

# Subspecialist abdominal wall reconstruction services in Canada

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Accepted May 25, 2021

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**Cite as:** *Can J Surg* 2022 April 8;65(2).  
doi: 10.1503/cjs.009621

## SUMMARY

Recent years have seen considerable increases in both the demand for, and complexity of, ventral hernia repairs. This has led to calls for abdominal wall surgery to become a recognized subspecialty in the United States and Europe, with some centres responding by forming specialized, multidisciplinary teams for abdominal wall reconstruction. At present, however, no Canadian city has followed suit. In this article, we outline the major arguments underlying the drive toward the centralization of complex abdominal wall services.

To justify the subspecialization of a branch of surgery, namely abdominal wall surgery, it is necessary to show an advantage to doing so for as many of the affected parties as possible, including the patients themselves, those responsible for allocation of health care funding, health care providers and society in general. One must also be able to show that the scale of the clinical issue is substantial enough to warrant such a seismic shift in practice.

Providing evidence of the scale of the clinical issue is arguably the easiest of the aforementioned criteria. For example, by searching the 2001–2006 Healthcare Cost and Utilization Project Nationwide Inpatient Sample and the 2006 National Survey of Ambulatory Surgery from the Centers for Disease Control and Prevention, Poulou and colleagues<sup>1</sup> estimated that around 350 000 ventral hernia repairs were performed in the United States in 2006, at a cost of around \$3.2 billion USD (equivalent to \$4.5–4.8 billion CAD in 2021), excluding additional expenses such as physician fees and societal economic costs. By 2018, the number of ventral hernia repairs performed annually in the US was estimated to have risen to around 500 000.<sup>2</sup>

Having established the scale of the clinical issue, we can begin to address the factor that arguably has the greatest clout in driving change — money. Fortunately, as is often the case, the financial incentives to centralizing abdominal wall services, which would be of interest to those controlling health care budgets (and by extension, would benefit society at large), are a consequence of the clinical incentives that benefit the most important group of all — the patients. A substantial proportion of the ventral hernia repairs performed annually meet the definition of being complex abdominal wall reconstructions (AWRs), as described by an international group of experts in AWR surgery who categorized hernias into grades of severity so that clinicians could individualize patient care and identify those in need of specialist treatment.<sup>3</sup> Naturally, the chance of developing an undesirable outcome increases in tandem with the complexity of the operation. One of the most recognized outcome measures in hernia surgery is recurrence, which is of particular importance as the prospect of a successful, lasting repair decreases with each subsequent reoperation.<sup>4</sup> Operative volume and surgeon experience are well recognized as key factors in determining patient outcomes, particularly in procedures that present the greatest technical challenge. In 2015, a database analysis of more than 18 000 patients showed that for every 10 additional cases

in an individual surgeon's annual AWR volume, there was an 8% reduction in both recurrence rate and operative duration, as well as a 9% reduction in total hospital charges.<sup>5</sup> From a financial point of view alone, the reduction in recurrence rate offers health care providers a considerable incentive to centralize AWR services, given that these data suggest that for every 1% decrease in operations achieved through reduced recurrence, \$45–48 million CAD (in 2021 value) would be saved.<sup>1</sup>

Consolidating relevant expertise into 1 geographical location frequently results in improved clinical outcomes for reasons beyond operative volume. By concentrating resources, it becomes viable to establish the necessary supportive services that may be required in the most challenging of cases, thus allowing patient care to be managed using a multidisciplinary team approach. Prehabilitation has repeatedly been shown to play an important role in optimizing outcomes; multidisciplinary teams are well placed to coordinate the care of those patients who require input from the diverse range of health care professionals whose services may be necessary before, during and after complex AWRs.<sup>6</sup> Given the diversity of roles involved (e.g., general surgeons, plastic surgeons, internists, anesthesiologists, specialist nurse practitioners, physiotherapists, dietitians, bariatric services), many AWR centres have adopted this multidisciplinary team model to streamline communication and efficiency.<sup>6,7</sup>

Thus far, we have concentrated on the financial and clinical implications of specialist AWR services, which would benefit patients and resource allocators, but we have not considered what impact such services would have on the wider surgical community. The likelihood is that the development of regional AWR units would be mutually beneficial for non-AWR subspecialists as even the highest-volume facilities would have the capacity to take on only a small percentage of complex hernias that need the multidisciplinary approach. As a consequence, AWR facilities are in an ideal position to undertake a variety of clinical, academic and quality-assurance roles to the benefit the non-AWR surgeon, such as hernia registries and educational courses.<sup>8</sup> The value of hernia registries was recently proven when an analysis of the Danish Ventral Hernia Registry showed that patients who underwent laparoscopic incisional hernia repairs that used 1 particular type of mesh had a recurrence rate more than double that of patients undergoing the same surgery with any other type of mesh (12.8% v. 6.3%,  $p < 0.001$ ).<sup>9</sup> Without the surveillance provided by the registry, it is doubtful that this issue would have been detected in such a timely fashion. Similarly, the usefulness of postresidency hernia training was shown in a recent review of 75 sets of guidelines, which advocated using a patient-specific approach to managing inguinal and incisional hernias.<sup>10</sup> The authors argued that this is only possible if one has first mastered a variety of techniques; however, recent years have seen a substantial reduction in such procedures being performed by trainees before entering independent practice.<sup>10</sup>

## CONCLUSION

Although the reasons outlined above are by no means exhaustive, they do serve as an introduction as to why some experts have suggested that the subspecialization of AWR is a necessity, even an inevitability. It is our hope that this article will spark debate of this issue within the Canadian general surgical community.

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**Competing interests:** None declared.

**Contributors:** Both authors contributed to the conception and design of the work, drafted the manuscript, revised it critically for important intellectual content, gave final approval of the version to be published and agreed to be accountable for all aspects of the work.

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