

EDITORIALS

Measuring quality in colorectal surgery

Is only the first step in the more important goal of improving quality

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Over the past 10 years, the spotlight on quality in medical and especially surgical care has intensified for several important reasons. High profile reports have publicised vast numbers of (presumably) avoidable adverse outcomes¹; clinically unexplained variations in use and outcomes of care persist^{2 3}; and sophisticated software and hardware permit population based tracking of multiple quality measures.⁴ Accordingly, researchers and policy makers have prioritised the identification of relevant and actionable measures of quality.

Primary medical care tends to be longitudinal, so quality is often tracked by processes of care, such as delivery of treatment or cancer screening—with little pragmatic knowledge of the ultimate outcomes. In contrast, surgical care is cross sectional, so it is therefore cheap and feasible to measure surgical outcomes. Whereas the outcomes measured in medical care are often positive (for example, reduction in glycated haemoglobin, survival), the clinical outcomes measured most commonly in surgical care are negative (for example, 30 day mortality and perioperative morbidity).

One such adverse outcome, unplanned return to the operating room after colorectal surgery, is assessed in the linked retrospective study by Burns and colleagues (doi:10.1136/bmj.d4836).⁵ Unplanned reoperation is an appealing target because it probably reflects the quality of surgical technique rather than other aspects of care. Colorectal surgery is a good choice for such a study because it is prevalent and prone to postoperative complications.

The study found a threefold to fivefold variation in unplanned reoperation rates even among high volume institutions and surgeons. This finding implies that substantial opportunities exist for improvement among the centres and surgeons with the highest reoperation rates. Previously published studies have reported similar overall rates of reoperation and similar complications leading to reoperation—infection, obstruction, bleeding, injury.^{6 7} Several patient characteristics were associated with high reoperation rates (such as comorbidity, deprivation, sex, and anatomical site of the lesion), which was also consistent with previous research,⁸ but these factors are unlikely to be modifiable. The only modifiable variables identified were the use of laparoscopic surgery and perhaps emergency admission, which could be mitigated by preventive care. The authors

concluded by suggesting that unplanned reoperation could provide a feasible and robust measure of surgical quality. Although the authors have conducted a well designed and important study and produced a report that does not overstate their results, it is only the first step in quality improvement.

The purpose of measuring quality is to improve quality. Firstly, a gap in quality or a target for quality improvement must be shown, which is why studies of variation like this one resonate among stakeholders in quality of care. Secondly, quality improvement requires an action or intervention that hypothetically will change the quality measurement. Thirdly, the means and mechanisms to perform the intervention must exist. Fourthly, the intervention must be implemented and a post hoc quality measurement determined. Studies that report a gap in quality without a plan for carrying out these other steps simply add to the mountain of literature about quality gaps. Policy interventions that do not deal with underlying mechanisms are not likely to improve outcomes. Instead, they may perversely contribute to tension between quality measurement and quality improvement. For example, a call for mandatory reporting of reoperation rates is unlikely to result in a change in surgical technique but could increase rote paperwork and even cynicism among providers. What interventions might help improve quality? Previous interventions to improve outcomes in colorectal surgical care fit into the categories of selective referral (move patients to a better facility), compliance with the process (improve care in the facility at hand), and participation in an outcomes registry (provide surgeons and hospitals with their relative performance data). For example, from 1993 to 1997, Norway enacted a selective referral and national audit programme for rectal cancer care that was based on compliance with the process of total mesorectal excision.⁹ The intervention significantly reduced local recurrence rates from 12% to 6% and improved four year survival rates from 60% to 73%. These data indicate that selective referral might be a promising option in a geographically limited area with universal health coverage.

A less successful example of a national policy mandating process compliance is the application of surgical care improvement project measures in the United States, which

requires substantial resource investment by hospitals and has shown little to no real improvement in outcomes.^{10 11}

Perhaps the highest profile example of registry participation is the US Veterans Administration national surgical quality improvement project (NSQIP), recently adopted and revised for the public sector by the American College of Surgeons (ACS). In the Veterans Administration, use of NSQIP from 1991 to 2001 was credited with significantly reducing 30 day surgical morbidity from 17.5% to 9.5% and 30 day mortality from 3.1% to 2.3%.¹² However, these data were not placed within the broader context of either the reduction in surgical adverse events in the general population over the same time period or the change in the population of American veterans (to include younger healthier veterans of more recent conflicts). Although the public sector NSQIP, revised by the American College of Surgeons, has garnered much enthusiasm since its inception in 2005, no mechanisms of quality improvement have been described.

Given these experiences, it will undoubtedly remain much easier to study and report on quality measures rather than to improve quality. However, variation in outcomes persists, and providers, hospitals, and health systems should and will continue to seek meaningful methods for improving the quality of care. Therefore, researchers have a responsibility to frame their results appropriately for public comprehension and to propose mechanisms by which their data can be used for quality improvement—by individual providers, hospitals, and policy makers.

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