

# Increasing Monofilament Examinations as a Means of Teaching Quality Improvement

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**T**he North Carolina Area Health Education Centers (AHEC) program has the mission of meeting “the state’s health and health workforce needs by providing educational programs in partnership with academic institutions, health care agencies, and other organizations committed to improving the health of the people of North Carolina.” Traditionally, the educational programs have focused on providing lectures on a variety of medical topics, chosen through partnerships between the AHEC’s constituents and faculty at the state’s medical schools.

Recently, there has been an increasing appreciation that lecture-based curriculums alone are relatively ineffective for improving quality of care. Greater attention has been focused on developing and implementing curriculums that seek to blend knowledge transmission and the development of skills in practice change. The Accreditation Council for Continuing Medical Education is requiring all providers of category one continuing medical education credits to incorporate practice improvement methodology into 50% of their programs by 2010, with a proposed increase to 100% by 2012. To make AHEC-based curriculums more effective, we sought to test a longitudinal, skills-based curriculum that would use the topic of diabetes to teach quality improve-

ment (QI) techniques to AHEC constituents.

We chose to conduct a pilot test of this new curriculum in partnership with the Southeast AHEC (SEAHEC) based in Wilmington, N.C. As part of its mission, SEAHEC oversees residencies in internal medicine, obstetrics and gynecology, and surgery. The Department of Internal Medicine consists of six faculty and 23 residents. Its internal medicine clinic sees 40–60 patients per clinic session, with five to seven clinic sessions per week. The number of patients with diabetes varies, ranging from 3 to 17 per clinic session in the period of data collection for this project.

## Pilot Project

Initially, a project charter was developed with input from the University of North Carolina (UNC) and SEAHEC medicine faculty. The charter outlined goals and plans for the curriculum series. The overall objective was “to improve the care of patients with diabetes by reviewing core topics in diabetes care, measuring performance, implementing reliable care processes, and gaining momentum for ongoing improvement after the end of the series.” We recommended picking one area of diabetes care and focusing on one measure. The group would then use repeated, small-scale measurement to drive improvement. At each meeting, a UNC faculty member would present a lecture on a particular topic at a

Grand Rounds session and then meet with a smaller group of SEAHEC faculty and staff participating in the improvement project. The lecture topics included an overview of QI methods, cardiovascular risk reduction in patients with diabetes, blood pressure control in diabetes, diet and exercise, foot care, and glycemic control. Each lecture reviewed current best practice evidence, as well as improvement strategies, including improvement experiences from the UNC internal medicine clinic.<sup>1</sup> The team meetings took place in a nearby conference room and were attended by two to five SEAHEC faculty and residents. Nurses and staff from the practice were invited but were not able to attend regularly.

The first meeting (October 2007) reviewed key components of QI, goals of the series, recommendations for measures, and a brief outline for improvement activities. The SEAHEC group was asked to perform a self-assessment by gathering data on multiple diabetes measures during one week. This activity helped them recognize that they did not have a method to easily identify patients with diabetes. The assessment showed that they were doing well in some areas (90% had an A1C test in the past year) and had room to improve on others (12% had a documented eye exam, and 32% had a documented monofilament exam in past year).

The assessment was reviewed at the December 2007 meeting, and the

team decided to focus on an area with low performance. The team considered monofilament examination and eye examination. Eye examination was not chosen because of the need for outside referrals; monofilament examination was considered a better target because it was almost entirely within the control of the practice. After the meeting, the group identified a medical intern (BB) to join the project and lead the data collection.

Their proposal for intervention included participation of both nurses and resident physicians. Nurses would identify patients with a “diabetes” sticker on the chart and a “date of monofilament exam” sticker on the intake sheet. The nurses would ask patients the date of their last foot exam and ask them to remove their socks and shoes. Signs would be posted in exam rooms asking patients to leave their socks and shoes off. The resident physicians were alerted to note the diabetes sticker and perform the monofilament exam as an integral part of the visit. A sign posted in the physicians’ room reminded residents to document the monofilament exam in their clinic notes.

