to be reminded to address a preventive care issue again at the patient's next visit.

Patients were eligible for inclusion in this study if a physician entered standardized documentation in the EHR that the patient had refused a preventive service that the physician recommended. The preventive services we examined included colorectal cancer screening, breast cancer screening (mammography), cervical cancer screening, osteoporosis screening (bone density testing), and pneumococcal vaccination; the numbers of patients in the practice eligible for each of these services at the start of the study were 7067, 3539, 7462, 2966, and 1816, respectively, approximately 12,000 patients overall.<sup>18</sup> Patients with refusals documented between February 8, 2008, and November 25, 2008, constituted the outreach

This group was selected for comparison in a quasiexperimental design to assess whether there was an underlying rate at which patients who refused services but received no other structured intervention were obtaining these services.<sup>20</sup> We selected a longer period for the nonintervention cohort to increase the size of the population available and to raise the statistical power for comparisons.

### Outreach Intervention

During the outreach period, we performed an automated search of the EHR each week to identify patients with any new refusals recorded to electronic reminders for the 5 preventive services aforesaid. A nonclinician care manager (EMF) performed the following task: She reviewed the EHR to determine if any specific barriers to obtaining the refused service were documented and to assess if outreach for a preventive service seemed inappropriate. Patients who had substantial active medical or psychosocial stressors described in the EHR or for whom the preventive service seemed medically contraindicated were deemed inappropriate for outreach, and no physician contact was performed. These reasons were reviewed at weekly meetings with physician team members (SDP, NCD, DWB), who helped decide when outreach should not be performed. The care manager then sent e-mails within the EHR to patients' primary care physicians notifying them that patients would receive outreach unless the physician indicated that outreach should not be performed, mailed patients brief materials that included plain-language educational brochures relevant to each topic, attempted telephone contact 3 times, and left a callback number when possible. When telephone contact was successful, the care manager attempted to identify and resolve any barriers to obtaining the service by providing education and, when appropriate, by offering needed referrals, facilitating the scheduling of necessary appointments, or referring the patient back to the practice clinicians if questions arose.

### Measurements

All measurements were obtained using automated searches of EHR-derived data. The primary outcome for

■ **Table 1.** Characteristics of Patients Who Refused Preventive Services

Characteristic	Outreach Cohort (n = 407)	Nonintervention Cohort (n = 378)	P
<b>Age, mean (SD), y</b>	64.1 (12.9)	61.8 (14.0)	.01
<b>Sex, No. (%)</b>			.27
Male	78 (19.2)	61 (16.1)	
Female	329 (80.8)	317 (83.9)	
<b>Race/ethnicity, No. (%)</b>			.67
White	157 (38.6)	132 (34.9)	
Black or African American	142 (34.9)	128 (33.9)	
Hispanic or Latino	20 (4.9)	20 (5.3)	
Other	15 (3.7)	16 (4.2)	
Unknown or missing	73 (17.9)	82 (21.7)	
<b>Insurance type, No. (%)</b>			.02
Private	150 (36.9)	168 (44.4)	
Medicare	225 (55.3)	176 (46.6)	
Medicaid	14 (3.4)	23 (6.1)	
Uninsured or self-pay	18 (4.4)	11 (2.9)	

each patient was the time from refusal to receipt of any refused preventive service (colorectal cancer screening, breast cancer screening, cervical cancer screening, osteoporosis screening, or pneumococcal vaccination). This included (1) the result of a test or vaccination performed at this center or (2) clinician documentation in a standard field of the EHR that the test had been performed elsewhere. For patients with recorded refusals of more than 1 preventive service, the one with the shortest time from refusal to completion was used in the primary analysis. We also examined completion of the individual preventive services separately. We recorded the time spent by the care manager performing outreach.

**Statistical Analysis**

We compared time to receipt of the refused service for the outreach cohort and for the nonintervention cohort using curves obtained using the Kaplan-Meier method. We used Cox regression models to calculate proportional hazards adjusted for patient characteristics (age, sex, race/ethnicity, and insurance type as categorized in **Table 1** when appropriate). Analyses used commercially available statistical software (STATA version 10; StataCorp LP, College Station, TX).

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**RESULTS**

**Patients Refusing Preventive Services**

The characteristics of patients who refused preventive services in both cohorts are listed in **Table 1**. In the outreach cohort, 407 patients had 1 or more refusals documented for 520 preventive services. This represented approximately 3.4% of the practice population that was eligible for 1 or more preventive services. In the nonintervention cohort, 378 patients had 1 or more refusals documented for 510 preventive services. Compared with the nonintervention cohort, the outreach cohort was slightly older, was more likely to have Medicare insurance, and more frequently had refused colorectal cancer screening or pneumococcal vaccination.

