Appeal Submitter
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Summary of Appeal:
This metric has unintended consequences that negatively impact patients, families, and providers. This metric implies that death is the worst possible perioperative outcome. However, for some, suffering instead may be far worse than death. Even with good surgery and attentive care, some patients have unforeseen perioperative consequences that leave them in a state of high suffering that the patient and/or family feel is clearly worse than death. At that point, patient-centered care compels the cardiac surgical team to adjust care to pursue comfort-related goals. Yet, with this metric, providers are penalized for such action. I've had palliative care colleagues explicitly told by surgical providers to "not come until 30 days after surgery", so that 30-day mortality rates are not impacted should the patient choose to pursue comfort-related goals. This metric perpetuates such non-patient-centered care and should be either modified to be sensitive to patient-reported goals or removed.

Appeal Submitter
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Summary of Appeal:
Please reconsider addition of 30-day post CABG all-cause mortality as a quality metric. Surgeons often struggle to withdraw life supporting treatments on postoperative patients despite patient or family preferences. While this conflict genuinely stems from deep notions of responsibility our data demonstrate that surgeons who report concern about profiling are more likely to refuse to withdraw life support before POD 30. This game-able metric harms patients and families, the surgeon patient relationship and fails to capture important safety information. Consider the patient who spends 24 hours in ICU and is discharged to home post-operative day 5 versus the patient who has the same operation, spends 20 days in ICU, is transferred to an LTAC and then palliative care on POD 32. These vastly different outcomes are not captured by the equivalent 30-day survival assigned to both episodes which fails to capture what is truly valuable to patients who don't want to live to just 30 days.

The Role of Surgeon Error in Withdrawal of Postoperative Life Support

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Background: Surgeons may be reluctant to withdraw postoperative life support after a poor outcome.

Methods: A cross-sectional random sample was taken from a US mail survey of 2100 surgeons who routinely perform high-risk operations. We used a hypothetical vignette of a specialty-specific operation complicated by a hemiplegic stroke and respiratory failure. On postoperative day 7, the patient and family requested withdrawal of life-supporting therapy. We experimentally modified the timing and role of surgeon error to assess their influence on surgeons' willingness to withdraw life-supporting care.

Results: The adjusted response rate was 56%. Sixty-three percent of respondents would not honor the request to withdraw life-supporting treatment. Willingness to withdraw life-support was significantly lower in the setting of surgeon error (33% vs 41%, $P < 0.008$) and elective operations rather than in emergency cases (33% vs 41%, $P = 0.01$). After adjustment for specialty, years of experience, geographic region, and gender, odds of withdrawing life-supporting therapy were significantly greater in cases in which the outcome was not explicitly from error during an emergency operation as compared to iatrogenic injury in elective cases (odds ratio 1.95, 95% confidence intervals 1.26–3.01). Surgeons who did not withdraw life-support were significantly more likely to report the importance of optimism regarding prognosis (79% vs 62%, $P < 0.0001$) and concern that the patient could not accurately predict future quality of life (80% vs 68%, $P < 0.0001$).

Conclusions: Surgeons are more reluctant to withdraw postoperative life-supporting therapy for patients with complications from surgeon error in the elective setting. This may also be influenced by personal optimism and a belief that patients are unable to predict the value of future health states.

(*Ann Surg* 2012;256:10–15)

When the patient of an internist dies, his colleagues ask, "What happened?," when the patient of a surgeon dies, his colleagues ask, "What did you do?"

—Charles Bosk, Forgive and Remember[1]

Surgeons embrace an ethos of personal responsibility for the surgical patient. This strong history and tradition contribute to more than a century of success prolonging and improving patients' quality and length of life through operative intervention. However, despite a record of impressive surgical success, not all patients have good operative outcomes. Surgeons, arguably more than their nonsurgical colleagues, are acutely aware and personally sensitive to the risks and complications inherent in the treatments they provide, given the active role they assume in the provision of surgical therapy.[1–4]

Although this commitment to the surgical patient may be an essential component of care, in some settings, surgeons' personal responsibility may conflict with patients' autonomy. For example, before the policy of required reconsideration, do not resuscitate (DNR) orders were routinely suspended in the operating room, suggesting that patient autonomy would not be honored if a cardiac arrest was the direct result of surgery or anesthesia.[5–7] Our work[8] and that of others[9,10] suggest that this surgical paternalism is linked to the issue of error and responsibility and is founded in the unique relationship between surgeon and patient. Most of what is known about this reluctance to withdraw life-support in surgery is based on qualitative studies[1,2,11] and anecdotal reporting.[12,13] It is unknown how frequently surgeons will override a patient's or surrogate's request for withdrawal of aggressive care and what factors influence this decision.

