Reply to the Letter to the Editor

Reply to Hudorovic et al.
Enhancing the transferability of region-specific findings: characteristics of Japan’s cardiovascular surgery system

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Hospital volume is sometimes used as a surrogate measure for numerous care processes that directly influence patient outcomes. This is because individual processes and inherent technical skills are not well characterised and are difficult to measure. For some procedures, higher volume, particularly at the surgeon level, may translate directly to better clinical judgement and technical proficiency in the operating room. Such processes may be hard to transfer to lower-volume providers. Higher-volume centres may also differ with regard to other processes of preoperative and postoperative care, which could be adopted by lower-volume centres [1].

To better understand the volume—outcome relationship in cardiovascular surgery, our current study focussed on practices, including processes and structures, that could be related to perioperative mortality risk associated with any cardiovascular procedure. Processes refer to the care that patients actually receive, and structures are the environment in which the care is delivered [2]. We confirmed a volume—outcome relationship similar to that reported in the European Journal of Cardio-thoracic Surgery [3].

It must be pointed out, however, that health-care systems relating to cardiovascular surgery are not necessarily identical across regions. The relative strengths of processes and structures (especially the surgeon’s procedure volume and hospital procedure volume) might differ from one region to another. In this respect, we thought the ability to generalise our findings is limited, as Hudorovic suggested [3]; it would be useful to take steps to enhance transferability of our results. For readers from other regions, it might be useful to describe region-specific characteristics of the cardiovascular surgery system in Japan.

Our previous study [4] indicated that an average of 3.3 cardiovascular surgeons participate in each cardiovascular surgery in Japan. This is because Japan does not have a nurse practitioner system or a physician assistant system. Even when a young surgeon leads the surgery, expert surgeons often participate as assistants. In additional, 95% of centres have meetings among cardiovascular surgeons more than once a week. Further, a majority of Japanese centres share information and experiences regarding all cardiovascular surgeries performed at their centres, thus the volume effect specific to a surgeon might be difficult to differentiate from the hospital volume effect. These region-specific characteristics might lead to differences in the relative impact of surgeon volume and hospital volume between Japan and other countries. If we could take such region-specific characteristics into consideration, even findings specific to a given region might become transferable (even if they cannot be generalised to all regions).

References


Letter to the Editor

Influence of conversion on cost of video-assisted thoracoscopic lobectomy

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We would like to congratulate the authors on their detailed cost analysis of VATS lobectomy [1]. Their results and conclusions regarding the differences in intra-operative costs
of VATS lobectomy compared to thoracotomy lobectomy and the influence of the length of stay very much mirror our own larger experience in Canada. When we compared costs of over 250 VATS lobectomy cases to an open lobectomy, intra-operative costs were approximately double ($2810CD vs $1425CD). However, length of stay (LOS) was 1.3 days shorter for VATS cases (4.9 days vs 6.2 days). Based on an analysis of overall costs, a VATS lobectomy was equal or slightly less than an open lobectomy ($8573CD vs $8673CD). The similarity between the costs from our experience and that of Mr Walker’s group is striking.

An additional influence on intra-operative cost and potential impact on LOS is the need to convert a VATS to an open lobectomy. No mention was made of this, though elsewhere the group has reported conversion rates of around 10% [2]. In our analysis, conversion rates over the 3-year period were 13% (35 cases converted). We have examined the causes of conversion in our unit and proposed a method of auditing this (presented recently as an abstract at the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) 2009 meeting). Clearly, the timing and cause of conversion during surgery will have some influence on the intra-operative costs incurred, but, overall, converting a VATS lobectomy to a thoracotomy had little impact on total intra-operative costs ($2861CD no conversion vs $2569CD converted). The difference between LOS on patients who had been converted was half a day (4.9 days no conversion vs 5.4 days converted). Majority of the patients were converted through an extension of the axillary utility incision with only a few patients requiring a separate posterolateral thoracotomy. This translated into a difference in LOS costs of $610CD ($5669CD no conversion vs $6279CD converted). Overall the difference in costs incurred following conversion was $303CD ($8546CD no conversion vs $8849CD conversion).

Conversion through the axillary incision appears to have a small adverse influence on increased LOS and overall impact on cost was low. Our experience will be presented this summer at the 13th World Conference on Lung Cancer, and we welcome Mr Walker’s perspective on the influence of conversion rates on the costs incurred.

References


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Reply to the Letter to the Editor

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We thank Dr Hunt and colleagues for their letter [1] and thoughtful remarks.

The case volume reported in our study [2] is a limited contemporary proportion of early-stage cases extracted from our video-assisted thoracoscopic surgery (VATS) series and compared with uncomplicated open-matched case controls. We used this strategy in an attempt to provide contemporary and homogeneous costing for the study and comparator groups.

We did not include converted cases and Dr Hunt and colleagues are correct in their observation. Our intellectual rationale for this choice was based on several considerations. First, we felt that open lobectomy represented the default choice and that conversion was less a consequence of technique than of the situation encountered during the operative procedure. As converted patients represented a relatively small proportion of VATS cases, we considered that they would not represent a significant confounding factor. Moreover, not all open cases go smoothly — the open equivalent of conversion, perhaps — in which event, cost for these cases will also escalate.

However, if we had adopted an intention-to-treat strategy and used a worst-case proportion for converted cases, these would have attracted the full VATS theatre cost and the Open hospital stay cost. Thus, eight additional converted VATS cases would have contributed a further 1407 Euros per case representing an added cost of 139 Euros per case for the VATS group overall, which would still leave the VATS cases fractionally less expensive. In fact, the case presented is that a VATS strategy is no more expensive, has many well-documented patient advantages and does reduce bed stay to the benefit of the host institution.

It is extremely encouraging that, in another continent and an altogether different health-care system, Dr Hunt and colleagues have determined similar findings to ours regarding the comparative costs of open and VATS lobectomy. The implications regarding data consistency are clear. We look forward to the publication of their data, which will clearly be a further valuable addition to the weight of evidence in favour of VATS resection.

References