**Execution of the Outreach Intervention**

We did not perform outreach for 23 of 407 patients (5.7%) because they were not included in the weekly patient outreach lists. We deemed outreach to be inappropriate for 71 of 384 patients (18.5%) after EHR review. Primary care physicians requested by e-mail that no outreach be performed for 41 of 384 patients (10.7%). We mailed outreach material and attempted telephone contact for 247 of 384 patients (64.3%) in the outreach cohort. Telephone contact was ultimately successful for 46 patients. The remainder did not answer telephone calls and did not respond to phone messages requesting that they call back.

■ **Table 2.** Preventive Services Refused and Subsequently Received Within 6 Months

Variable	No./Total No. (%)		Adjusted Hazard Ratio (95% CI)
	Outreach Cohort	Nonintervention Cohort	
<b>Patients with any refused preventive service</b>	25/407 (6.1)	18/378 (4.8)	1.3 (0.7-2.5) <sup>a</sup>
<b>By preventive service</b>			
Colorectal cancer screening	11/249 (4.4)	5/191 (2.6)	1.7 (0.6-4.9) <sup>a</sup>
Breast cancer screening	3/89 (3.4)	5/118 (4.2)	0.9 (0.2-3.9) <sup>b</sup>
Cervical cancer screening	8/60 (13.3)	6/83 (7.2)	1.9 (0.6-5.4) <sup>b</sup>
Osteoporosis screening	1/29 (3.4)	3/43 (7.0)	0.5 (0.04-4.6) <sup>c</sup>
Pneumococcal vaccination	2/93 (2.2)	2/75 (2.7)	0.6 (0.1-4.5) <sup>d</sup>

CI indicates confidence interval.  
<sup>a</sup>Adjusted for age, sex, race/ethnicity, and insurance type.  
<sup>b</sup>Adjusted for age, race/ethnicity, and insurance type.  
<sup>c</sup>Adjusted for age and race/ethnicity.  
<sup>d</sup>Adjusted for age, sex, and race/ethnicity.

### Completion of Refused Preventive Services

Few patients received any preventive service within 6 months of when the refusal was recorded in the EHR. There was no difference between cohorts in the receipt of any refused preventive service (6.1%; 95% confidence interval [CI], 4.0%-8.9% of the outreach cohort vs 4.8%; 95% CI, 2.8%-7.4% of the nonintervention cohort (adjusted hazard ratio, 1.3; 95% CI, 0.7-2.5) (Table 2 and Figure). Table 2 gives the numbers and percentages of patients in the 2 cohorts who refused services and the rates of receiving each service within 6 months. The outreach cohort and the nonintervention cohort differed in receipt of services. However, the number of patients who received any individual service was generally small, and estimates of the effect of outreach for individual services are imprecise.

Receipt of any refused service within 6 months occurred in 8.1% of patients for whom no outreach was performed, in 2.9% of patients who were mailed outreach materials but could not be contacted by phone, and in 13.0% of patients for whom phone contact was ultimately successful. These differences were significant ( $P < .009$ ,  $\chi^2$  test).

### Resources Used

Conducting outreach for 407 patients with documented refusal of 1 or more preventive services required 214 hours of care manager time. This included EHR reviews, e-mails to physicians, preparation of mailings, attempted and completed phone calls, and appointment coordination.

## DISCUSSION

Patients have the right to decline unwanted preventive care. However, if their refusals are based on inadequate information, patients may be making choices that differ from what they would decide if they were more fully informed. We pro-

vided an educational outreach intervention to patients who refused a preventive service recommended by their physician to ensure that patients received the key information that justified the use of the preventive service. We also gave an opportunity for patients to address perceived barriers that may have led them to refuse. We found no significant increase in the eventual receipt of preventive services using this approach over a 6-month time frame. Furthermore, the resources required to perform outreach were substantial.

Because few patients received previously refused services in this study, our estimates of the effects of outreach are imprecise, and our 95% CI for the primary outcome does not exclude up to a 2.5-fold increase in the use of preventive services attributable to outreach. Larger studies could provide more definitive results, or a randomized controlled trial testing these methods could be performed. However, within the confines of our study size, we believe that several relevant observations can be made about the difficulty in promoting preventive services use among individuals who have refused it. Under the best of circumstances using the data herein, a 2.5-fold increase in preventive services use would amount to only a 7.2% absolute increase in the use of refused services because the underlying rate of service use among those who had refused was so low. It is more likely that, if there is an effect of educational outreach on patients who have refused services at all, it would not lead to more than a few percentage points of absolute increase in the receipt of services among this group.