We used clinical vignettes to examine potential conflict between surgeon error and patient autonomy in the context of high-risk operations where unfortunate outcomes are not uncommon. Our use of vignettes allowed us to experimentally examine the role that operative timing and surgeon error may play in surgeons' decisions to withdraw life-supporting therapy after an unwanted clinical outcome. We explicitly tested the association between surgeons' personal responsibility and decisions to withdraw life-supporting therapy in the setting of a postoperative complication.

METHODS

Participants and Incentives

We administered our survey to a randomly selected sample of Vascular, Cardiothoracic, and Neurosurgeons derived from membership lists of regional vascular surgery societies, the Society of Thoracic Surgeons, and the Cerebrovascular Section of the American Association of Neurological Surgeons. We selected these subspecialties to maximize the likelihood that participants routinely performed high-risk operations. We defined "high risk" throughout the survey as an operation with a procedural mortality greater than 1% or significant morbidity such as renal failure, major stroke, paralysis, or ventilator dependence.

In March 2010, we sent 2100 surveys, 700 per subspecialty group, to potential respondents. Each survey was packaged with a

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Disclosure: Dr Schwarze is supported by a Greenwall Faculty Scholars Award and the Department of Surgery at the University of Wisconsin. Mr Redmann is supported by a Shapiro Summer Research Award from the University of Wisconsin School of Medicine and Public Health. Dr Alexander is supported by the Agency for Healthcare Research and Quality (RO1 HS0189960). These funding sources had no role in the design and conduct of the study; collection, management, analysis, or interpretation of the data; and preparation, review, or approval of the manuscript for publication.

Supplemental digital content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's Web site (www.annalsofsurgery.com).

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ISSN: 0003-4932/12/25601-0010
DOI: 10.1097/SLA.0b013e3182580de5

stamped return envelope and a laser-pointer pen valued at $2.85 as an incentive to encourage participation. A follow-up survey with stamped return envelope was sent to all nonrespondents. Because of a low response rate, a third survey was sent to nonresponding neurosurgeons after verifying addresses through Internet searches. We then added 180 members of the American Association of Neurological Surgeons to replace individuals from the first cohort whose addresses could not be verified.

We used the American Association for Public Opinion guidelines to calculate our response rate.[14] First, all surveys that were returned to sender without survey response and all surveys completed by ineligible respondents such as junior residents and nonsurgeons were removed. Next, we used an Internet search to estimate the percentage of nonrespondents who were ineligible due to faulty contact information by verifying the contact information of 60 respondents—20 from each subspecialty group—and 60 nonrespondents. We combined this eligibility information according to the American Association for Public Opinion standards to calculate the adjusted response rate.

Survey Design

We designed a survey to elicit factors that may influence a surgeon's decision to withdrawal life-supporting therapy postoperatively after a life-altering complication. We first conducted a qualitative study to identify themes and trends regarding surgeons' practices around the use of advance directives and withdrawal of life-supporting therapy. We used semistructured interviews of surgeons and other physicians who routinely care for patients having high-risk operations. This study identified the importance of preoperative discussions, the influence of error and responsibility, and personal investment in the surgical patient as important factors for postoperative decisions about life-supporting therapy.[8,15] Next, we developed survey questions to validate and generalize the results of our qualitative investigation.

