Curriculum Inventory in Context Vol. 2, No. 3 March 2015:
Patient Safety and Quality Improvement in Undergraduate Medical Education

Background
In 2001, the Association of American Medical Colleges (AAMC) issued a medical Schools objectives report on Quality Improvement in teaching for medical schools.¹ In 2010, and following the Lucian Leape Institute’s new report on Patient Safety, the AAMC stated population health, quality improvement and patient safety are a top priority for all U.S. medical schools and teaching hospitals. Medical education must include teaching and experiences where students participate authentically in the inquiry, innovation and improvement in patient outcomes and overall care.² “Quality and safety need to be threaded throughout the entire continuum, from the undergraduate curriculum to continuing medical education,” said Nancy Davis, Ph.D., AAMC director of practice-based learning and improvement.³ Today there are resources for medical schools to increase faculty development in Quality Improvement and Patient Safety (QIPS) for teaching and learning in this important topic. Te4Q, Teaching for Quality, was published in 2011 and provides a mission, recommendations, and faculty development for integrating QIPS concepts into every facet of medical education, even in the first year of medical school. ⁴ So now that it is 2015 how far have we come? Where have we made progress?

QIPS must be integrated in the undergraduate curriculum to create a culture in which we teach, train, and continuously recertify QIPS knowledge in our doctors. Batalden has lead the way in how we teach QIPS to graduate learners through a detailed practice in learning quality improvement during patient care to show measured performance improvement in residents over time.⁵ The key for undergraduate medical education is creating and implementing curricula for medical students to learn experimental design and statistics and then practice these in context using systems where they learn structures and processes. Learning and practicing must occur in a culture of patient safety that allows students to work for changes in that system that lead to better patient outcomes, lower costs, and increased satisfaction. ⁶⁻⁸ The World Health Organization curriculum in QIPS provides the basic tenets for the what and how to of a curriculum in QIPS for medical schools and is based on the National Patient Safety Education Framework from Australia.⁷⁻⁸ They have defined 11 topics in improving QIPS that can be integrated in medical school curricula especially as a problem-based curriculum. This curriculum is an asset for all medical educators to assist learners in putting knowledge into practice in this area.
As the Curriculum Inventory table demonstrates, medical schools consistently site Patient Safety and Quality Improvement in the form of required and elective curricula since 2011. It appears that medical schools are answering the call and are increasing educational activities in these important areas.
Progress in QIPS in U.S. Medical Schools

Medical education literature reveals that many schools are making improvements in undergraduate medical education in QIPS. At the University of Connecticut students work on diabetic CQI projects in community-based primary care clinics. As a result there were increased rates of foot and eye exams and a measurable decrease in HgbA1Cs. Students were more confident in their QI skills but did not like the chart audit process. In 2006 the Mayo Model in Medical School implemented curriculum reform in Patient Safety with an integrated longitudinal curriculum across four years and was embedded in 13 courses; this curriculum reform lead to a new school focused on health care delivery. Ohio State University Medical Center tested the feasibility of a QI program that provided first and second year medical students with education in QI processes and demonstrating their utility within the framework of a real-world QI project. Medical students assessed the use of the Surgical Safety Checklist and results included an increased knowledge of QI methodology, an improved understanding of the evidence supporting the need for QI projects within health systems, and a greater awareness of available QI projects. Students' perspectives changed to indicate an increased belief that QI is the responsibility of all health professionals including physicians, administrators and other staff.

The Institute for Healthcare Improvement (IHI) Open School offers courses with assessment that are free for students and faculty and a certificate program is available with courses in Patient Safety, QI, Leadership, and patient and family-centered care. IHI’s latest publication of academic programs that use their open school curriculum showed that 176 medical and health professional schools use their curriculum worldwide. Thirty two medical schools require portions of the IHI curriculum, ten medical schools use their program in elective experiences, 121 health professional schools, primarily nursing and health administration programs, and 31 graduate medical education programs utilize their curriculum in Patient Safety and Quality Improvement.

