Measuring surgical outcome

A surgical outcome is any event or measure of a patient's health that may occur or change, for better or worse, as a result of an operation. The introduction of clinical governance has led to debate about how to monitor the quality of surgical services in the NHS. One method that has been proposed is the publication of data on surgical outcomes for named hospitals and surgeons (Dobson, 1998).

Why measure surgical outcome rather than adherence to 'best' surgical practice? The key problem with measuring surgical practice is that there is little high quality evidence about the effectiveness of alternative surgical procedures (Solomon and McLeod, 1993), unlike the situation for the majority of pharmaceutical interventions. In the absence of such information, it is necessary to measure health outcomes for patients, rather than what happened during the perioperative period, in order to describe the quality of surgical provision. National data on surgical outcome are desirable but need to be interpreted with caution. Collection and dissemination of such data is important, but it is important to recognize the limitations of surgical outcome data as a measure of surgical performance.

MULTIDIMENSIONAL NATURE OF HEALTH OUTCOMES

When using a surgical outcome to measure performance, there is an implicit assumption that variation in the chosen outcome reflects, to some degree, variation in the quality of care. However, quality of care is a complex concept and surgical outcome may not reflect some important aspects (Daley et al, 1997).

A single measure of outcome is also extremely unlikely to capture the full health consequences of an operation for a patient, since most treatments carry the risk of harm as well as benefit; the risks of harm and benefit and their specific manifestations may also vary with time. Describing only one aspect of outcome can also adversely affect the care process. For example, creating one-dimensional quality 'targets' for hospitals and surgeons would create incentives that might seriously undermine joint decision making between patients and clinicians.

Complications, including death, are commonly used as outcomes of surgery because it is assumed that they are attributable to the quality of care. However, the choice of a particular adverse event as an outcome often simply reflects its undesirability rather than its utility as a measure of quality of care. Complications are also difficult to measure, since identifying a complication depends on checking assiduously for the event in every patient. Bias can be introduced if vigilance in checking for complications varies between hospitals and is itself associated with quality of care; this situation can lead to the paradox of an inverse association between the frequency of complications and quality of care (Hayes and Murray, 1995).

The desire to capture other aspects of health outcome has led to an interest in questionnaires that reflect the patient's perspective, encompassing symptoms, ability to perform activities of daily living and quality of life (McDowell and Newell, 1996). Designing such questionnaires is a complex task but they are better able to assess the dimensions of health which treatments, especially elective operations for chronic conditions, are intended to affect. However, they may be less suitable as performance measures. It can be difficult to obtain complete and representative information about outcome some months after surgery and to attribute variation in outcome to the surgeon or surgical team. Other factors that may affect outcome include the multiplicity of health and other services often involved in postoperative care.

INTERPRETING VARIATION IN SURGICAL OUTCOME

High quality data describing surgical outcomes can improve the quality of care for surgical patients but, for a number of reasons, it is unlikely that this can be achieved by focusing on individual, 'poorly performing' hospitals or surgeons:

- The number of operations performed by most surgeons in 1 year means that there is considerable uncertainty about the true level of performance (Goldstein and Spiegelhalter, 1996)
- The ability to adjust adequately for casemix is limited, especially when using routinely collected surgical outcome data
- One measure of outcome is unlikely to capture the breadth of quality of care. Even when surgical mortality is being considered, some patients may choose to trade-off a higher short-term risk of death to achieve a higher probability of a better long-term benefit
- Outcome reflects the care administered by different health-care professions. The average outcome for individual surgical teams may be influenced by other carers or by aspects of the hospital in which they all work. On the other hand, measuring performance at the level of hospitals or trusts may disguise

unacceptable variation between the performance of the component teams

- If the consequence of poor performance is some immediate penalty, it is likely that data collection will be biased to achieve a satisfactory level of outcome (Green and Wintfeld, 1995). 'Gaming' of this kind would be difficult to detect and would undermine the quality of the data on which the whole enterprise depends.

Surgeons and hospitals should be accountable for the outcomes they achieve for their patients. However, the goal of quality improvement is more likely to be achieved by feeding back data on variation in practice and outcome to surgeons, their associated care teams and hospitals in a constructive manner rather than with a view to 'accounting for' poor performance. Finally, we should remember that one can learn at least as much about improving quality from excellence as from poor performance. HM

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KEY POINTS

- Lack of evidence of the effectiveness of alternative surgical procedures means that surgical quality needs to be assessed by measuring surgical outcomes.
- Only a proportion of variation in surgical outcome can be attributed to surgeons and surgical teams.
- Surgical outcomes include both adverse effects and health benefits.
- Complications may not reflect quality of care and are difficult to measure.
- Surgical outcomes reflect the care administered by various health-care professions, not just surgeons.
- Quality can be improved by investigating excellence as well as poor performance.

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