



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

40. Smith M, Hussain A, Xiao J, et al. The importance of improving the quality of emergency surgery for a regional quality collaborative. *Ann Surg* 2013;257:596.
41. Bozzay J, Bradley M, Kindvall A, et al. Review of an emergency general surgery process improvement program at a verified military trauma center. *Surg Endosc* 2018;32:4321–4328.
42. Jakobsen E, Palshof T, Osterlind K, Pilegaard H. Data from a national lung cancer registry contributes to improve outcome and quality of surgery: Danish results. *Eur J Cardiothorac Surg* 2009;35:348–352; discussion 352.
43. Porter GA, Urquhart R, Bu J, et al. The impact of audit and feedback on nodal harvest in colorectal cancer. *BMC Cancer* 2011;11:2.
44. Zaslansky R, Rothaug J, Chapman RC, et al. PAIN OUT: an international acute pain registry supporting clinicians in decision making and in quality improvement activities. *J Eval Clin Pract* 2014;20:1090–1098.
45. Beaulieu PA, Higgins JH, Dacey LJ, et al. Transforming administrative data into real-time information in the department of surgery. *Qual Saf Health Care* 2010;19:399–404.
46. Bowman SM, Sharar SR, Quan L. Impact of a statewide quality improvement initiative in improving the management of pediatric splenic injuries in Washington State. *J Trauma* 2008;64:1478–1483.
47. Breslin TM, Caughran J, Pettinga J, et al. Improving breast cancer care through a regional quality collaborative. *Surgery* 2011;150:635–642.
48. Markel DC, Allen MW, Hughes RE, et al. Quality initiative programs can decrease total joint arthroplasty transfusion rates—a multicenter study using the MARCQI total joint registry database. *J Arthroplasty* 2017;32:3292–3297.
49. Alizo G, Sciarretta JD, Gibson S, et al. Multidisciplinary team approach to traumatic spinal cord injuries: a single institution's quality improvement project. *Eur J Trauma Emerg Surg* 2018;44:245–250.
50. Charles RJ, Singal BM, Urquhart AG, et al. Data sharing between providers and quality initiatives eliminate unnecessary nursing home admissions. *J Arthroplasty* 2017;32:1418–1425.
51. Bradley MJ, Kindvall AT, Humphries AE, et al. Development of an emergency general surgery process improvement program. *Patient Saf Surg* 2018;12:17.
52. Campbell DA, Englesbe MJ, Kubus JJ, et al. Accelerating the pace of surgical quality improvement: the power of hospital collaboration. *Arch Surg* 2010;145:985–991.
53. Guillaumondegui OD, Gunter OL, Hines L, et al. Using the national surgical quality improvement program and the Tennessee surgical quality collaborative to improve surgical outcomes. *J Am Coll Surg* 2012;214:709–714.
54. Vu JV, Collins SD, Seese E, et al. Evidence that a regional surgical collaborative can transform care: surgical site infection prevention practices for colectomy in Michigan. *J Am Coll Surg* 2018;226:91–99.
55. Hall BL, Hirbe M, Waterman B, et al. Comparison of mortality risk adjustment using a clinical data algorithm (American College of Surgeons National Surgical Quality Improvement Program) and an administrative data algorithm (Solucient) at the case level within a single institution. *J Am Coll Surg* 2007;205:767–777.
56. Koch CG, Li L, Hixson E, et al. What are the real rates of postoperative complications: elucidating inconsistencies between administrative and clinical data sources. *J Am Coll Surg* 2012;214:798–805.
57. Lawson EH, Louie R, Zingmond DS, et al. A comparison of clinical registry versus administrative claims data for reporting of 30-day surgical complications. *Ann Surg* 2012;256:973–981.
58. Lawson EH, Zingmond DS, Hall BL, et al. Comparison between clinical registry and medicare claims data on the classification of hospital quality of surgical care. *Ann Surg* 2015;261:290–296.
59. Steinberg SM, Popa MR, Michalek JA, et al. Comparison of risk adjustment methodologies in surgical quality improvement. *Surgery* 2008;144:662–667; discussion 662–667.
60. O'Brien EC, Li S, Thomas L, et al. The impact of clinical vs administrative claims coding on hospital risk-adjusted outcomes. *Clin Cardiol* 2018;41:1225–1231.

## Invited Commentary

### Quality Verification Enhanced a Tertiary Care Hospital's Response to COVID-19



James Fleshman, MD, FACS, FASCRS,  
Steven Newton, MPH, FACHE  
Dallas, TX

The authors of this systematic review, the second in a series of 3 regarding the impact of the mechanisms of quality improvement, have effectively clarified and justified the areas of quality improvement that push us toward better care for our patients.<sup>1</sup> They should be congratulated for the value of this article and for the associated effort to establish a Quality Verification program within the Division of Research and Optimal Patient Care at the American College of Surgeons (ACS).

The Standards for Quality Evaluation and Performance throughout the practice of surgery have been described by members of the author's team in the "Red Book," published by the ACS as the Optimal Resources for Surgical Quality and Safety by David Hoyt, Clifford Ko, et al in 2017. These standards serve as the basis for the review of a surgical institution to determine whether a high reliability organization is in place for the management of quality surgical care.