We designed a vignette to assess surgeon response to a patient's request to withdraw life-supporting therapy after a difficult postoperative complication (see Supplemental Appendix, Supplemental Digital Content 1, http://links.lww.com/SLA/A251). The vignette featured a specialty specific operation and we used a 2 × 2 between-subject factorial design to assess the associations of interest (Table 1). Thus, each surgeon received 1 of 4 vignette versions that modified the timing of the case (elective vs emergent) and the nature of the surgical complication (surgeon error vs happenstance). Our primary variable of interest was the surgeon's response to the patient's request to withdraw life-supporting therapy. We asked respondents how likely they would be to withdraw therapy using a 4-point Likert scale response frame ("Not at all Likely," "Somewhat Unlikely," "Somewhat Likely," and "Very Likely"). We also examined respondents' likelihood of asking the patient to wait for a short period of time (3 days) or for a prolonged period (10 days) to revisit the question of withdrawal of life-support. To understand factors that contributed to the surgeon's decision, we directly assessed the influence of 10 distinct factors on the surgeon's management of the patient's request to withdraw aggressive therapy. These factors include surgeon factors such as impact on performance measures and fear of litigation, institutional factors such as hospital resources invested in the patient's care, and patient factors such as the patient's ability to accurately predict the value of future health states.

The hypothetical vignette was piloted and pretested with 2 vascular surgeons, 1 neurosurgeon, and 1 cardiac surgeon for technical clarity and plausibility. In addition, all survey items were iteratively tested and modified using cognitive interviews with 6 surgeons who routinely perform high-risk operations but did not practice vascular, cardiac, or neurosurgery. The study was approved as exempt by institutional review boards at the University of Wisconsin and the University of Chicago and included a waiver of written consent.

Analysis

We entered data using Microsoft Excel with a 10% audit confirming that the accuracy of data entry was greater than 99%. We used descriptive statistics to examine the distribution of each variable. We defined our primary outcome as the surgeon's response to the patient's request for withdrawal of life-supporting therapy. For this analysis, we dichotomized responses by comparing "Not at all Likely" and "Somewhat Unlikely" with "Somewhat Likely" and "Very Likely." In sensitivity analyses, we examined the effect of different methods of categorizing this outcome variable, and findings were substantively unchanged using other methods of categorization. Next, we examined the bivariate association between the timing of the case, the nature of the surgical complication, surgeon-cited factors, and the surgeon's likelihood of honoring the patient's request to withdraw life-supporting therapy. Finally, we conducted stepwise multivariate logistic regression to identify factors independently associated with surgeons' decision to withdraw care. Our final models included the

TABLE 1. Characteristics of Clinical Vignettes Administered to Surgeons

	Vascular	Cardiothoracic	Neurosurgical
Elective	Thoracoabdominal aneurysm repair	Ascending aortic aneurysm repair	Calcified right MCA aneurysm clipping
Emergent	Ruptured thoracoabdominal aneurysm repair	Emergency ascending aortic aneurysm repair for dissection	Calcified right MCA aneurysm clipping with a Fischer 3, Hunt and Hess grade II subarachnoid hemorrhage
Surgeon error	During the operation, surgeon inadvertently places the proximal clamp so that it occludes the left carotid artery and the patient has weakness in her right arm and leg when she awakes from anesthesia	During the operation, surgeon inadvertently dislodges arterial cannula and patient has weakness in her right arm and leg when she awakes from anesthesia	Postoperative angiogram demonstrates that during the operation surgeon inadvertently caused ischemia from a third MCA branch that was accidently occluded by the clip tines
Not clearly surgeon error	Patient has an intraoperative stroke and weakness in her right arm and leg when she awakes from anesthesia	Patient has an intraoperative stroke and has weakness in her right arm and leg when she awakes from anesthesia	Patient has a dense left hemiparesis when she awakes from anesthesia; MRI confirms nonhemorrhagic stroke in the right internal capsule

experimental variables of interest, basic demographic characteristics of respondents, and factors surgeons reported as influential in guiding their decision making that were of at least borderline significance ($P < 0.10$) on bivariate analysis. All analyses were conducted using SAS version 9.1 (SAS Institute Inc, Cary, NC).

RESULTS

Participants

A total of 912 completed surveys were returned. The adjusted response rate was 56% for vascular surgeons, 54% for cardiac surgeons, and 56% for neurosurgeons. A similar number of surveys were returned for each of the 4 randomly distributed vignettes. We found no significant difference in the willingness to withdraw life-supporting therapy between the early responders and the late responders to this survey, suggesting the absence of response-wave or nonresponse bias.

