

# Challenges and opportunities in providing high-quality surgical care in Canada

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## SUMMARY

The provision of surgical care in Canada requires substantial improvement. In this commentary, we use the US Institute of Medicine's framework for assessing the quality of health care to explore system-wide challenges that affect surgical outcomes in Canada. Challenges include surgical wait times, long travel times for surgery, human resource constraints, equitable access to surgery, limited collection of data about the surgical pathway, a lack of transparency in the reporting of surgical outcomes and a lack of incentives for hospital systems to achieve high-quality outcomes. We propose solutions supported by available literature to help overcome some of these challenges.

**T**he provision of surgical care in Canada requires substantial improvement. Although surgical skill plays an important role affecting patient outcomes, the majority of surgical errors occur outside the operating room and are systemic in nature. In this commentary, we use the US Institute of Medicine's framework for assessing the quality of health care — care should be safe, effective, patient-centred, timely, efficient and equitable<sup>1</sup> — to explore system-wide challenges that affect surgical outcomes in Canada, and propose suggestions for improvement.

An analysis of 71 performance measures across 5 domains by the Commonwealth Fund showed that the Canadian health care system has been underperforming relative to other high-income countries.<sup>2</sup> In 2022, Cram and colleagues<sup>3</sup> highlighted surgical issues in a retrospective cohort study comparing Canadian and US centres using American College of Surgeons National Surgical Quality Improvement Project data from 2015 to 2019. The authors explored 4 surgical areas: hip fracture repair, colectomy, pancreatectomy and spine surgery. Canadian patients who underwent colectomy or pancreatectomy had higher 30-day mortality rates than their US counterparts. Higher rates of surgical complications were found for all 4 procedures performed in Canada. Although the reasons for these findings are likely multifactorial, differences in surgical care financing and delivery may be a factor.

In Canada, long wait times and long travel distances for surgery are commonplace. In addition, Canada employs 24% fewer nonphysician clinical staff than the United States on a per capita basis. These factors likely contributed to Cram and colleagues' findings.<sup>3</sup> Although provincial and territorial governments continue to encourage health care workers to work in rural areas, there is a maldistribution of workers favouring urban centres. Governments have recently increased funding to reduce the surgical backlog; however, these efforts have largely been unsuccessful, likely owing to the current shortage of health care workers. Some may view having fewer clinical staff to run the Canadian health care system as a positive situation. However, one could argue that Canadian health care workers are overworked relative to their US peers, which may lead to more errors.

Although US hospitals are not without challenges, they exist in a competitive environment in which patient outcomes are readily available for public examination. They are also partially funded through a “pay for performance” model that rewards high-quality care and penalizes poor outcomes. These factors have pushed US hospital systems to invest in “enablers” of quality, including patient safety initiatives and health information technology.<sup>3</sup> Also, their surgical programs operate as profit centres within hospitals. This encourages the efficient use of resources to maximize surgical output. In contrast, Canadian hospitals run their surgical programs as cost centres. Although some provinces have introduced activity-based funding models to encourage more surgery, the majority have not. Without incentives to encourage both hospital systems to improve quality of care, it should come as no surprise that Canada has fallen behind other nations.

Access to surgical care in Canada is not equitable. Indigenous populations in remote, isolated communities have less access to surgical care and continue to experience poorer health outcomes compared to other Canadians.<sup>4</sup> Furthermore, the Canadian Institute for Health Information recently found that the number of surgical procedures decreased to a greater extent for people living in lower-income neighbourhoods than for those in wealthier neighbourhoods during the COVID-19 pandemic.<sup>5</sup> Measures suggested to make access to surgery more equitable include the use of centralized referral and booking systems for noncomplex procedures and the development of prioritization tools for scheduled cases that consider factors beyond the degree of urgency.<sup>6</sup>

Composite measures, including readmission rates and failure to rescue, are useful ways to assess the effectiveness of surgical care. Thirty-day readmission rates for surgery patients, influenced by the quality of inpatient and outpatient care, the effectiveness of care transition and coordination, and the availability and use of effective community-based disease management programs, have remained at 7% in Canada over the past few years.<sup>7</sup> Some teaching hospitals, however, have rates in the 4%–5% range,<sup>7</sup> suggesting an opportunity for improvement through sharing best practices.

Failure to rescue, defined as the 30-day mortality rate after a postoperative complication, is a hospital-based measure that takes into account interaction among multiple providers and phases of care. A recent study involving emergency general surgery patients from 6 Canadian centres showed wide variability in failure to rescue, ranging from 11.9% to 33.3%.<sup>8</sup> This finding suggests that coordination of quality-improvement efforts across centres may improve this metric.

