

2014 SEAC Submission
UNMSOM Patient Safety Quality Improvement Proposal

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Project Title:

Quality Improvement Projects During a First Year Rural Medical Student Experience

Background of the Project:

Patient Safety and Quality Improvement (QI) are standard of care in medical practice, required by the RRC for residents, the AAMC for medical students, and for recertification by practicing physicians.^{i iiiii} It has been shown that introducing residents to a preventive medicine quality improvement project improves care, that the residents continue this improvement during later rotations,^{iv} and improves understanding of QI.^v UNM medical students spend six weeks after their first year of medical school with primary care physicians in rural communities. In 2013 we completed a pilot study to introduce these first year medical students to QI projects to assess the feasibility of incorporating QI into an early clinical experience including the time burden required and assess barriers as noted in the literature.^{vi} We found that this was feasible and well received by the medical students and their preceptors and presented our results at the Prevention 2014, Association for Prevention Teaching and Research 2014, the University of New Mexico Graduate Medical Education Office Conference on Quality Improvement 2014 and at the Society of Teachers in Family Medicine Meeting 2014. Dr. Kazi also presented this research informally on her rural rotation at the Zuni Comprehensive Community Health Center, one of the sites at which PIE students regularly rotate.

This year, all first year medical students are required to participate in the Quality Improvement project, and we have expanded our project to continue to evaluate the feasibility, time commitment, challenges and benefits of this new element of the curriculum. It is hoped that this exposure early in the medical school curriculum will broaden the student's skills and receptivity to future projects, lay a groundwork curriculum for QI projects during medical school, and meet the AAMC's new requirements in medical student education. The feedback that we received at the STFM meeting reinforced that many medical schools are beginning to think about strategies for successful incorporation of QI training.

Students will have the option to participate in one of two types of projects: the AAFP Diabetes Metric or an infection prevention strategy with the Department of Health. The AAFP has developed several structured QI projects focusing on several disease states to help guide practicing physicians with an interest in quality improvement and to meet MOC requirements. The resident and attending physicians leading this project have the most experience with the diabetes Metric

and therefore feel most equipped to provide support for the students with this project.

Healthcare associated infections (HAI) are a major cause of morbidity and mortality in the United States with the most recent estimates from the Centers for Disease Control and Prevention (CDC) at over 700,000 HAI and 75,000 deaths in 2011 alone. Although all hospitals and long-term care facilities routinely monitor HAI and prevention efforts, very little is known about small outpatient practices. In an effort to better understand and facilitate HAI prevention in such outpatient facilities, the New Mexico Department of Health (NMDOH) is collaborating with the UNM School of Medicine on a state-wide survey of HAI prevention practices. Although one goal of the project is to provide meaningful and important data to the state health department, HAI prevention is also a critical component of healthcare quality, which is of interest to all providers.

Goals of the Project:

1. All first year medical students will complete QI projects during the course of their first year summer practical immersion experience (PIE)
2. A didactic curriculum for continued use at UNM School of Medicine will continue to be revised orientation of students to QI
3. Time required to complete the projects will be assessed by student report of hours
4. Time impact on the preceptors' practices will be assessed
5. Barriers that the students encounter will be logged and reviewed
6. Based on a review of the time required, and assessing the barriers (as well as ways to overcome potential barriers) the project will assess the feasibility of continuing to incorporate QI projects as a routine part of this experience and a way to improve medical student education and meet the AAMC requirement for education
7. A validated pre-and post-test evaluation of student and resident understanding of QI will be analyzed for improvement in understanding of QI
8. Preceptors will be queried about their use of this project for meeting CME requirements

Methods:

All first year medical students were presented a series of two didactic sessions to summarize the history and theory of QI projects and to orient them to the two main options for participation: the AAFP Diabetes Metric and an infection prevention protocol with the Department of Health. Students whose sites were not conducive to either of these two options were given the opportunity to develop an independent project subject to approval. Students will complete the project with their preceptors during their six-week rural rotation.

