



# Increasing screening mammography among predominantly Spanish speakers at a federally qualified health center using a brief previsit video



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## ABSTRACT

**Objective:** Assess the impact of a 5 min video on screening mammogram referrals and completion.

**Methods:** We recruited women ages 40 years or older without a current mammogram at a federally qualified community health center (FQHC). Women were assigned to the intervention or usual care. Immediately prior to their appointments, women in the intervention group viewed a brief video that included a demonstration of how patients may request a mammogram referral. All women completed a pre- and post-visit telephone survey about knowledge of breast cancer screening and patient activation. **Results:** Mean age was 52 years, 50% had less than a high school education and 75% preferred Spanish. The proportion of mammogram referrals in the intervention group was significantly higher than the control group, 37% vs. 15%, respectively ( $p < 0.01$ ). Similarly, the intervention group had a higher proportion of completed mammograms, 33% vs. 13% ( $p < 0.02$ ). There were no differences in breast cancer knowledge or patient activation between the intervention and control groups.

**Conclusions:** A brief, pre-visit video significantly increased screening mammography referrals and completion in this mostly Spanish-speaking FQHC population.

**Practice implications:** Our intervention demonstrates the effectiveness of a brief-video intervention in a population with low education and low English language proficiency.

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## 1. Introduction

Breast cancer is the second most commonly diagnosed cancer in women [1] and disproportionately affects women with low formal education, those residing in lower income areas and minority women, including Latina women. For example, Latina women have a lower 5 year survivorship compared with non-Latina white women, 87.0% vs. 88.6% [2]. These disparities may reflect differences in stage at diagnosis, access to treatment, or differences in tumor characteristics [3]. Minority women as well as those with low income or low formal education, disproportionately seek care in safety net health care settings [4], which have experienced recent cuts in federal funding [5]. As a result, comprehensive interventions, although effective, may not be sustainable in these settings. Developing effective, low resource interventions in safety net settings are an important strategy to improve quality care.

Digital media can serve as a powerful vehicle for communicating standardized health information to patients in a replicable manner. Several studies have investigated the use of video-based materials to increase knowledge, but few have demonstrated improvements in mammography uptake [6–9]. Some reasons for this may be the atheoretical approaches to developing some video interventions and their lack of connectivity to clinical care. Moreover, it is unclear whether there is incremental benefit of these materials beyond provider-focused clinical decision support tools or patient navigation.

In this study, we tested the effect of a brief pre-visit video developed using social cognitive theory principles on referral and completion of screening mammography in a safety-net clinic population.

## 2. Methods

### 2.1. Study setting

Federally qualified community health centers are a critical component of the safety net health care system in the United States. In exchange for enhanced federal and state reimbursement

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for services, they must care for an underserved area or population, provide comprehensive services and offer sliding scale fees for services [10]. The federally qualified community health center network used in this study is located at two different geographic locations within a large urban city and provides care for a combined population of 22,000 adult patients. These sites have 22 primary care providers including internists, family medicine physicians and obstetrics and gynecology providers. There are also 11 nurse practitioners that see patients independently at these sites. Providers are bilingual in English and Spanish, and communicate with patients in their preferred languages. All sites share a common EHR system that provides clinical decision support to all health care providers, including an alert system for overdue preventive health services such as mammography. This system was in effect and unchanged throughout the duration of the study. In addition, all sites have preventive health “navigators” that track individual patients who have already received mammogram referrals and provide assistance in addressing attitudinal or logistic barriers to mammography. All women in the study, both intervention and control, had access to these services. Navigators and providers were blinded to study participation status.

## 2.2. Video intervention development

The video was developed by adapting a previously developed video [11] to incorporate the framework of social cognitive theory, which recognizes the importance of context on an individual's behavior. While we incorporated numerous elements of social cognitive theory, novel elements of the video incorporated the two key concepts: vicarious learning and outcome expectancy. *Vicarious learning* posits that individuals learn by watching others and *outcome expectancy* posits that individuals are more likely to engage in a behavior from which they expect a positive result. The video demonstrates both of these concepts through a brief, thirty second encounter between a patient and provider. In this demonstration, the provider sets a chronic disease-focused agenda for the visit, while the patient acknowledges the chronic disease agenda and prompts the provider about her mammogram referral. This portion demonstrates the language a patient can use to engage the provider and aims to increase the viewer's skill and comfort level in requesting a recommended referral (*vicarious learning*). The provider acknowledges the patient's request and states she will see if the patient is due (positive *outcome expectancy*).

