Improving breast cancer screening in a federally qualified health center with a team of nursing leaders

Abstract: To improve breast cancer screening in a federally qualified health center, NPs developed a collaborative team of nurses to implement innovative strategies that improved mammography rates from 23% to 40% over a 12-month period. Through shared expertise, this team led the way in translating mammography guidelines into clinical practice.

By Jill C. Muhrer, MSN, FNP-C

In 2010, the Institute of Medicine (IOM) report *The Future of Nursing: Leading Change, Advancing Health* recommended that all nurses lead in the transformation of healthcare by developing policy at all levels.[1] NPs, in their role as advanced practice registered nurses, are in an ideal position to research, develop, and implement policies and programs that keep pace with scientific advances in healthcare. NPs offer unique skills aimed at translating evidence-based guidelines into practice, narrowing the gap between recommended clinical guidelines and their implementation.[2]

The gap between mammography recommendations and practice

Breast cancer screening is one example of a disparity between recommendations and clinical practice. Breast cancer is the second leading cause of cancer death in women.[3] In 2015, the American Cancer Society (ACS) revised the clinical guidelines for breast cancer screening by changing the recommended age for beginning yearly mammograms for women of average risk from 40 to 45, moving to every other year at age 55 (see *Summary of the ACS 2015 breast cancer screening guideline for women at average risk*).[4] Additionally, in 2016, the United States Preventive Services Task Force (USPSTF) updated their breast cancer screening recommendation. The USPSTF recommends mammography screening every 2 years for women of average risk beginning at age 50 until age 74 (see *Summary of the USPSTF 2016 breast cancer screening recommendations*).[5]

In 2010, despite the demonstrated efficacy of mammography in reducing breast cancer mortality, only 66% of eligible women had a mammogram.[6,7] The lowest utilization rates are among low-income, under- and uninsured women, racial and ethnic minorities, women with limited education, and those without a primary care provider.[8,9] In 2010, only 50.6% of Black women, 46.5% of Hispanic women, and 47.7% of Asian American women had completed a mammogram within the past 2 years, and the rate of mammogram use was just 16.9% for low-income women.[5]

Federally qualified health centers and safety net care

Federally qualified health centers (FQHCs) are nonprofit organizations funded by grants through the Public Health Service Act that focuses on delivering comprehensive primary care to underserved populations by offering services to all individuals regardless of ability to pay.[10] Through increased funding from the Affordable Care Act, more women who visit these centers now qualify for mammograms through Medicare and Medicaid expansion programs, reducing financial barriers.[9] Although FQHCs provide a critical safety net and primary care to underserved women, the combination of a high volume of complex patients with urgent problems, competing clinical priorities, and staffing shortages create significant obstacles to screening.[11,12]

A large FQHC in southern New Jersey provides comprehensive primary care to 37,380 patients (or 41.7% of an urban ethnically diverse population) through eight neighborhood health centers.[10] Over 95% of the patients who visit these centers live below 200% of the poverty level, and 22.7% are uninsured.[12] Racial and/or ethnic minorities comprise 87.3% of the population served, and 44.8% are best served in a language other than English.[10]

Despite a 40% to 50% no-show rate for preventive care and a focus on acute care visits, clinicians are committed to providing preventive care for their patients. These providers face the same barriers that are common in other FQHCs,

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including high patient loads, shortened appointment times, a focus on acute care, and limited staffing.[11,12] As a result, the annual mammography rate for internal medicine providers at all sites has averaged 23%.

Improving breast cancer screening rates

In order to improve this rate, NPs developed a team of nurse experts to develop and implement a quality improvement project to increase mammogram use in the North Office. Because the FQHC internal medicine department had selected increased mammogram referral and screening rates as its clinical goal, these statistics were routinely presented at monthly staff meetings, and therefore, institutional review board approval was not required. The team consisted of 4 NPs, 2 RNs, and a nurse manager.

