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# Reporting risk-adjusted outcomes for surgical procedures in New Zealand

Harry Alexander, Adam Bartlett, Garth Poole

**T**ools to assess and compare surgical outcomes have been developed in many centres overseas. These have proven to be useful in monitoring performance, as well as enhancing transparency between health-care providers and the public. However, such systems are complex and a number of issues need to be addressed before they can be successfully implemented. In New Zealand, we have a valuable opportunity to take ownership of our surgical outcomes by leading the development of a fair, universally-applicable surgical scoring system.

New Zealand is ideally placed to lead this process. We have a relatively homogenous DHB-based public health service. We have good collegiality, along with well-organised government and college supervision. Our medico-legal system, especially the Accident Compensation Corporation (ACC) and the Health and Disability Commissioner (HDC), is envied by most countries. Our private sector is dominated by a single insurer with sound structure in the billing models.

Firstly, we must decide on an appropriate scoring system. Variations in surgical volume, physiological risk, operative risk, and the type and severity of complications must be taken into consideration. There must be a compromise between the accuracy of surgical scoring systems and the simplicity of their use. We require a system which accurately accounts for variations in case-load, but is user-friendly and widely implementable. The outcomes to be reported, and to who they are released, will also dominate the discussion.

The outcomes of a scoring system must be risk-adjusted. Surgeons who take on complex cases should not be the victims of a scoring system publishing crude, unadjusted mortality rates favouring those taking on low-risk operations. Implementing

an unadjusted system could discourage surgeons from taking on these complex cases. However, accurate risk adjustment is complex and requires the collection of many factors pre-operatively. A number of risk prediction tools exist, and we must decide the most appropriate tool to adjust surgical outcomes for operative risk. Along with calculators of physiological risk, such as the ASA, it is also crucial to predict and grade the predicted operative difficulty of a case. This requires input from surgeons.

Adverse outcomes from surgery include mortality, morbidity and patient dissatisfaction. The chosen outcomes of the scoring system must be capable of accurately representing surgical performance over time.

Therefore, we suggest that surgical performance should be measured by a mathematical formula, which takes into account the:

1. number of cases in surgical career
2. preoperative physiological risk of patients
3. technical challenge of the operative procedures
4. size and outcome of surgeon-specific complications.

With these considerations, we propose adopting a surgical scoring system based on the 'Surgical Risk Scale'. This tool was developed for the purposes of comparative surgical audit and accounts for both physiological and operative risk. Three variables make up this scoring system: ASA grade; a 5-point score for operative difficulty; and a 4-point score for operative urgency.<sup>1</sup> This system is easy to use and interpret and has been multiply validated as an accurate predictor of mortality in general surgical patients.<sup>2</sup> A recent systematic review of

surgical risk predictors showed it to be the most consistently accurate system, along with P-POSSUM.<sup>2</sup> Its ease of use is a clear advantage over P-POSSUM. All of the inputs into this scoring system are pre-operative factors, so it can also be used to counsel patients about risk.

We must also consider whether the outcomes will be compared between individual surgeons or between surgical units and hospitals. History has shown that outlier performance can occur at the level of institutions as well as individuals.

Clearly defining the purpose of a surgical scoring system will help with consideration around the distribution of outcomes data. Overseas, the public release of surgical outcome data has been acknowledged as leading a new era of transparency between surgeons and the public. Corresponding calculations and awareness of pre-operative risk can lead to more open discussions with patients around informed consent. The release of outcome data by surgeons could

be a bold statement of ownership of surgical outcomes to the New Zealand public.

However, there are complexities to the public release of outcomes data. There is concern overseas that the public release of outcomes data for an individual surgeons can lead to irrevocable career damage. The public release of data could also lead to 'gaming' of the system by encouraging risk-averse behaviour.

These issues require the careful attention and collaboration of New Zealand surgeons in order to create a surgical system which is fair and accurate. In leading this process, we have an opportunity to take ownership of our surgical outcomes. Such a system has the potential to be a powerful tool for monitoring performance, detecting outliers and enhancing transparency in healthcare. By driving this process from within, we have the chance to create a user-friendly system which does not punish surgeons and their patients unfairly.

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