Students completed the Quality Improvement Knowledge Assessment Test (QIKAT)^{vii}, a validated quality improvement knowledge assessment, prior to their first QI lecture and following completion of their projects. Last year we saw an improvement in scores, suggesting that participants did improve their knowledge base. We are in the process of grading these assessments for this year and hope to

demonstrate that participation in this project does contribute to an improvement in QI knowledge. The source for this assessment is attached.

Potential quality improvement projects for those selecting the AAFP Diabetes Metric include: setting up a patient registry, doing a chart review to see if quality of care indicators are being met, for example hemoglobin A-1 C levels, lipid levels, documentation of diabetic foot exams, introduction of a diabetic foot examinations form and increased immunization rates. While under the framework of widely accepted QI projects developed by the AAFP, the medical students will work with their clinic to create a meaningful project that can potentially be applied toward the preceptor's maintenance of certification (MOC) requirements. The student will have a large degree of autonomy and creativity to evaluate the needs of their PIE site and to implement or adapt an existing ABFM MOC QI module, or complete a PDSA worksheet (University of Chicago template) and develop a flow chart for their QI project. The student will be primarily responsible for the project from conception to completion. Rather than QI being an audit-type task, the student will assess an issue and the best way to approach it. The students will then confer with their preceptors to make any necessary adjustments to the plan and verify that the project will contribute to the clinic, and that the project is feasible in the specific practice. Students who participated in the pilot project reported a great deal of autonomy and responsibility in leading the QI project at their respective sites.

PIE students participating in the prevention of infections project will have the opportunity to join in a major public health project, experiencing first-hand such activities as data collection in the field, descriptive analyses of the data collected, and development of recommendations for improvements for their preceptors' practices. In addition, each student will learn about the most important causes of HAI and the activities routinely done by Infection Control Practitioners to prevent HAI. Every week, all students will connect online with faculty at UNM SOM and NMDOH for a short briefing on the tasks to be completed that week, a discussion of the previous weeks activities, and an opportunity to interact with their PIE peers around the state. Specifically, each student will undertake several surveys and audits in their preceptor's office, focusing on such aspects of HAI prevention as office policies, hand washing, and safe injection practices. Upon collecting data in their preceptor's practice, students will enter the data into a spreadsheet for analysis and transmittal to NMDOH. Each student will be able, with direction, to describe their findings statistically in the context of summary results from the entire state. Students will prepare a short report on their findings with recommendations for their preceptors. Data collected by each student will be stripped of identifying information, compiled and analyzed by the NMDOH to provide a snapshot of infection prevention activities in the state.

Post-project, preceptors, a clinic staff member and the medical students will be queried using a 10-question Survey Monkey survey to assess time commitment, challenges and overall experience. We have attached pdf copies of the questions and preliminary survey results from the medical students and staff members. This information will help to assess preceptor response to this new element of the PIE program, to identify the value to the site and to direct future logistical changes.

Preceptor buy-in is critical to the success of this project including the quality

of student learning. This was a theme of our discussions with our colleagues at the Society of Teachers in Family Medicine Meeting as medical schools are struggling to add another element to an already packed medical school curriculum. We think that the major selling point of this project is that preceptors are able to use participation towards MOC requirements. Using this project to fulfill a requirement will likely require less time from the preceptor than developing an independent project and so provides a significant advantage to preceptors who participate. In our pilot project 100% of preceptors who responded to our survey answered that they would do this project again, but we did not ask about maintenance of certification requirements at that time. This year's survey does ask preceptors if they have or will use this project towards MOC requirements

At the end of the students' experience, the faculty and resident participants will review all of the data, quantify the amount of time spent as above, assess any barriers to meeting the projects, and make recommendations regarding the feasibility of more broadly instituting QI projects during the rural PIE.

Timeline:

The didactic sessions and orientation took place earlier this year. Students will complete their PIE experiences and QI projects in August. Dr. Kazi, the resident applicant on this grant will be compiling the data during a research elective in the fall with the intent to submit the data for presentation at an appropriate conference, such as the Society of Teachers in Family Medicine Conference.