Nearly all surgeons reported performing at least one high-risk procedure per month (mean = 10.8, median = 8). The respondents were evenly split between private practice and academic practices and represented a broad range of practice experience (Table 2). In response to the vignette featuring a patient requesting withdrawal of life-supporting therapy, 63% of surgeons reported they were "Not at all" or "Somewhat unlikely" to withdraw life-supporting therapy in this setting; 57% reported they were "Very Likely" or "Somewhat Likely" to wait 10 days to see if the patient's condition improved.

Factors Influencing the Decision to Withdraw Life-Supporting Therapy

On bivariate analysis, surgeons who were told the patient's complication was the result of surgeon error were significantly less likely to withdraw support than their colleagues who encountered a noniatrogenic complication (33% vs 41%, $P = 0.008$) (Figure 1). Similarly, surgeons who had an elective operation were less likely to withdraw life-supporting therapy than those operating in an emergent setting (33% vs 41%, $P = 0.01$) (Table 3). There were also differences in the likelihood of withdrawal of life-support based on several other surgeon characteristics. For example, cardiothoracic and neurosurgeons were significantly less likely to withdraw life-support than vascular surgeons (30 vs 37 vs 45%, respectively, $P = 0.0006$). In addition, surgeons who were less likely to withdraw life-supporting therapy were more likely to report personal optimism about the patient's future quality of life than their counterparts (79% vs 62%, $P < 0.0001$). There was no difference in reported concern about performance measures between surgeons who withdrew and did not withdraw life-supporting therapy (25% vs 27%, $P = 0.54$) (Table 4).

On multivariate analyses, a strong and statistically significant association persisted between surgical timing, the surgeon's role in the poor outcome, and willingness to withdraw life-support. The odds of withdrawing life-sustaining therapy were nearly twofold as great among surgeons who encountered a complication that was not clearly the result of surgeon error during an emergency operation than among surgeons encountering a complication from surgeon error in the elective setting (odds ratio [OR] = 1.95, 95% confidence intervals [CIs] 1.26–3.01). In addition, the odds of withdrawing life-support were greater among those who did not express optimism about the patient's future quality of life (OR = 1.75, CI 1.11–2.50) and among those who were less concerned that the patient did not accurately value her future health state (OR 1.59, CI 1.11–2.27) than among their counterparts (Table 5).

TABLE 2. Respondent Characteristics (N = 912)

	No. (%)
Male gender	850 (94)
Specialty	
Vascular	327 (36)
Neurological	273 (30)
Cardiovascular	312 (34)
Practice setting	
Private practice	376 (42)
Academic practice	328 (37)
Private practice with academic affiliation	182 (20)
Other	8 (1)
Years in practice	
<10	187 (22)
11–20	208 (25)
21–30	229 (27)
>30	216 (26)
No. of high-risk operations performed each month	
0	34 (4)
1–5	311 (34)
6–10	256 (31)
11+	238 (29)

DISCUSSION

In this national study of surgeons, those faced with complications from surgical error during an elective operation were substantially less likely to withdraw life-supporting therapy than those managing a patient in whom a complication was not clearly from error and occurred in the setting of an emergency operation. Optimism about the patient's future quality of life and concern for the patient's ability to accurately predict her future health state were both associated with a surgeon's decision to delay withdrawal of postoperative life-support.

These findings are important because high-risk operations are performed frequently and little is known about the complex factors that influence the management of complications and requests for withdrawal of life-supporting therapy. Surgeons who feel responsible for the life of their patient and the role that they played in an unwanted outcome have difficulty relinquishing the goal of patient survival. Patients and other providers unaware of the surgeon's error and feelings of responsibility may then struggle to understand the surgeon's inability to change course and reconsider clinical goals. In *The Silent World of Doctor and Patient*, Jay Katz notes that " . . . physicians and patients bring their own vulnerabilities to the decision-making process. Both are authors and victims of their own conflicting motivations, interests and expectations."[16] Our findings demonstrate that in the setting of an unwanted postoperative outcome, a surgeon's emotion and accountability have inevitable clinical consequences for both surgeons and patients.