Summary of the 2015 ACS breast cancer screening guideline for women at average risk[4]

- Women ages 40 to 44 should have the choice to start annual breast cancer screening with mammograms if they wish to do so after reviewing the risks and benefits.
- Women should begin regular annual mammography screenings at age 45.
- Women age 55 and older should have biennial screenings or have the opportunity to continue screenings annually.
- Women should continue mammography screenings for as long as they are healthy and have a life expectancy of at least 10 years.
- Clinical breast examination is not recommended for women of average risk at any age. Women should be familiar with how their breasts normally look and feel and report any changes to a healthcare provider.

These guidelines apply to women at average risk of breast cancer, such as those without a personal or family history of breast cancer, a genetic mutation (such as BRCA, which is known to increase breast cancer risk), and women who have not had chest radiation therapy at a young age.

Summary of the USPSTF 2016 breast cancer screening recommendations[5]

- Women of average risk should begin biennial mammography screening starting at age 50 until age 74.
- The decision to start screening for women ages 40 to 49 should be an individual one.
- For women age 75 and older, there is insufficient evidence to make a recommendation.
- There are no specific recommendations for women at high risk for breast cancer.

These recommendations apply to asymptomatic women age 40 and older without a preexisting breast cancer or a previously diagnosed high-risk breast lesion and those who are not at high risk for breast cancer due to a known genetic mutation (such as a BRCA1 or BRCA2 gene mutation or other familial breast cancer syndrome) and women without a history of chest radiation at a young age.

Several nurses had complementary expertise in areas such as public health, patient navigation, information technology, and office management. Utilizing a transformational leadership approach that focused on empowering others through partnership, communication, and building self-esteem, this team incorporated a collaborative methodology that focused on sharing areas of knowledge and expertise to develop innovative strategies.[13]

The conceptual framework for the team strategies was based on the Clinical-Community Relationships Measures (CCRM) Atlas and the Clinical-Community Relationships Evaluation Roadmap developed by the Agency for Healthcare Research and Quality to evaluate the effectiveness of reciprocal relationships between the clinic/clinician dyad, the patient, and the community in the delivery of preventive services.[14]

The theoretical basis of the CCRM evolved from Etz's bridging model, which examined the ability of the clinic/clinician dyad and the community to develop a meaningful connection.[14] Donabedian's structure-outcome-process model was another basis, which examined those relationships within the context of health services and patient outcomes.[14] The CCRM also uses the socioecological model to account for the individual characteristics of patients, their families, the organizational structure, and broader healthcare policies in order to assess other key factors that influence preventive care.[14]

The Evaluation Roadmap is a research guide based on the CCRM model, which specifically addresses prioritizing future research questions.[14] Together, the CCRM and Evaluation Roadmap frameworks provide a comprehensive and meaningful approach to the delivery of breast cancer screening in FQHCs and an excellent guide for initiating a program (see *Application of the CCRM Atlas*).

Integration

In order to integrate these concepts into the intervention, each nurse contributed a different set of skills to the leadership team. One of the NPs had expertise in electronic medical records (EMRs). She generated lists of eligible patients, created EMR reminders, and tracked referral and screening rates. Two nurses organized a program to remind patients about appointments and initiated mammogram referrals.

The nurse manger supervised technicians who flagged charts of eligible patients, obtained results, scheduled appointments, and coordinated care with patients and families. Finally, the team collaborated with a nurse at a local hospital who had public health and navigation expertise to obtain mammograms for uninsured patients through their free mammogram program.

Team members also fostered patient engagement through education and health fairs, promoting self-management and preventive behaviors. At health fairs, nurses

led a class on breast health asking patients to share beliefs, concerns, and goals for breast cancer screening. Information was subsequently used to develop targeted, culturally appropriate educational materials.

