

Improving Mammography Screening Percentages in Overdue Women: A Tribal Medical Track Quality Improvement Project

Gunnar Phillips, OMS-III, Oklahoma State University for Health Sciences, College of Osteopathic Medicine at Cherokee Nation, Tribal Medical Track

Krista Schumacher, PhD, Oklahoma State University Center for Health Sciences, Center for Rural Health

Corresponding Author:

Gunnar Phillips, OMS-III

918-935-8520

gunnar.phillips@okstate.edu

OSU College of Osteopathic Medicine at Cherokee Nation

Disclosures: This work was partially funded by the Health Resources and Services Administration's Centers of Excellence program (Grant D34HP45722). There are no conflicts of interest to disclose.

Abstract

Background

In Cherokee County, mammography screening percentages are below the overall state and national averages. This is problematic as adequate and timely mammograms can detect breast cancer at an earlier stage. This quality improvement (QI) project, conducted during a four-week clinical rotation, aimed to increase screening among overdue patients at a Cherokee Nation family medicine clinic and to assess the feasibility of conducting QI studies during short rotations.

Methods

During scheduled in-clinic appointments with eligible patients, the medical student assigned to the patient's physician used motivational interviewing (MI) to encourage women to schedule mammograms. Patients' electronic health records (EHRs) were then reviewed on December 20, 2023 to determine if a completed mammogram appointment had been recorded.

Results

Only two patients seen during the project timeframe were overdue for screening, and one completed screening by the project cutoff date.

Conclusion

Targeted motivational interviewing during scheduled in-clinic appointments may increase on-time mammograms. The project demonstrated the feasibility of conducting QI projects during short rotations, but also identified challenges of reaching targeted patients who may or may not visit the clinic during the rotation.

Keywords: Mammography, breast cancer, preventive screening, tribal medicine, quality improvement, medical education

Introduction

In Cherokee County, mammography screening percentages in eligible female patients are below the overall state and national averages.¹ This is problematic because adequate and timely mammography screening can detect breast cancer at an early stage, significantly reducing breast cancer mortality, which is one of the most diagnosed and deadly cancers among women in the United States.²

Mammograms have been shown to reduce breast cancer mortality. Using data from nearly 2.8 million mammography-screened women aged 40-74, researchers in Canada concluded that the average breast cancer mortality among study participants was 40% lower than expected.³ Despite evidence that mammograms can save lives, some women may not receive them, whether by choice or circumstance. A 2018 study found that some women refuse mammograms due to previous negative physical and psychological experiences with screening, while others may miss screening due to a lack of active promotion by health care providers or lack of availability due to transportation or other barriers.⁴

A strategy to improve screening rates that can be employed during scheduled appointments involves motivational interviewing (MI). Allowing the clinician to guide the patient to a more beneficial way of thinking, MI can lead to patients changing their behavior to improve their health.⁵ Using this interview style gives clinicians a greater chance of effecting lasting, positive change in patients' lives.

One way to examine the effectiveness of MI is through a quality improvement (QI) project. QI attempts to improve patient safety and quality of health care through a series of Plan-Do-Study-Act cycles. The Accreditation Council for Graduate Medical Education (ACGME) mandates QI education for resident-level physicians,⁶ and Cherokee Nation Health Services requires residents to complete one QI project and one scholarly activity during residency.⁷ At the undergraduate medical education (UME) level, however, more education in QI is needed to facilitate a stronger foundation of knowledge before students graduate to residency and are expected to engage in formal QI projects themselves.⁸

To integrate QI training into UME at the OSU College of Osteopathic Medicine (OSU-COM), the course CLME 8122 Early Research Experience (ERE) was created for students in the rural, tribal, and urban-underserved medical tracks. Students complete free modules via the Institute for Healthcare Improvement (IHI) to earn the IHI Certificate in Quality & Safety and develop a QI project plan related to clinical care. This project, which emerged from the ERE course, aimed to assess the effectiveness of MI in increasing mammograms among overdue patients. It also explored the feasibility of conducting QI projects during UME clinical rotations.