Studies<sup>1,21,22</sup> indicate that less intensive patient-directed interventions, such as mailed invitations or reminders, can increase the use of preventive services among general populations who are due for them. Our findings suggest that these approaches, while they may increase appropriate preventive services use for the population as a whole, may not have an important influence on known refusers. Furthermore, patients

## Outreach for Patients Refusing Preventive Services

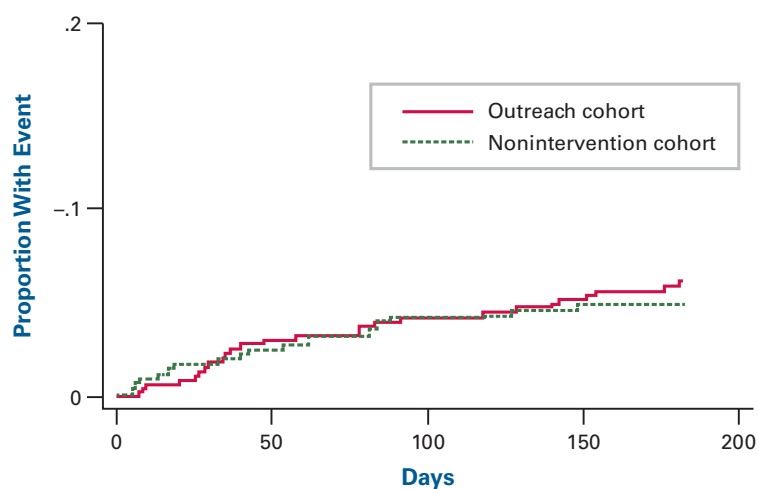
who refused services in this setting were difficult to contact by phone, and most did not return care manager calls. Healthcare providers who perform educational outreach among populations to promote the use of preventive services could consider whether recorded patient refusals captured within an EHR should be used as a way to identify patients who are not likely to respond to a simple intervention (ie, mailed reminder). Therefore, resources could be conserved by not performing outreach directed at this group whose lack of acceptance of the preventive service may be difficult to change.

Cervical cancer screening may be an area in which further study of this outreach approach is warranted. Our results indicated that the overall rate of receiving cervical cancer screening within 6 months of refusing was higher than for other services, and the measured effect of outreach on cervical cancer screening was the largest among 5 services examined. Given our limited study size, we cannot say whether these findings are simply due to chance.

Our findings have implications for performance measurement programs used for holding providers accountable. If few patients change their mind once they refuse a preventive service even after receiving extra educational interventions, there may be little that healthcare providers can do to influence measured quality for these subpopulations. Recording patient preferences in the case of refusals and incorporating these into performance measures may be necessary to prevent accountability programs from inadvertently providing incentives to providers to avoid patients who refuse recommended treatments.<sup>23,24</sup> Our study adds to prior studies demonstrating that reporting exceptions to performance measures (eg, medical contraindications, adverse effects, or patient preferences) may lead to changes in the conclusions of quality reports,<sup>25,26</sup> and that exceptions to performance measures in many cases seem justified.<sup>19,27</sup>

In addition to the size limitation aforementioned, our study has some other limitations. It was not a randomized controlled trial. While the 2 cohorts were similar and although we adjusted for some potential confounders, the possibility of residual confounding remains. We examined the effect of only a 1-time outreach intervention performed by a nonclinician. We did not address all potential reasons patients may have for refusing; the intervention was designed to provide patient education and to refute common misconceptions, but there may have been other cultural beliefs held by patients that were not addressed. We do not know if repeated outreach or outreach conducted in a different fashion would have produced differ-

■ **Figure.** Kaplan-Meier Curves Showing Cumulative Incidence of the Receipt of Any Refused Preventive Service in the Outreach Cohort and in the Nonintervention Cohort



ent results. We did not formally assess patients' reactions to the outreach, so we do not know if patients were bothered by being contacted about healthcare services that they had already discussed and had told a physician they did not want. Because our study was performed at a single large site, we do not know how well these findings generalize to other practice settings.

Our results do not support the use of educational outreach for patients who refuse recommended preventive services, and the resources required to perform individualized outreach are considerable. Practices that use care managers and conduct educational outreach may want to apply their resources to other priority areas. To ensure that patients who refuse recommended preventive services receive essential information that may not have been provided during brief office visits, lower-cost approaches could be used, such as automating the provision of appropriate low-literacy educational information at the point of care.

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DK, DWB); statistical analysis (SDP, JAT); obtaining funding (DWB); and administrative, technical, or logistic support (EMF, DK).

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