Quality improvement in Neurosurgery

- Improving Quality of Life in Polish patients with multiple sclerosis: a multicentre analysis
- Hydrocephalus Caused by Methylmalonic Acidemia: Clinical Characteristics, Optimal Timing of Surgical Intervention and Health-Related Quality of Life
- Molecular Correlates of Long-Term Response to Bevacizumab in Glioblastoma
- Twenty-One-Year Experience With Cervical Diagnostic Blocks and Denervation: A Study of 1031 Cases at a Single Institution
- Efficacy and safety of combining re-irradiation with bevacizumab compared to bevacizumab alone in the management of recurrent high-grade gliomas: a meta-analysis and systematic review
- Face the Pain: Radiobiological and Clinical Considerations of Re-radiosurgery to the Trigeminal Nerve Following Irradiation of an Abutting Petroclival Meningioma
- Efficacy and safety of multiple-target deep brain stimulation in non-parkinsonian movement disorders: a systematic review
- Application of Convolutional Neural Network Denoising to Improve Cone Beam CT Myelographic Images

Quality Improvement (QI) is essential for improving health care delivery and is now a required component of neurosurgery residency. However, neither a formal curriculum nor implementation strategies have been established by the Accreditation Council for Graduate Medical Education.

Despite increasing emphasis on quality improvement in neurosurgery, few studies have evaluated the impact of quality initiatives on health-assessment metrics including risk of mortality (ROM), severity of illness (SOI), case mix index (CMI), and mortality index.

LACE + index

Safety

Perioperative checklist

Critical incident monitoring

United States

During the past decade, the U.S. health care system has faced increasing challenges in delivering high quality of care, ensuring patient safety, providing access to care, and maintaining manageable costs. While reform progresses at a national level, health care providers have a responsibility and obligation to advance quality and safety. In 2009, Afsar-Manesh and Martin implemented a department-wide Clinical Quality Program. This Program comprised of an inter-disciplinary group of providers and staff working together to ensure the highest quality of patient care.

The following methodology was followed to establish the Program:

(1) Identifying the Department's quality improvement (QI) and patient safety priorities based on reviewing prior performance data;

(2) Aligning the Department's priorities with institutional goals to select mutually significant initiatives;

(3) Finalizing the goals for improvement based on departmental priorities, existing expertise and resources;

(4) Launching the Program through an inter-disciplinary retreat that emphasizes open dialogue, innovative solutions, and fostering leadership in frontline providers;

(5) Sustaining the QI initiatives through proactive performance review and management of barriers;

(6) Celebrating success to empower providers to remain engaged. Several challenges are inherent to the implementation of a clinical quality program, including lack of time and expertise, and the hierarchical nature of medicine, which can create a barrier to teamwork. This Program illustrates that improvement can lead to a sustainable clinical quality program and culture change [1)].

From quality priorities, 8 measure sets were selected: throughput, percent of patients discharged by noon, infection control, safety measures (falls, pressure ulcers, etc), glycemic control, patient satisfaction, service access metrics, and operations metrics (supplies and expenses). For each measure set, a panel of process measures was established. The clinically relevant definitions and units for each metric were accepted by all stakeholders, ensuring consistency of data collection and use by the providing sources and services [2)].

Surgical care

Despite a growing emphasis on measuring and grading quality of surgical care, a tremendous knowledge gap exists regarding what constitutes quality care. How to measure quality of care remains equally daunting in scope. Thus far, the focus has been on perioperative metrics that are relatively easy to measure and monitor such as deep venous thrombosis prophylaxis. It is doubtful that these perioperative factors will be dominant determinants of operative outcomes. While measuring intraoperative factors seems rational on the surface, huge complexities arise when one looks beyond the surface. Operative time, for example, can be a misleading measure of quality and may or may not relate directly to ultimate outcome. Even though volume has been grossly linked to outcomes, individual surgeon skills have been harder to define, study, and monitor. Which factors can affect surgeon skills and how these skills may relate to complications remains largely speculative. To investigate this important issue, Birkmeyer et al conducted a study to objectively assess the surgical performance of 20 bariatric surgeons located in Michigan, and to examine the relationship between their surgical skill and postoperative outcomes. The assessment of surgical skill was performed by at least 10 blinded peer surgeons, and the risk-adjusted complication rates were studied using a prospectively collected outcome registry. The results were published in the October 2013 issue of The New England Journal of Medicine [3)].

1)
Afsar-Manesh N, Martin NA. Healthcare reform from the inside: A neurosurgical clinical quality program. Surg Neurol Int. 2012;3:128. doi: 10.4103/2152-7806.102943. Epub 2012 Oct 27. PubMed PMID: 23227433; PubMed Central PMCID: PMC3513849.
2)
McLaughlin N, Afsar-Manesh N, Ragland V, Buxey F, Martin NA. Tracking and sustaining improvement

initiatives: leveraging quality dashboards to lead change in a neurosurgical department. Neurosurgery. 2014 Mar;74(3):235-44. doi:10.1227/NEU.0000000000000265. PubMed PMID: 24335812.

3)

Birkmeyer JD, Finks JF, O'Reilly A, et al.. Surgical skill and complication rates after bariatric surgery. N Engl J Med. 2013;369(15):1434–1442.