Expected Outcomes:

At the end of this intervention, approximately 100 quality improvement projects will be completed. In addition to the valuable experience for the students and the practices involved, it is hoped that there will be an improvement in patient care or systems of patient care in the individual practices. From an educational standpoint, the students will have experience in QI theory, planning, and completion of projects in rural settings. Preceptors may choose to apply for Maintenance of Certification credit for their participation.

The data that we gather will answer universal questions about feasibility, time commitment, educational value, challenges and benefits of one method of incorporating QI into medical student education.

The work has potential to be presented as a poster presentation at Western Group on Educational Affairs of the AAMC, at a University of New Mexico School of Medicine Education Day, or again at the Society of Teachers of Family Medicine conference on medical student education. The integration of the QI project within the curriculum can be developed for potential submission to MedEdPORTAL. There would also be consideration for publication in an educational journal as an innovation in medical education.

Projected use of funds:

The funds will be used to cover expenses for travel to present this project at a relevant conference. This past year, the results were presented at four different conferences, funding for which was obtained in pieces from various sources. The

cost to send Dr. Kazi to the Society of Teachers in Family Medicine Meeting in 2014 was about \$2500 and we anticipate the same for any future meeting. Dr. Kazi used the feedback received at the meeting to refine the scope and goals for this year's expanded study and for her research elective and we look forward to continuing that conversation with the academic community as our project develops.

Additional commentary or clarifying statements you wish to include:

Quality Improvement is an increasing requirement of medical practice at all levels and types of practice as seen with the concept of the medical home, pay-for-performance incentives, and a move to global reimbursement based on performance measures. Unfortunately, the concepts and details involved often seem vague and daunting, without a clear training plan at any level of medical education. By introducing medical students to the concepts and hands-on details early on, they will be better prepared to improve on these skills during training and to assimilate them into their practices later. As future physicians, they can in turn help practices which are looking to improve certain areas of care. Doing this in a primary care, rural setting will emphasize that QI is not solely an academic exercise, but part of routine practice enhancement and may be able to be incorporated as part of the practicing physician's maintenance of certification requirements. This mutually beneficial project may also help create materials for teaching these concepts at the medical school level.

[i](#)IRRC: ACGME Program Requirements for Graduate Medical Education in Family Medicine

<http://www.acgme.org/acgmeweb/Portals/0/PFAssets/ProgramRequirements/12Opr07012007.pdf>

[ii](#)AAMC: Teaching for Quality -Integrating Quality Improvement and Patient Safety across the Continuum of Medical Education -Executive Summary of an Expert Panel Report

<https://www.aamc.org/download/309944/data/te4qexecutivesummary.pdf>

[iii](#)American Board of Medical Specialties, Maintenance of Certification

http://www.abms.org/Maintenance_of_Certification/competencies_pdf/ABMS_Board_Requirments_MOC-8-2012_09262012.pdf

[iv](#)Korn, Jane E., Leonard A. Schlossberg, and Eugene C. Rich. Improved preventive care following an intervention during an ambulatory care rotation. *Journal of general internal medicine* 3, no. 2 (1988): 156-160.

[v](#)Ogrinc, Greg, Linda A. Headrick, Laura J. Morrison, and Tina Foster. Teaching and Assessing Resident Competence in Practice-based Learning and Improvement. *Journal of General Internal Medicine* 19, no. 5p2 (2004): 496-500.

[vi](#)Wong BM, Edward EE, Kuper A, Levinson W, and Shojania K. Teaching quality improvement and patient safety to trainees; a systematic review. *Acad Med.* 2010;85:1425–1439.

[vii](#)Morrison LJ, et al. The quality improvement knowledge assessment tool (QIKAT): an instrument to assess knowledge application in practice-based learning and improvement. *J Gen Intern Med* 2003;18:250.