The group planned to initiate its intervention and collect data for 2 weeks beginning in January 2008. Because of a shortage of attending physician coverage affecting the availability of the lead faculty member, implementation and data collection was delayed until February 2008. Charts were collected and assessed for correct identification by diabetes sticker, completion of a monofilament exam at all, and completion of correctly administered monofilament examination (Figure 1).

In early March 2008, the team reviewed the data. At the end of the 2-week data collection, monofilament exam completion rates did improve. However, adherence rates to the proposed intervention by the residents were low. The project team felt that this was because of low “buy in” because the residents did not view monofilament exams as clinically important. There were also issues with incomplete data collection because only one person was performing the measurements. In mid-March 2008, the team proposed having nurses complete the monofilament exam. The nurses, however, had recently been given other new, higher-priority triage tasks to com-

plete, so that idea was deferred. In late April 2008, data was collected during one clinic session and showed that the nurses’ fidelity in placing the diabetes chart stickers remained high (> 70%), but the performance of monofilament exams by the resident physicians was lower (28%).

### Accomplishments

Our pilot project met some of our goals, including reviewing core topics in diabetes care and QI concepts. However, we were less successful in producing sustained change in practice. The SEAHEC team was able to assess overall performance and collect real-time data after initiating their intervention. Although the data were reviewed by the project team, they were not used to refine the intervention. The improvement team experienced barriers that many groups face when undertaking quality initiatives, such as low group buy-in and a shortage of personnel and time devoted to project work.

Although limitations in resources may seem to be a major obstacle to improvement, successful improvement often is more dependent on realignment and refinement of relationships and duties than on garnering additional personnel or equipment. For example, the lack of direct involvement in planning by the nurses and staff may have affected the nature of the intervention and its likelihood of success. Additionally, a more intensive training (beyond the lectures and team meetings used as part of this project) may be required to help produce robust improvements.

Although we were unable to use continuous measurement to drive the improvement process through multiple PDSA (plan-do-study-act) cycles, the team did gain valuable experience performing improvement work and insight into the culture needed to support its suc-

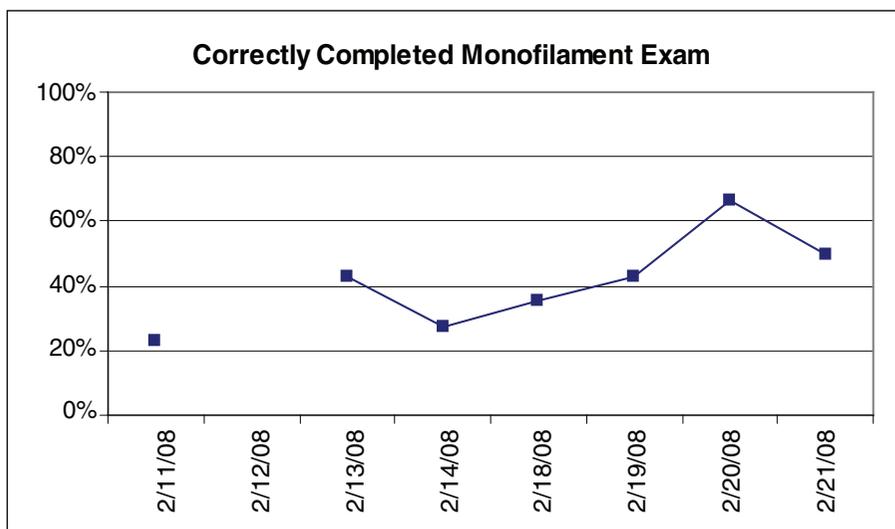


Figure 1. Monofilament examination rates

cess. Indeed, it appears that they have gained momentum for future improvement activities, because they are exploring opportunities to work with a local initiative on a future diabetes QI project.

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#### REFERENCES

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