For surgeons, these data suggest that nonclinical factors may influence decision making about withdraw of life-supporting therapy. Ours is not the first study to suggest the importance of nonclinical factors that influence clinical decision-making; there is a large body of literature demonstrating how nonclinical patient characteristics, as well as features of physicians and structural aspects of care, may affect health care delivery.[17–20] However, our study is unique in its examination of high-risk operations and the role that technical performance may play in guiding the management of postoperative life-supporting therapies. Iatrogenic complications that clearly derive from technical error during elective operations may pose considerable guilt and emotional burden upon surgeons.[21–23] It is understandable that such factors should weigh on the surgeon. However, our findings call into question the degree to which these factors may unduly interfere with a patient's ability to control his or her health care decisions.[24,25]

For patients and their families, these data suggest that surgeons who prognosticate in the setting of an elective operation complicated

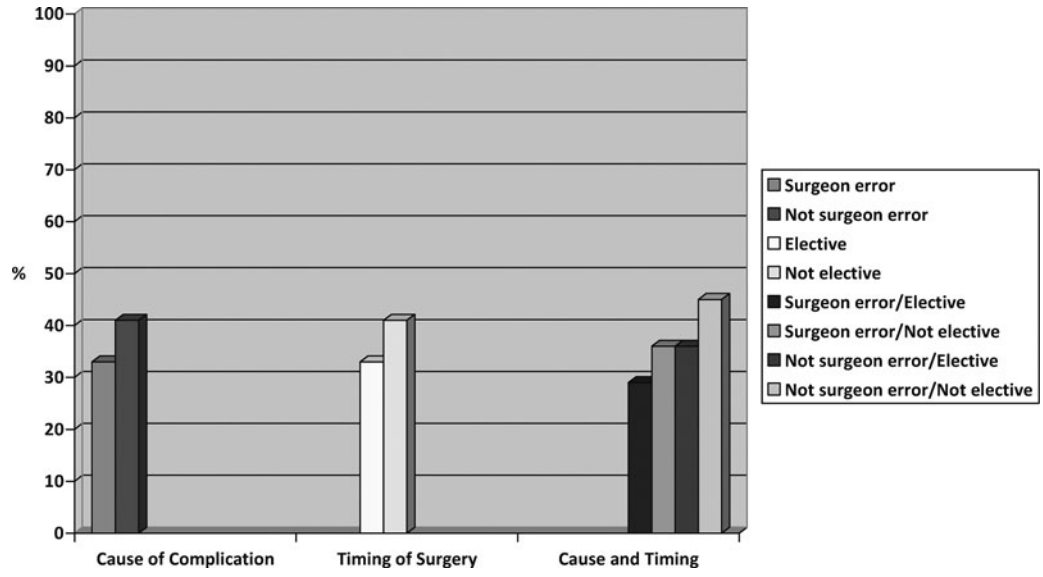

FIGURE 1. Percentage of surgeons who would withdraw life support at the time of patient request as influenced by vignette characteristics.

TABLE 3. Bivariate Association Between Respondent and Vignette Characteristics and Withdrawal

Characteristic	N	Percent Withdrawing Life Supporting Therapy	Bivariate *P*
Sex			
Male	830	38	0.90
Female	49	37	
Subspecialty			
Cardiothoracic	307	30	
Neurosurgery	264	37	0.0006
Vascular	317	45	
Years of experience			
0–10	193	42	
11–20	213	39	0.22
21–30	228	36	
31–40+	214	33	
Region			
Midwest	226	36	
Northeast	245	43	0.03
South	234	30	
West	158	40	
Cause of complication			
Surgeon error	427	33	0.008
Not surgeon error	461	41	
Timing of surgery			
Elective	429	33	0.01
Not elective	459	41	
Cause and timing			
Surgeon error/Elective	208	29	
Surgeon error/Not elective	221	36	0.004
Not surgeon error/Elective	219	36	
Not surgeon error/Not elective	240	45	

by technical error may be providing information that is overly influenced by an emotional response to the clinical situation rather than an unbiased interpretation of the relevant clinical data. Indeed physicians' *subjective* impressions about survival may have more impact on the decision to withdraw support in the critically ill patient than validated predictive models[26,27] and physicians' tendency to be overly optimistic regarding the prognosis of terminally ill patients has been well described.[28] Our data suggest that commission of an error in surgical technique and prognostic optimism may present a challenge to patient autonomy. Particularly in settings in which there is disagreement between patients and their families and the treating physician, our findings highlight the importance of frank discourse and, when needed, consultation with other disinterested parties in order to navigate what may be difficult postoperative decision-making.

