Quality improvement, quality measurement and medical education: a brewing culture clash?

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Front-line healthcare workers are the first to witness the everyday errors that occur in patient care—when a medication dose is delayed, or when an unnecessary test causes harm. Residents and interns are those front-line workers in academic medical centres, working for up to 80 h a week for at least 3 years (in the USA). Just as hospitals owe their patients a commitment to improving care and reducing errors, medical educators should ensure their trainees learn the skills required to improve quality and safety for the patients they will care for during and after training.

In this issue, two accompanying viewpoint articles describe the benefits created from increased emphasis on quality improvement in the training setting—and the potential downside. One piece reflects the perspective of a resident in training who yearns for more opportunities to learn quality improvement.[1] The other articulates the concerns of a physician working in a large system who feels the burden of excessive quality metric reporting requirements.[2] Together, the authors suggest how medical educators and quality-improvement specialists can help trainees learn to be agents of change while balancing the need to preserve the traditional values of medical education.

The first viewpoint[1] introduces Lean methodology as an avenue for exposing more trainees to quality improvement and improving care in general. Lean is a management method derived from Toyota's method for efficient production of defect-free automobiles.[3] This approach to system improvement, when applied to academic medical centres, offers possible solutions as well as further challenges for residency education.

Many healthcare systems have achieved success with their implementation of Lean. Virginia Mason Medical Center provides a well-known example—the hospital has even branded its own version of Lean called 'Virginia Mason Production System'. Facing financial struggles and a medical error that led to a premature death in the early 2000s, the medical centre adopted Lean, and has since become a top-performing hospital in quality and safety.[4]

When a hospital adopts Lean as its management philosophy, its leaders hope to create an environment of continuous learning and improvement, seek out and reduce delays or surplus, which do not add value to the patient, and encourage all employees to become problem solvers. Healthcare systems that embrace Lean invest resources to identify processes that contain unnecessary steps, resulting in longer waits or higher costs for their patients. Eliminating waste in this fashion reduces inefficiencies and frees up resources for other priorities.

The Lean approach offers a promising alternative to the usual way of systems improvement in academic medical centres. When implemented appropriately, Lean prioritises the input of front-line workers, and values their input in identifying and solving problems. Despite being on the front lines of patient care, trainees' viewpoints often go unheard in quality-improvement efforts. When their input is solicited, they are unlikely to see a suggestion come to fruition because they rotate services frequently. Lean, on the other hand, engages the people who are doing the work in the change process. Rapid process improvement workshops and kaizen events last only a few days—participants can suggest a change and then witness the transformation days later. Lean's emphasis on reducing waste should benefit both patients and trainees, as workflow inefficiencies eliminated by Lean methodology should improve the patient experience while simultaneously allowing for increased dedicated educational time.

Lean, therefore, offers great potential for trainees to participate in tangible systems improvement, but several obstacles must be overcome before Lean methodology can be integrated into postgraduate training curricula.

Despite its success and spread, the most effective methods of teaching Lean concepts have not been established, especially within the busy medical education environment. Lean certification programmes for healthcare professionals are often time-intensive, requiring several days of classroom training and online learning—a commitment that is impractical for trainees and many clinical faculty. As a result, mastery of the subject is reserved for those who can afford (or are required) to devote considerable time for training sessions. Furthermore, the emphasis on theory delivered in a didactic format runs counter to what is known about effective pedagogical techniques in medical education. For example, classes introducing Lean often begin with the historical basis of Lean and its development at Toyota in the 20th century. Curricula also emphasise learning a series of Japanese terms such as 'muda' (waste) and 'kaizen' (change for better). This array of terminology and techniques can be intimidating, and may accomplish little towards helping the audience understand how they can use Lean to improve the care they deliver. This approach is like beginning a teaching session on congestive heart failure with a description of the medicinal properties of the digitalis plant. While interesting, this is not what will help students care for a patient. Like clinical medicine, residents learn quality improvement best through direct experience.

Another unanswered question regarding Lean training is to what extent Lean overlaps with other commonly used improvement methodologies, such as the Model for Improvement. While some differences exist, it is safe to say that the Model for Improvement and Lean are overall more similar than they are different[5]—and the differences likely matter little to trainees and practicing physicians striving to learn and implement the basic concepts of quality improvement. From an educational standpoint, effective Lean curricula should minimise theory and jargon, and instead emphasise on the core concepts shared with other quality-improvement methodologies and prioritise practical, experiential learning. Otherwise, Lean runs the risk of being dismissed as mere jargon, no more relevant to medical trainees than the Krebs cycle.

These considerations aside, further quality-improvement training remains a necessity for postgraduate trainees, and the integration of these curricula into training is a welcome development. But what are the possible unintended consequences of more quality-improvement experience for physicians in training? First, when quality-improvement education encroaches on medical-knowledge teaching, residents are at risk for having less clinical expertise than their predecessors. Assessment of clinical knowledge must act as a balancing measure to evaluate for this unintended consequence. Second, quality metrics can be used for discipline instead of improvement—the environment that the author describes in the second editorial in this issue. This is a culture that would be especially harmful for trainees.

Residents should be exposed to quality metrics early in their training, and should receive feedback on their own performance whenever possible. However, these reports should not be used for evaluating individual trainees because few—if any—metrics are truly under a single individual's control. Instead, residents should receive their data within a structure that provides support and mentoring for them to improve their skills based on data. Otherwise, as the author suggests, we risk graduating a generation of physicians whose first instinct is to find excuses rather than solutions.

The author in the first editorial writes that he was the resident representative for a quality-improvement workshop to reduce wait time in the emergency department. He notes that, as a resident, he 'had the privilege and opportunity to participate in many successful quality improvement projects'. This ought to be the goal for all residents: opportunities to learn by doing.

This goal will not be achieved by occupying scarce educational time with introductions to different quality-improvement methods and explanations of esoteric terminology. Instead, residents must be given meaningful opportunities to be a part of a quality-improvement project, which leads to tangible change, and quality measurement should be used as an educational and practice-improvement opportunity. Lean has the potential to create these opportunities through embracing trainees' role as front-line providers, valuing their perspectives and improving efficiency for both patients and trainees. Combining this approach with a 'just culture' for performance measurement, as called for in the other viewpoint (and echoed by many experts[6]), should achieve the goal of graduating physicians with the skills to meaningfully improve healthcare systems.

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