Despite being a strong team, members faced numerous challenges to achieving their goals. Competing and busy schedules were barriers to consistent communication. Alternative forms of contact (e-mail, conference calls, text messages, and faxes) helped them overcome these barriers. They also created a "café" with the purchase of a coffee machine to facilitate informal communication that ultimately created an environment for sharing experiences in a relaxed, informal manner that helped build a confident team.[15]

The unexpected resignation of two nurses added to the challenges. The team moved forward by improving their efficiency through shared responsibilities and team consolidation, demonstrating that a small team size could promote effective decision-making.[16] Furthermore, they strengthened infrastructure and collaboration by sharing and pooling strengths of the multidisciplinary team (data, transportation systems, outreach, and social workers) across agencies.

The results: Mammography rate improvements

As demonstrated by the mammogram data collected by the Information technology (IT) department, the nursing team was successful in improving breast cancer screening at the North Office. The mammogram referral rate for eligible women was calculated as the number of mammograms ordered divided by the number of mammograms not done in the past 12 months. The mammogram screening rate was calculated as the number of women who had completed mammograms within the past year divided by the number of eligible women.

Since the project's inception in June 2014 through its completion in June 2015, 1,500 women met the screening criteria; of those, 901 eligible women who had not completed mammograms received mammogram referrals (100%), and 599 (40%) completed their mammograms. In addition, the North Office's screening rate was higher than the average screening rate (28%) of the entire internal medicine department. Ultimately, nursing leaders narrowed the gap between mammography guidelines and uptake within the practice. Their current goal is to continue to increase these rates and to implement this approach at all eight offices.

Limitations

These results were based on a small-scale mammography improvement project in one satellite office of a single FQHC; therefore, the generalizability of these findings is limited by design factors that could be addressed in a future research study. These limitations include the lack of randomization of staff and patients, the small sample size, the inability to collect pretest data, and the omission of specific patient demographics that could have influenced screening results. Despite these drawbacks, the screening outcomes utilized as quality measures by this FQHC support the effectiveness of the nurses in improving mammography referral and completion rates.

Application of the CCRM Atlas[14,15]

Structure domains

- Clinic/clinician: IT can identify patients eligible for mammograms and can track mammogram rates. Trained nurses use data to notify patients and set up appointments for mammograms.
- Community resources: Interfacing community helps clinicians identify and track eligible patients and to share mammogram rates with multiple providers and with patients. Navigators can link clinics, clinicians, and patients with mammogram services. Shared resources improve both delivery and sustainability of preventive services.
- Patients: Capacity for self-management, ability to access mammogram services through the clinic and through community resources.

Process domains

- Clinic/clinician: Development of team to improve referrals, assessment and goal setting, shared responsibilities, system for feedback and communication, and revisions in strategies.
- Community resources: Local healthcare programs offer supplementary services and use of interdisciplinary team with allied healthcare providers. Marketing of services through posters, health fairs, and shared resources.
- Patients: Communicate to assess readiness for change, offer resources for change, education, and information sharing to promote shared decision making, self-management, and patient involvement in referral and tracking process.

Outcome domains

- Clinic/clinician: Team functions cooperatively, workflow is seamless, team uses resources to maximize efficiency in higher mammogram referral and screening rates.
- Community resources: The FQHC and local hospitals share resources to provide free mammograms to uninsured patients, offering screening equally to all eligible patients.
- Patients: Become knowledgeable about mammograms, use resources to improve access, and can advocate to promote breast cancer screening.

Nursing leadership

The team of nursing leaders in this FQHC has demonstrated that nurses can improve preventive care practices via creative and collaborative strategies. As clinical experts, nurses often assume roving leadership roles, which occur when appointed leaders facilitate leadership skills among the entire team based on inherent skills or strengths that emerge in specific situations.[17] Although it has been routinely shown that nurses can

effectively nurture and direct a team to implement strategic changes, nursing leadership remains undervalued compared with more conventional systems of management.[18,19]

Engaging and recognizing leadership skills among all nurses in clinical settings is critical to translating research into practice. Furthermore, fostering leadership development in the clinical setting as well as academically will advance the role of nursing leaders within the entire healthcare system, and in doing so, will answer the IOM's call for nurses to take a transformative leadership role in shaping tomorrow's healthcare.

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Jill C. Muhrer is an adult NP at Urban Health Institute, Camden, NJ.

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