Recognition that the surgeon's emotional state may have a significant impact on patients' postoperative management also suggests the importance of efforts to alleviate surgeons' emotional strain while simultaneously respecting the fierce ethic of responsibility that surgeons possess for patients' outcomes.[1] While surgical Morbidity and Mortality (M&M) Conferences may be a forum for catharsis and education surrounding technical error, there are few, if any, other formal venues for surgeons to express the emotional burden of caring for the surgical patient.[22,29–31] Furthermore, although efforts to improve quality and outcomes in surgery are essential, the goals of quality improvement should be distinct from the intrinsic goals of surgical therapy and from the value of the surgeon–patient relationship. The performance of an operation to save or improve quality of life is valuable to patients and their families even when the patient does not survive.

Our study had several limitations. First, as with all surveys, our findings may be subject to nonresponse bias. However, we did not find any evidence of response wave bias, and since our hypothetical vignette used an experimental design, it is unlikely that our main findings would be substantively affected by such bias. Second, we focused on Vascular, Cardiothoracic, and Neurosurgeons because of how commonly they perform high-risk operations. Although our findings may not be generalizable to surgeons in other fields such as general surgery or nonthoracic surgical oncology, we have no reason to believe otherwise. Third, our study design necessarily used a hypothetical vignette so that operative characteristics could be experimentally altered. Although vignettes cannot capture the complexity present in a real clinical case, evidence supports their use to examine physicians' clinical decision-making.[32]

TABLE 4. Association Between Factors Impacting Decisions to Withdraw Life Supporting Therapy

Factors "Somewhat" or "Very Important" Influencing Management of Vignette Patient	Response to Hypothetical Vignette Regarding Whether or Not Life Supporting Therapy Should Be Withdrawn: Favor Withdrawing Therapy (N = 329), %	Favor Not Withdrawing Therapy (N = 557), %	*P*
Preoperative discussion with family	97	94	0.08
Impact on performance measures	25	27	0.54
Personal time and emotional commitment	50	52	0.66
Hospital resources invested in patient	19	16	0.25
Patient's unknown prognosis	70	70	0.97
Personal optimism regarding patient's future QOL	62	79	<0.0001
Concern patient is unable to accurately predict value of future health state	68	80	<0.0001
Personal feelings about morality of WD of LST	16	31	<0.0001
Fear of litigation	16	16	0.99
Belief that as the patient's surgeon you are ultimately responsible for her death	31	33	0.54

QOL indicates quality of life; LST, life supporting treatment; WD, withdraw.

TABLE 5. Multivariate Logistic Regression of Surgeon and Operative Factors Associated With Withdrawal of Life-Supporting Therapy

	OR (95% CIs)
Case factors	
Iatrogenic/Elective	Ref
Iatrogenic/Emergent	1.34 (0.86–2.11)
Not iatrogenic/Elective	1.37 (0.88–2.12)
Not iatrogenic/Emergent	1.95 (1.26–3.01)
Surgeon factors	
Specialty	
Cardiothoracic	Ref
Neurosurgery	1.29 (0.87–1.90)
Vascular	1.72 (1.81–2.52)
Years of experience	
30+	Ref
21–30	1.05 (0.68–1.61)
11–20	1.43 (0.92–2.20)
0–10	1.50 (0.96–2.36)
Region	
South	Ref
Midwest	1.23 (0.79–1.91)
Northeast	1.64 (1.07–2.54)
West	1.47 (0.92–2.35)
Somewhat or very important factors influencing decision making	
Preoperative conversations	2.00 (0.91–4.4)
Optimism about patient's future quality of life	0.57 (0.40–0.80)
Concern patient cannot accurately predict value of future health state	0.63 (0.44–0.90)
Morality of withdrawing life supporting therapy	0.51 (0.35–0.75)

In conclusion, when a patient suffers a life-threatening complication and requests withdrawal of life-supporting therapy postoperatively, surgeons may be unlikely to withdraw life-supporting therapy without delay. These decisions are influenced by both the timing of surgery and whether the complication was the result of explicit technical error. In addition, these nonclinical factors may be associated with surgeons' optimism about the patient's postoperative quality of life. Future efforts to enhance shared decision making for critically ill surgical patients need to address nonclinical biases that influence decision making in the setting of surgical complications.