In addition to the novel features described, the video explains the importance of mammography and demonstrates the experience of undergoing mammography. The video shows how breast cancer grows and spreads if undetected and how a mammogram can detect breast cancer before a woman develops any symptoms such as a lump. It also informs women about the experience of screening by showing a woman undergoing a mammogram. Lastly, to reflect the diverse target population at the health center, we included images of women of different ages and races in the video.

## 2.3. Video refinement

After developing a video prototype, a bicultural research assistant conducted both focus groups and one-on-one interviews with patients at the federally qualified health center (FQHC) for feedback upon viewing the video. During the focus groups, participants were asked to comment on stylistic elements of the tool as well as preferences on content and presentation. The video was modified to incorporate feedback from the focus groups and tested for feedback again during face-to-face interviews. The individual interviews elicited responses on the clarity of content, visuals, and messages presented in the educational tool. The final version of the video was created in both English and Spanish based

on input from participants. This video can be viewed at the Northwestern University General Internal Medicine website <http://cch.northwestern.edu/edtools/>.

## 2.4. Sample

We recruited women from two FQHCs, serving a predominantly Latino population. We determined sample size based on feasibility in the clinic. We performed an initial power calculation for 100 participants (50 per arm), and assumed an expected mammogram referral and completion rate of 10% in the control arm. With this assumption, we would be able to detect a difference in referral or completion rates of 23% with 50 women in each group at 80% power. Initial recruitment involved identifying eligible patients through EHRs. Women were eligible if they were (1) forty years and older, (2) did not have a current screening referral, (3) had not completed a mammogram within two years, and (4) had a primary care appointment in the upcoming 2 weeks. At the time the study was developed, clinical guidelines still recommended mammogram screening for women 40 and older [12]. However, just prior to recruitment, the revised United States Preventive Services Task Force released a new guideline stating that data were insufficient to recommend screening for women aged 40–49 [13]. These changes were discussed with clinical providers at the FQHC and the decision was to deliver the screening messages unchanged. Of note, in the United States, there is no national program for mammogram referral, thus decisions regarding mammography referrals occur nearly exclusively at the point of care. The study was reviewed and approved by Northwestern University's Institutional Review Board.

## 2.5. Measurement

Participants completed two telephone interviews to assess breast cancer knowledge and patient activation, at baseline (prior to any intervention) and after their primary care appointment. Breast cancer knowledge was measured using a previously studied 10-item measure which assessed breast cancer knowledge in five domains using True/False responses [11]. The five domains included (1) family history, (2) breast cancer symptoms, (3) physical exam findings, (4) mammography effectiveness, and (5) curability.

Patient activation was measured as a continuous score using the 13-Item Patient Activation Measure (PAM), which is an instrument validated in both English and Spanish that measures an individual's knowledge, skills and confidence needed in managing one's own health and healthcare. Example items include: *'Taking an active role in my own health care is the most important factor in determining my health and ability to function'* and *'I am confident that I can tell a doctor concerns I have even when he or she does not ask'*. Scores range from 0 to 100, with higher scores indicating greater activation. The scale has validity as a continuous measure and can also categorize respondents into four stages of activation: (1) disengaged and overwhelmed ( $\leq 45.2$ ), (2) becoming aware but still struggling (47.4–52.9), (3) taking action (56.4–66.0), (4) maintain behaviors and pushing further ( $\geq 68.5$ ). The measure is considered a non-illness-specific measure which captures aspects of motivation and engagement with health and self-management behaviors [14,15].

We also gathered self-report of whether a mammogram was requested in the posttest.

Chart reviews were conducted by a trained research assistant (RA) to assess receipt of mammogram referrals and mammogram completions among all participants, regardless of group assignment. The RA determined referral status (yes/no) based on a manual review of patients' EHRs; only mammogram orders placed on the same day as their appointment were used to determine referral status. Similarly, women were considered to have a

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