As the IHI demonstrates and as additional health professional schools have adopted more curriculum in QIPS, it sheds light that a key element to successful QIPS learning is to integrate these topics into clinical experiences and interprofessional settings. Interprofessional learners should have instructional opportunities to actively practice the science, and meet the needs of their patients to see the outcomes of high quality and safe patient care. Interprofessional learners should identify the improvement that is needed, engage in learning through literature searches, measure data on comparison to standards, and apply what was learned and assess improvements. In South Dakota,
first-year medical and allied health students completed surveys before and after having one introductory lecture and finishing two of the Open School courses in interprofessional teams within an existing health professions course. Their results demonstrate that the Open School courses chosen for this sample of students provide a simple, inexpensive and effective method to implement QIPS concepts within existing health professions curricula. The Clarion Case competition at University of Minnesota is another example of interprofessional learning through a team-based case competition in written cases of sentinel events, IPE teams manage cases and are given six weeks to develop root-cause-analysis and presentations and presented to a panel of judges.

Medical and nursing schools from six universities, participated in the Retooling for Quality and Safety initiative, and made major progress toward integration of health care improvement and patient safety into their required curricula. Utilizing the IHI Open School authors were able to incorporate quality improvement and safety training into required curricula, identified learning goals that required interprofessional education, and strategies for overcoming common challenges.

The QIPS Curriculum at the University of Missouri-Kansas City School of Medicine

At the University of Missouri-Kansas City School of Medicine, we have designed and implemented a four-year longitudinal QIPS curriculum utilizing the long-established learning communities called “Docent Teams” that function in the longitudinal continuing care clinic (CCC) clerkship. Responding to the national call to address Patient Safety, the new curriculum strives to enable students to become patient advocates capable of providing patient-centered, team-based quality care by using QIPS attitudes, knowledge and skills that will also prepare them to enter residency. The CCC provides the clinical classroom for learning and applying QIPS to the care of outpatients that present with chronic diseases and their prevention all while cultivating learning with their peers. Students at four levels in the curriculum work as a group and in pairs of younger and seasoned peers, collaborating with various health professionals. The delivery of the QIPS curriculum occurs through online Institute for Healthcare Improvement (IHI) Open School modules, introduction to quality measures databases, team problem-based learning, presentations, reflective writing, QIPS projects that care issues in CCCs prompt, and in teams plus Docent feedback. These QIPS learning objectives are linked to the CCC objectives and all Docent faculty have obtained training through the IHI Open School. Students also have the opportunity to develop pilot projects in QI. They are lead by their Docent in the clinic and students collaborate to develop clinical questions, seek out information, establish a system of change and reassess the data for improvement. Students have opportunities to present their QI projects at
our campus UMKC Student Research Day and have presented at our annual UMKC School of Medicine Quality Day. Effectiveness of the curriculum awaits full implementation and evaluation of learner outcomes measured through a pre-post knowledge survey of QIPS, reflective exercises, examinations, presentations, Docent assessment of student performance, and student and Docent reactions.

In addition, QIPS is a focus in our Interprofessional Education (IPE) curriculum. Medical students are placed on IPE teams of students with participants from dentistry, dental hygiene, nursing, graduate nursing, and pharmacy to work through a Patient Safety case and to discover system errors. Through team-based learning and small group work, the focus is on ambulatory care systems caring for chronic disease. Learners are taught to focus on the system of care, not to blame or rely on individuals, and to discover their own roles in how they provide safe care as an interprofessional team to patients and their families.

Patient safety and quality improvement education must occur in undergraduate medical education and ideally should include other health professional learners. For all who provide care to patients this is imperative to improve the health of populations of patients. QIPS education has shown increased presence in undergraduate medical education and there is more to do, for all of us as educators and patients.

Find out how to bring Te4Q to your institution, and join a community of over 20 AMCs, by contacting us at te4Q@aamc.org or visiting our website at www.aamc.org/te4q.

References:

12. www.ihi.org/IHIOpenSchool/

About the Author

Stefanie R. Ellison, MD is Associate Dean and Chair to the Council on Curriculum at the University of Missouri-Kansas City School of Medicine. Dr. Ellison is an Associate Professor in the Department of Emergency Medicine at Truman Medical Center.