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BEYOND 30-DAY MORTALITY: ALIGNING SURGICAL QUALITY WITH OUTCOMES THAT PATIENTS VALUE

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Because of their strong sense of responsibility for the lives of patients, surgeons frequently struggle to withdraw postoperative life supporting treatments when patients or their families request it.¹ Although surgeons experience this as therapeutic optimism or the emotional pull of error and responsibility, these forces are accentuated by the increasing emphasis on 30-day mortality reporting. Recent expansion of outcomes profiling imposes an unconscious bias in these critical decisions: surgeons who report concern about physician profiling are more likely to decline to operate on a patient who prefers to limit life support, or refuse to withdraw life support postoperatively, than surgeons who perceive less pressure from outcomes reporting.^{2,3}

Public reporting of 30-day mortality may motivate surgeons and hospitals to improve outcomes and theoretically empowers patients to make informed choices.⁴ However, use of this single metric unintentionally fails to accommodate patients who might benefit from palliative surgery, or patients who would prefer death to prolonged postoperative treatment in the intensive care unit or long-term chronic care after a major complication. Surgeons should be able to offer informed patients a risky but potentially beneficial surgical option and then allow patients to refuse aggressive treatments if they have become overly burdensome or when patients' goals for surgery are no longer possible.

Reconciling the effects of an approach designed to ensure high quality surgical care with the needs of vulnerable patients is challenging, particularly for high-risk operations where hard outcomes like mortality are easily observed and other important outcomes are more difficult to assess. Strategies to mitigate the impact of 30-day mortality reporting through consideration of alternative quality metrics are required to protect the needs of surgical patients and the practices of surgeons who could make a valuable contribution to their patients' quality of life.

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Alternative outcomes to 30-day mortality

A system that prioritizes one metric, 30-day mortality, above all others is unlikely to produce outcomes that are desirable for all stakeholders. The purpose of reporting 30-day mortality is to assess surgical safety, but patients desire surgical safety only to the degree that it predicts efficacy (longer-term survival and quality of life). Although most patients wish to survive for 30 days after their operation, the notion that surgery has intrinsic value to patients if they could live just 30 days is outdated, as if additional survival time is an unexpected luxury. Reporting mortality statistics at other time points including 60 days and 6 months would help align patients' and surgeons' goals at concordantly valuable touch points and would de-emphasize the singular importance of 30-day survival. By broadening the time horizon, this strategy could reduce the external pressure to achieve a specific target with limited impact on safety assessment as postoperative complications are tightly linked to longer-term postoperative survival.⁵

Other safety metrics that matter to patients should be elevated to the current status of mortality: ICU days, prolonged mechanical ventilation (greater than 96 hours) and discharge destination. There is a clear distinction between the patient who has an extended hepatectomy, spends 24 hours in the ICU, 5 days in the hospital and is discharged to home with physical therapy and the patient who has the same operation, complicated by 14 days in the ICU on a ventilator, 33 days in the hospital and is discharged to a long term acute care hospital with a tracheostomy. Although the difference between these two outcomes is striking, this distinction is not well captured by the equivalent 30-day survival assigned to both episodes.

Report patient-centered outcomes

Collection of patient-oriented outcomes in quality improvement programs and surgical registries for all operations would help both patients and surgeons. In addition to procedure specific morbidity, reported outcomes should match the goals of surgery. For example, a 3-month measurement of fatigue and bone pain after parathyroidectomy or the ability to eat solid food after gastrectomy should be reported along with surgical site infection and postoperative readmission. Although these additional metrics focus on efficacy, rather than safety, surgical *quality* should be judged by both. Patients will undertake significant risk in pursuit of a specific goal, measuring and reporting these outcomes will improve their ability to evaluate the trade-offs inherent in surgical treatment and provide clarity about what is a realistic postoperative goal.

Emphasize process measures for palliative operations

For patients who have operations with palliative intent, quality of care should not be judged by mortality but rather robust reporting of outcomes that reflect high-quality palliative care. This would include clear delineation and postoperative measurement of the symptoms the operation is intended to address. For example, reporting for an enteric bypass for obstructing cancer should measure relief of nausea and vomiting. Other metrics of high-quality palliative care include documentation of a preoperative goals-of-care conversation, pain scores, family meetings, and even time between a DNR order and death. Although collection

of survival rates after palliative operations might help inform future patients about the value of an operation, 30-day mortality rates for these operations should not be interpreted or publicly reported as a quality metric.

Attend to the needs of poor risk patients

Targeting surgical mortality likely decreases the number of operations on poor risk candidates, as it has for percutaneous coronary interventions.⁶ However, when 30-day mortality reporting influences the decision-making for poor risk patients this can result in mistrust, inconsistency and discriminatory practices. To promote quality and reduce ineffective or marginally beneficial care it is necessary to delineate both upper and lower boundaries around the patients who are appropriate operative candidates. Expansion of guidelines, like those for lung volume reduction surgery, that define indications for the performance of surgery including a clear description of patients who are not surgical candidates because of unlikely long-term survival and prohibitive morbidity would lead to consistent practices about who should be refused surgery based on defined prognostic features and reduce concern that the decision was influenced by performance metrics.

Patients frequently proceed with surgery because they perceive no other option, even though surgery is unlikely to meet their needs. Preoperative conversations typically stress risks and benefits, rather than a detailed discussion of patient preferences and goals. Often, the postoperative care required is not consistent with patients' desires, even if all goes well. Although penalties for high 30-day mortality would reduce the number of operations on high risk patients, such penalties do not consider whether the treatment received was aligned with the patient's values.⁷ Although difficult to operationalize, incentives that reward patient engagement rather than a specific outcome would credit surgeons for identifying both the patients who are unlikely to value risky surgery as well as those who would value surgical intervention and be accepting of the necessary postoperative life support.

The benefits of detailed reporting of surgical outcomes, specifically highly visible mortality statistics, will be limited unless we focus on results that are valuable to patients. It is time for surgical quality metrics to evolve as there is much at stake for both patients and surgeons. The way forward requires focus to align the goals of surgery with the outcomes that are measured, a more sophisticated and nuanced approach to value the full range of outcomes surgeons have to offer patients beyond survival to just 30 days.

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