Methodology

This project was part of a four-week family medicine clinical rotation at the Cherokee Nation (CN) Outpatient Health Center in Tahlequah, Oklahoma in the fall of 2023. It was reviewed and determined to not meet the criteria for human subjects research⁹ as defined by 45 CFR 46.102 by

the OSU-COM Institutional Review Board (IRB # 2023096). CN Health Services approved the project prior to implementation after a presentation by the medical student and lead author (GP). American College of Radiology (ACR) breast cancer screening guidelines were used to identify patients seen during the rotation who were overdue for mammograms through an electronic review of patient charts. Of these patients, two met the criteria. GP used MI with these patients to encourage them to schedule mammograms and identify screening barriers. Patients' electronic health records (EHRs) were reviewed on December 20, 2023, to determine if a completed mammogram appointment had been recorded.

Results

Of the two eligible patients interviewed, one was screened before the project cutoff date. Patient comments on the overall utility of mammography as a screening tool were largely positive, and both patients reported an understanding of why screening is beneficial. Comments varied regarding why patients were overdue, including lack of time, needing to be made aware they were overdue, and disinterest in screening. When asked whether they planned to get screened, responses differed. One patient with a family history of breast cancer intended to get screened after realizing she was overdue, while the other indicated that she never planned to have a mammogram, preferring to rely on breast self-exams over mammograms.

Discussion

Multiple factors determine whether patients obtain mammograms. For overdue patients, decreased screening percentages may stem from a perceived lack of time to schedule and ultimately complete screening or a simple lack of awareness that they are due/overdue for screening. For other patients, the decision may involve a personal belief that mammogram screening is not important enough to their overall health to complete.

All eligible patients, regardless of whether they completed mammogram screening in the past or plan to in the future, should be informed of its potential to markedly reduce breast cancer mortality. If brought to their attention, patients may be willing to engage in screening talks if clinicians initiate the discussion. Providers can then tailor conversations to best address patient concerns, while also using MI to encourage eventual screening.

Conclusion

The project demonstrated that conducting QI projects during four-week UME clinical rotations in family medicine is feasible. The electronic chart review to determine patient eligibility took little time away from other aspects that needed to be addressed before the appointment (e.g., review of lab values and other chief complaints related to the appointment). Further, the QI project did not detract from study time needed for the required end-of-rotation COMAT exam.

Medical students who implement QI projects are well-positioned for QI requirements in residency and future practice. In addition, students gain experience in scholarly activities while simultaneously helping clinics improve patient care. Family medicine rotations, with less-intensive time constraints than other rotations, make them ideal opportunities for student-run QI efforts. The findings from this project suggest that MI during scheduled appointments may

contribute to increased mammography screening as well as other types of screenings. Such conversations with patients are ideal opportunities for students to test QI efforts to improve patient care.

Acknowledgements

Thank you to Cherokee Nation Health Services for their support of this project.

References

1. County Health Rankings and Roadmaps, Cherokee County, OK. January, 2022. Accessed November 23, 2023. [Cherokee, Oklahoma | County Health Rankings & Roadmaps](#)
2. Key Statistics for Breast Cancer. American Cancer Society. October 6, 2022. Accessed November 21, 2023. [Breast Cancer Statistics | How Common Is Breast Cancer?](#)
3. Coldman A, Phillips N, Wilson C, et al. Pan-Canadian study of mammography screening and mortality from breast cancer. *J Natl Cancer Inst.* 2014;106(11). doi:10.1093/jnci/dju261
4. Sterlingova T, Lundén M. Why do women refrain from mammography screening? *Radiography.* 2018;24(1):e19-e24. doi:10.1016/j.radi.2017.07.006
5. Rollnick S, Miller WR, Butler CC, Aloia MS. Motivational interviewing in health care: helping patients change behavior. *COPD.* 2008;5(3):203-203. doi:10.1080/15412550802093108
6. Herman DD, Weiss CH, Thomson CC. Educational strategies for training in quality improvement and implementation medicine. *ATS Sch.* 2020;1(1):20-32. doi:10.34197/ats-scholar.2019-0012PS
7. Academics. Cherokee Nation Health Services. Accessed January 4, 2024. <https://health.cherokee.org/family-medicine-residency/academics/>
8. Aredo JV, Ding JB, Lai CH, et al. Implementation and evaluation of an elective quality improvement curriculum for preclinical students: a prospective controlled study. *BMC Med Educ.* 2023;23(1):66. doi:10.1186/s12909-023-04047-0
9. Texas A&M University-Corpus Christi. Do I need IRB review? Texas A&M University-Corpus Christi. Accessed January 4, 2024. <https://www.tamucc.edu/research/compliance/irb/review.php>