The efficiency of surgical care in Canada has been improving over the last decade with more appropriate use

of preoperative testing for low-risk procedures and the introduction of enhanced recovery pathways (ERPs) for surgical patients. These pathways have been shown to decrease hospital length of stay and improve patient outcomes.<sup>9</sup> To further improve ERPs, systematic data collection across health care systems focused on quality improvement along the entire surgical pathway should be instituted. This would allow for the use of tools such as predictive analytics, systems modelling and artificial intelligence to optimize the surgical pathway.

Preoperative patient optimization and prehabilitation should be incorporated into ERPs. Optimizing a patient’s physical, nutritional and psychological fitness before surgery makes sense and has been shown to improve a patient’s functional capacity before surgery, and may also decrease the postoperative complication rate.<sup>10</sup>

Although there has been a movement toward greater patient empowerment and patient-reported measures of health care system performance, Canada remains relatively underdeveloped in this area compared to other Organisation for Economic Co-operation and Development countries. We advocate for greater transparency in the reporting of surgical outcomes to allow for public scrutiny and to drive positive change. Also, quality of recovery from surgery is an underutilized metric that should be used along with patient satisfaction when assessing surgical outcomes. Scoring systems for quality of recovery aim to more fully measure the entire range of symptoms patients may experience postoperatively and weigh these symptoms according to what is deemed important to patients.

In summary, many systemic challenges exist within the Canadian health care system. Addressing these challenges while improving surgical quality will require an iterative process using the best available evidence. Possible solutions to help overcome existing challenges include using centralized referral intake and wait-list management strategies, increasing adoption of ERPs across sites and procedures, systematically collecting data around the surgical pathway to optimize surgical outcomes, being more transparent in the reporting of surgical outcomes, and incentivizing hospital systems and providers to improve quality.

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### References

1. Institute of Medicine (US) Committee on Quality of Health Care in America. *Crossing the quality chasm: a new health system for the 21st century*. Washington: National Academies Press; 2001:39-40. Available: <https://nap.nationalacademies.org/catalog/10027/crossing-the-quality-chasm-a-new-health-system-for-the> (accessed 2023 Apr. 15).
2. Schneider EC, Shah A, Doty MM et al. Mirror, mirror 2021 — reflecting poorly: health care in the U.S. compared to other high-income countries. *Commonwealth Fund Reports* 2021 Aug. 4. Available: <https://www.commonwealthfund.org/publications/fund-reports/2021/aug/mirror-mirror-2021-reflecting-poorly> (accessed 2023 Apr. 15).
3. Cram P, Cohen ME, Ko C, et al. Surgical outcomes in Canada and the United States: an analysis of the ACS-NSQIP clinical registry. *World J Surg* 2022;46:1039-50.
4. McVicar JA, Poon A, Caron NR, et al. Postoperative outcomes for Indigenous Peoples in Canada: a systematic review. *CMAJ* 2021;193:E713-22.
5. Canadian Institute for Health Information. Surgeries impacted by COVID-19: an update on volumes and wait times. 2023 Mar. 23. Available: <https://www.cihi.ca/en/surgeries-impacted-by-covid-19-an-update-on-volumes-and-wait-times#:~:text=Among%20adults%20age%2018%20and,Canadians%20received%20their%20cataract%20surgeries> (accessed 2023 May 18).
6. Wiebe K, Kelley S, Kirsch RE, et al. Revisiting the concept of urgency in surgical prioritization and addressing backlogs in elective surgery provision. *CMAJ* 2022;194:E1037-9.
7. Canadian Institute for Health Information. Surgical patients readmitted to hospital. Available: <https://www.cihi.ca/en/indicators/surgical-patients-readmitted-to-hospital> (accessed 2023 Nov. 20).
8. Minor S, Allen L, Meschino MT, et al; Canadian Collaborative on Urgent Care Surgery. Failure to rescue in emergency general surgery in Canada. *Can J Surg* 2022;65:E215-20.
9. Ljungqvist O, Scott M, Fearon KC. Enhanced Recovery After Surgery: a review. *JAMA Surg* 2017;152:292-98.
10. Molenaar CJ, van Rooijen SJ, Fokkenrood HJ, et al. Prehabilitation versus no prehabilitation to improve functional capacity, reduce postoperative complications and improve quality of life in colorectal cancer surgery. *Cochrane Database Syst Rev* 2022;5:CD013259. Update in: *Cochrane Database Syst Rev* 2023;5:CD013259.