Quality Improvement in Neurological Surgery Graduate Medical Education

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KEYWORDS

• Quality improvement • Resident education • Milestones

KEY POINTS

- Graduate medical education is now subject to the same imperatives for clinical outcomes measurement, continuous quality improvement, and value-based care as all American health care providers.
- Effective fundamental reform requires the engagement of a new generation of practitioners, through systematic training as lifelong learners.
- This article outlines one vision for a national didactic and hands-on outcomes and quality improvement curriculum for US neurological surgery training, which is explicitly coordinated with recent curricular initiatives of the Society of al Surgeons and educational outcomes assessment initiatives of the Accreditation Council for Graduate Medical Education Next Accreditation System.

INTRODUCTION

There are 3 principal rationales for incorporating quality improvement (QI) and patient safety into resident education. First and foremost, patients rightfully expect physicians to provide safe, effective, efficient, equitable, patient-centered, and high-value care. Second, regulatory agencies such as the Accreditation Council for Graduate Medical Education (ACGME) now mandate that residency programs integrate safety and QI training into curricula in order to maintain accreditation status. In addition, modern residents are interested and self-motivated to learn and acquire tools that will enable them to provide high-quality, cost-effective care that will be necessary to their future success in the practice of post–health care reform medicine. Unlike any previous era of health care, profiling the quality and clinical outcomes of individual practitioners is increasingly common. Empowering the next generation of neurosurgeons to engage in a quality-driven consumer market with public and open access to data is vital to the continued health of this specialty.

In 1998, the ACGME developed an initiative, the Outcomes Project, to evolve residency training away from process-based accreditation, toward measuring educational and patient care outcomes.[1] More recently, the ACGME's Next Accreditation System mandates that training programs explicitly link resident-physician education to improved patient care outcomes.[2] This system includes a series of essential developmental milestones that residents must achieve before successfully graduating from an accredited training program. The neurological surgery milestones have been published, and include explicit QI attributes among the

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practice-based learning and improvement (PBLI) requirements for residency training.[3]

The ACGME has more recently launched the Clinical Learning Environmental Review (CLER) program as a key part of its 2011 Common Program Requirements.[4,5] CLER incorporates increased emphasis on 6 focus areas, including assessment of patient safety and QI. To date, there has been no formal, standardized curriculum for neurosurgical resident education in QI. This article proposes a potential plan for the implementation of a national program for QI in modern neurosurgical resident education.

THE DEMAND FOR EDUCATING PRINCIPLES OF QUALITY IMPROVEMENT

The Institute of Medicine (IOM) defines health care quality as "The degree to which healthcare services for individuals and populations increase the likelihood of desired health outcomes."[6] According to the IOM, quality care is safe, timely, efficient, patient centered, equitable, and effective. Multiple stakeholders in medicine, including government agencies, private insurers, employer groups, media, and patients increasingly demand that individual physicians and groups objectively account for the effectiveness, quality, and value of their care. Furthermore, Medicare and Medicaid will soon require all US health care professionals to produce data related to health care quality and safety.[7] Through the American Recovery and Reinvestment Act of 2009, the federal government recently allocated several billion dollars for studies that compare the relative outcomes, effectiveness, and appropriateness of medical and surgical interventions.[8]

As a result of such health care reform initiatives, there is now increased emphasis on and scrutiny of the relative quality and value (cost-effectiveness) of care provided by individual physicians. In such an environment, physicians must be well versed in the principles of quality, cost, and value to analyze, improve, and defend the value of their services and of their individual quality outcomes compared with relevant standards. A comprehensive QI curriculum for neurological surgery residents would empower neurosurgeons to proactively influence the validity and relevance of the quality measurements that will inevitably affect their own eventual practices, as well as empower lifelong, practice-based learning.

Lifelong learning, including the so-called science of practice, is defined by 3 key features: (1) the habitual and systematic collection of data inseparable from clinical activity, (2) the analysis of practice data to generate new knowledge, and (3) the application of that knowledge to processes of change in health care.[9] If introduced and engrained early in clinicians' medical education as common practice, these 3 essential activities can become cultural norms and practice habits, and can bend the learning curve to ultimately allow a higher personal ceiling of safe and effective patient care (Fig. 1).

EDUCATIONAL PRINCIPLES OF QUALITY IMPROVEMENT

Systematic methods of data collection for process and outcomes measures of clinical care (quality measurement); observational and comparative analyses of patient and disease covariates, procedures, and outcomes (quality analysis); and subsequent implementation of learned knowledge into clinical practice (QI) represent 3 pillars of educational opportunity for neurosurgical QI. The basic principles of each of these components are described here.

Quality Measurement

In the current health care evidence paradigm, neurosurgeons must define effectiveness via outcome metrics that all health care stakeholders deem relevant. No longer will evidence of technical feasibility, radiographic metrics, non–patient-centered outcomes, or isolated safety measures suffice to prove treatment value. Rather than merely presenting the provider's perspective, valid outcome measurements must convey the impact of interventions on the patient's health status. They should measure aspects of health and general well-being that are meaningful to the patient and, ideally, should incorporate multiple domains of the patient's general health and quality-of-life status, disease-specific health, and societal productivity.

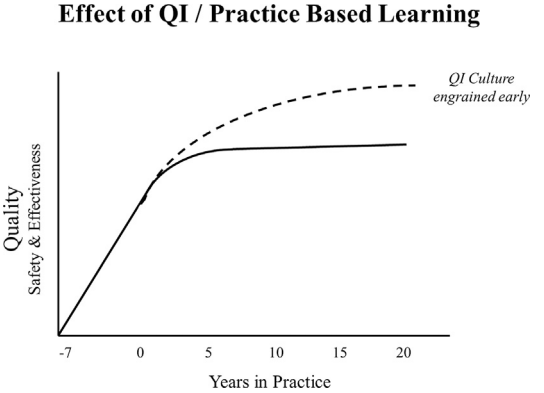

Fig. 1. Theoretic benefits of continued lifelong learning for clinicians using their own practice data and experience in a systematic approach to QI.