Quality Improvement Skills for Pediatric Residents: From Lecture to Implementation and Sustainability

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ABSTRACT

Quality improvement (QI) skills are relevant to efforts to improve the health care system. The Accreditation Council for Graduate Medical Education (ACGME) program requirements call for resident participation in local and institutional QI efforts, and the move to outcomes-based accreditation is resulting in greater focus on the resulting learning and clinical outcomes. Many programs have enhanced practice-based learning and improvement (PBLI) and systems based practice (SBP) curricula, although efforts to actively involve residents in QI activities appear to be lagging. Using information from the extensive experience of Cincinnati Children's Hospital Medical Center, we offer recommendations for how to create meaningful QI experiences for residents meet ACGME requirements and the expectations of the Clinical Learning Environment Review (CLER) process. Resident involvement in QI requires a multipronged approach that overcomes barriers and limitations that have frustrated earlier efforts to move this education from lectures to immersion experiences at the bedside and in the clinic. We present 5 dimensions of effective programs that facilitate active resident participation in improvement work and enhance their QI skills: 1) providing curricula and education models that ground residents in QI principles; 2) ensuring faculty development to prepare physicians for their role in teaching QI and demonstrating it in day-to-day practice; 3) ensuring all residents receive meaningful QI education and practical exposure to improvement projects; 4) overcoming time and other constraints to allow residents to apply their newly developed QI skills; and 5) assessing the effect of exposure to QI on resident competence and project outcomes.

KEYWORDS: graduate medical education; Next Accreditation System; patient safety; pediatric residents; practice-based learning and improvement; quality improvement

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THERE IS EVIDENCE that many Americans, including children, do not receive optimal health care and that the nation's health care system suffers from unnecessary variation in care.[1,2] Improving this system calls for physicians who are competent in quality improvement (QI) skills, both in residency and in their subsequent practice. QI concepts have been incorporated into the Accreditation Council for Graduate Medical Education's (ACGME's) competencies of practice-based learning and improvement (PBLI) and systems-based practice (SBP), in recognition that physicians who possess these skills are important to a high-performing health care system.[3] Here we summarize the intent of the 2011 common program requirements, the institutional requirements proposed for implementation in 2014, and the aims of the Clinical Learning Environment Review program. Using knowledge gained from Cincinnati Children's Hospital Medical Center's (CCHMC's) long-standing effort to teach QI and involve residents in improvement work, we offer practical guidance for approaches to enhance resident learning and application of QI principles and assess their impact, at a time when the ACGME's accreditation approaching is increasing its focus on educational outcomes.[4] We conclude with 5 take-away messages for programs that want to enhance residents' QI skills and their application during training and after graduation.

QI EXPERIENCES IN RESIDENCY

In 2002, Aron and Headrick[5] noted that teaching QI in residency requires a coordinated approach. A decade later, while resident education in QI has made significant advances, much of it still occurs through lectures, self-guided modules, and brief electives dedicated to QI. To facilitate the development of application skills, Tomolo et al[6] recommend repeated exposure to QI, mentored QI experiences, and the opportunity for residents to use QI skills during residency. Yet a recent survey of pediatric residency graduates who entered primary care practice showed they rated their residencies' QI curriculum as one of the weakest aspect of their preparation for practice, second only to practice management.[7] Further, a systematic review showed that the majority of 13 QI curricula used in resident education did not address QI learning objectives.[8]

Many programs have expanded their educational offerings related to QI, but efforts to involve residents in local or institutional QI efforts seem to be lagging. This results in missed opportunities because residents, as front-line providers, are familiar with quality issues in their local clinical system, and they often have an understanding about causes and ideas for how to address problems. Research shows that the institution's commitment to involving residents in QI is important and is associated with a higher rate of resident participation when QI activities are completed during elective time.[9] Although active involvement in real improvement activities is important, residents also require guidance in initiating and carrying out improvement projects. Studies have shown that residents are good at identifying problems, but by themselves, they lack the time and resources to make complex and sustainable changes.[10]

ENHANCING THE ACCREDITATION FOCUS ON QUALITY AND SAFETY

The 2011 revision of the program requirements added emphasis on active resident involvement in QI, and the ACGME institutional requirements are undergoing a major revision that includes an enhanced focus on QI and patient safety. A key component of the Next Accreditation System (NAS), the Clinical Learning Environment Review (CLER) program aims to enhance resident engagement in patient safety and health care quality.[11] Overall, the ACGME's approach to accreditation entails a transition from emphasizing preparation for site visits and documenting compliance to an enhanced focus on the continuous effectiveness of the educational program, the quality of institutional oversight, and on the educational outcomes achieved. The revised ACGME institutional requirements that will be implemented July 1, 2014, will include an enhanced focus on QI and patient safety. Relevant to efforts to involve residents in quality of care and patient safety initiatives, the 2011 requirements specify a broad approach including "systematically analyzing practice using QI methods, and implementing changes with the goal of practice improvement (IV.A.5.d).(4)."[12,13] The program requirements for residency education in pediatrics emphasize residents' "ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning" (IV.A.5.c).[14] Added expectations include faculty assessing resident progress in PBLI and SBP, with this evaluation including input from other health professionals to ensure residents can function as part of an interdisciplinary team.[14]

The ACGME institutional requirements are in the process of undergoing a scheduled major revision, with new requirements to become effective in July 2014. The proposed requirements emphasize oversight and documentation of resident and fellow engagement in improving patient care and the learning and working environment.[15] The revisions also include several explicit expectations for an active role for residents in improving quality and safety (Table 1). The focus is on providing activities that integrate patient safety and QI activities and resident education and on holding sponsoring institutions accountable for ensuring that these activities occur.[15]

Added focus on resident integration into QI in the NAS will be facilitated through the use of the educational milestones, specialty-specific levels of achievements residents are expected to demonstrate as they progress through training.[4] They are based on the 6 competencies and expand the language of the competencies into a series of progressive, observable behaviors residents are expected to attain as they advance through their training, including development of competence in PBLI and SBP. Pediatrics is 1 of 3 specialties that initiated early development of the milestones.[16]

CLINICAL LEARNING ENVIRONMENT REVIEW PROGRAM

The Clinical Learning Environment Review (CLER) program represents the first component of the NAS to be implemented nationally.[11] Implementation began in the fall of 2012, and a key objective of CLER is to identify sponsoring institutions' efforts to engage residents in 6 important areas of health care quality and patient safety and to establish a national performance baseline in this area, as well as identify best practices (Table 2).

A key focal area for CLER is the involvement of residents in the quality and safety of patient care, as well as the extent to which residents are supported by their participating institution in learning and practice for how to improve system performance.[4,11] Information on these activities is obtained through discussions with residents, faculty, GME leadership, nursing and other staff, and hospital leadership, including the chief executive officer. In 2013–2014, the CLER site visit protocol is undergoing beta testing at nearly 400 sponsoring institutions, with evaluation of this information by a newly empanelled CLER evaluation committee. During beta testing, CLER data will not be used for accreditation. The ACGME will

Table 1. Elements of the Institutional Requirements Proposed for Implementation in 2014 That Relate to Resident Involvement in Quality Improvement and Patient Safety

Topic	The Sponsoring Institution Must Provide Opportunities for Residents/Fellows To:
Patient safety	Report errors, adverse events, unsafe conditions, and near misses in a protected manner that is free from reprisal; contribute to interprofessional root cause analysis or other similar risk reduction teams.
Quality improvement	Use data to improve systems of care, reduce health care disparities, and improve patient outcomes; participate in interprofessional quality improvement initiatives.[15]