Our institution was visited by the Quality Verification team to perform a high reliability organization review in September of 2019. The preceding 9 months of 2019 were used to get ready for the review by performing an internal review across all departments and to consider ways to enhance the quality improvement program for our

organization. Our preparation was extensive, and it revealed significant helpful insights. We attempted to identify and relate all sources of data that revealed outcomes of care. We followed the path of the data to identify who uses it to improve process opportunities or individual episodes of care. We discovered a tremendous amount of data, but realized that these data sometimes ended with a grading of the episode of care without moving further to inform process or episodic care improvement. The difference between peer review and case review was difficult to unwind. The sources of the data were found to be separated, simultaneously parallel, based on trained individuals' review and scrutiny of the medical record or administrative data. The committee structure and individual case review process was sound but the peer review process was more nebulous. We were pleased to receive a report from our Quality Verification team that gave us concrete ideas for improvement while also affirming our successes.

Before, during, and after the Quality Verification review, our quality program made several interventions to improve performance and decrease the probability of avoidable harm to patients. Physicians were added to healthcare improvement teams evaluating hospital patient safety program data and developing approaches for detecting process and care improvement opportunities.

Applying the same approach to surgical Case Review as part of the Peer Review process has provided an ongoing list of projects that contribute to quality improvement. These opportunities are collected and referred to the overseeing Professional Standards Committee. The newly established multidisciplinary Clinical Performance Committee was created to manage the identified quality improvement tasks, under the auspices of the Medical Executive Committee of the hospital. In cases of process inefficiency, the Operational Efficiency Committee, also multidisciplinary in composition, has become the lead effector for developing more efficient practices, also under the supervision of the Medical Executive Committee. Our Professional Standards Committee chair saw the opportunity to standardize the Case Review process across all clinical departments and required Peer Review chairs to attend other Peer Review meetings to learn and teach.

All new members of a Peer Review Committee now receive standardized education on the process. The curriculum includes definition of peer review, case review, and ongoing professional practice evaluation, identification of data sources, expected functions of the provider members, supporting coordinators and abstractors, and the preferred method of reviewing each case for opportunities to improve.

There have been many other positive changes realized as a result of this process. The Medical Executive Committee of the hospital has appointed a Surgical Safety and Quality Officer for the Department of Surgery and created a Medical Safety and Quality Officer as a collaborative effort. The Operating Room Utilization Committee is led by surgeons, anesthesiologists, and nursing administration personnel to adjudicate scheduling and crisis issues based on reliable data. The surgeon's dashboard, provided to each surgeon every 6 months, brings transparency to data being collected on each surgeon in the hospital, and allows the Surgical Safety and Quality Officer to develop Quality Improvement projects relevant to our practices. The metrics in the dashboard are reviewed yearly for relevancy. The Critical Care Peer Review process has been separated from the individual specialty departments to provide true peer review of critical care cases across specialties. The focus is now on identifying opportunities for improvement rather than grading care. We have established leadership education seminars for junior faculty, which review relevant literature to emphasize leadership as a means to creating a culture of safety.

Not surprisingly, these efforts substantially contributed to the success of our response to the COVID-19 pandemic starting in March 2020. The September 2019 Quality Verification review was only 6 months before the first cases of COVID-19 in Dallas. Our report from the review gave us a number of areas on which to focus, and the collaboration of teams preparing for the review helped to establish the transparency and trust that proved essential to rapid adaptation to the challenges of the pandemic.

Enabled by work already accomplished to prepare for the visit, our teams performed well in the face of the many challenges posed by COVID. The operating room closed to elective cases by order under the personal protective equipment shortage and isolation requirements, while continuing to safely provide operative care for patients with emergent and urgent problems, under the guidance of the Operating Room Utilization Committee, with no transmission of disease and without compromising safety or care. The Critical Care teams worked together to develop containment areas and coverage teams, based on the work already done to improve quality and combine the peer review process. The data needed to respond to the changes in hospital use and outcomes of patients were already being provided to the quality teams and were used to determine the need for volunteer staff coverage, the availability of beds and equipment, areas of isolation needed, and the willingness

and capability of providers to serve the patients. This essentially turned our hospital into 2 distinct, functionally self-contained hospitals in the same building—1 for COVID patients and 1 for those without COVID.

Outcomes were positive. Data-informed selection criteria gave us a higher than expected survival rate for the most severely ill COVID patients on extracorporeal mechanical oxygenation. Outcomes data were continuously reviewed. Changes in care process based on data occurred more rapidly and with high reliability.

Quality Verification may bring the same impressive results to other institutions. Multi-professional teams of caregivers critically evaluating data, collaborating to identify and act upon improvement opportunities in a climate

of trust, with a common goal of achieving high reliability in quality and safety, can change the world for our patients.

## REFERENCE

1. Fischer C, Hu Q, Wescott A, et al. Evidence Review for the American College of surgeons Quality Verification Part II: Processes for Reliable Quality Improvement. *J Am Coll Surg* 2021;233:294–311.

**Disclosure Information:** Nothing to disclose.

**Disclosures outside the scope of this work:** Dr Fleshman received payment from Cambridge Medical Robotics for service on a clinical events review committee. Dr Newton has nothing to disclose.