ACKNOWLEDGMENTS

The authors thank Layton Rikkers and Michelle Mello for their thoughtful review of this manuscript. In addition, we appreciate the work of Glen Leverson and Ann Chodara for assistance with statistical analysis and data management.

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Appeal Submitter
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Summary of Appeal:
Please reconsider addition of 30-day post CABG all-cause mortality as a quality metric. Surgeons often struggle to withdraw life supporting treatments on postoperative patients despite patient or family preferences. While this conflict genuinely stems from deep notions of responsibility our data demonstrate that surgeons who report concern about profiling are more likely to refuse to withdraw life support before POD 30. This game-able metric harms patients and families, the surgeon patient relationship and fails to capture important safety information. Consider the patient who spends 24 hours in ICU and is discharged to home post-operative day 5 versus the patient who has the same operation, spends 20 days in ICU, is transferred to an LTAC and then palliative care on POD 32. These vastly different outcomes are not captured by the equivalent 30-day survival assigned to both episodes: it fails to capture what is truly valuable to patients who don't want to live to just 30 days.

VIEWPOINT

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. The 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 are more likely to 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 in which hard outcomes, such as 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.

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: intensive care unit days, prolonged mechanical ventilation (longer than 96 hours), and discharge destination. There is a clear distinction between the patient who has an extended hepatectomy, spends 24 hours in the intensive care unit and 5 days in the hospital, and is discharged to home with physical therapy and the patient who has the same operation, spends 14 days in the intensive care unit on a ventilator and 33 days in the hospital, and is discharged to a long-term acute care hospital with a tracheostomy. Although the differences between these 2 outcomes are striking, this distinction is not well captured by the equivalent 30-day survival assigned to both episodes.

Report Patient-Centered Outcomes

The collection of data on patient-centered 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 will 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 by 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, re-

porting 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 do-not-resuscitate order and death. Although the collection of survival rates after palliative operations might help inform future patients about the value of an operation, the 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, such as 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 would 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 and the patients 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 because there is much at stake for both patients and surgeons. The way forward requires (1) an alignment of the goals of surgery with the outcomes that are measured and (2) a more sophisticated and nuanced approach in order to value the full range of outcomes that surgeons have to offer patients beyond 30-day survival.

ARTICLE INFORMATION

Published Online: June 4, 2014. doi:10.1001/jamasurg.2013.5143.

Conflict of Interest Disclosures: None reported.

Funding/Support: Dr Schwarze reports grant support from the Greenwall Foundation (Greenwall Faculty Scholars Award and Greenwall Program for Bioethics and Patient Care) and the National Center for Advancing Translational Sciences (9U54TR000021). The project described was supported by the Clinical and Translational Science Award program, previously through National Center for Research Resources grant 1UL1RR025011 and now through National Center for Advancing Translational Sciences grant 9U54TR000021 (to Dr Schwarze).

Role of the Sponsor: The funding agencies had no role in the design and conduct of the study; collection, management, analysis, or interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Additional Contributions: We thank Justin Dimick, MD, MPH, from the Department of Surgery at the University of Michigan, Ann Arbor; Diane Meier, MD, FACP, from the Center to Advance Palliative Care at the Icahn School of Medicine at Mount Sinai in New York; James Tulsky, MD, from the Center for Palliative Care at Duke University School of Medicine in Durham, North Carolina; and the Qualitative Research Group at the University of Wisconsin Institute for Clinical and Translational Research in Madison for their valuable input on earlier versions of this article. All of these people read the manuscript and offered comments on or a critique of the manuscript. No financial compensation was received for this input.

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VIEWPOINT

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