

## References

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## AUTHOR RESPONSE

We don't know exactly why people who had an inguinal hernia repair at the Shouldice Hospital had a much lower rate of surgery for recurrence than those who had hernias repaired elsewhere in Ontario. Ultimately, there are only 3 possible explanations: patient selection, surgical technique, or perioperative care. Most likely, it is some combination of these factors.

Dr. Vinden suggests that patient selection largely explains the difference, and he may be correct. However, for selection alone to account for the extraordinary difference in surgical recurrences we observed, the influence of selection must be enormous. Even assuming that 30% of all patients seen at the Shouldice Hospital are rejected for surgery and have their hernia repairs done elsewhere, the recurrence rate among those patients would have to be nearly 14% to mask a "true" risk of recurrence that is equivalent to the surgical recurrence risk in general hospitals.

It is true that randomized trials do not support the use of the Shouldice technique for inguinal hernia repair, especially when compared to modern, tension-free repairs. Like Dr. Vinden, we do not believe that general surgeons should stop performing their usual technique of hernia repair — with which they are most skilled and confident — in favour of a repair that is notoriously difficult to perform well in typical practice settings. We also agree that it is neither advisable nor feasible to regionalize a procedure as common as inguinal hernia repair to specialty hospitals.

On the other hand, it appears that much may be learned about inguinal hernia repair from large specialty hospitals — even if those lessons relate to issues such as how patient selection and preparation influence outcomes, and the value of focused expertise even in a relatively minor surgical procedure.

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## LETTER TO THE EDITOR

We are writing to respond to Drs. Vinden and Ott's commentary, "GPs with enhanced surgical skills: a questionable solution for remote services." We commend the authors for appealing to research data to inform the discussion of the need for a standardized curriculum by considering the efficacy of family physicians with enhanced surgical skills (FPSS) in meeting the health care needs of rural Canadians. However, we feel some of the data referenced has been miscon-

strued and would like to contribute to this discussion, focusing primarily on data regarding maternity services and operative delivery.

Regarding the volume-to-outcomes data cited,<sup>1</sup> the context of the data was analysis of outcomes from 3 major hospital systems in the United States who committed to a volume threshold for 10 high-complexity surgeries. The author explains why volume is traditionally used instead of outcomes in the evaluation of surgical competence (to account for the procedure selection bias of surgeons and ease of data access) but concludes that "the mechanism underlying volume-outcomes relationships remain unknown." Further, he argues that if the underlying mechanism is one of increased practice leading to better outcomes, support for best practice models and quality improvement — not volume thresholds — is the most appropriate response.<sup>1</sup> As the author notes,

if, on the other hand, outcomes improve because hospitals and surgeons gain expertise with incremental experience through a "practice makes perfect" mechanism, then the focus should be on dissemination of best practices and quality improvement.<sup>1</sup>

Additionally — and more pertinent to the current discussion — an earlier study by Urbach and colleagues<sup>2</sup> comparing volume studies from Canada and the United States found:

(...)that volume-outcome associations are much less common in Canada than in the United States, perhaps because different models of health care financing and delivery affect patterns of procedure volumes and volume-outcome associations. Market-based models promote competition between hospitals and providers, which may exacerbate existing variations in quality of care. The extent to which models of health care financing and organization cause variation in health outcomes across hospitals, and contribute to volume-outcome associations, has not been fully appreciated or examined.