See Article page 134.

Commentary: Failure to rescue: “The medium is the message”

Paul Kurlansky, MD

Since Silber and colleagues¹ defined “failure to rescue” (FTR) as the mortality among patients who suffered postsurgical complications, interest has accelerated within the profession, with broad endorsement by the National Quality Forum and public reporting by the Centers for Medicare and Medicaid Services. Therefore, the article by Likosky and colleagues² is both timely and welcome, especially as the Society of Thoracic Surgeons (STS) recently introduced FTR as a newly developed STS metric at this year’s annual meeting.

Several of the findings are consistent with what has been previously reported. By focusing on the most common cardiac surgical operation, coronary artery bypass grafting, the authors avoided much of the heterogeneity potentially introduced by complex interactions of operation and complication—a rich topic for future research. Findings were, in several regards, similar to that reported by Edwards and colleagues³ for patients undergoing coronary artery bypass grafting in the STS database. Even more compelling than relatively similar rates of FTR for major complications was the key finding common to many surgical FTR studies—as mortality increases, the increase in FTR is more pronounced than the increase in complications, strongly suggesting that the management of complications may be a more powerful driver of mortality than their incidence. The implications are manifest—although it is both praiseworthy and appropriate to attempt to prevent complications, a certain level of complications may be intrinsic to the patient population needing surgery and therefore more productive efforts need to be directed toward instituting those systems and practices most successful (nonmortal) in their management. The introduction of intraoperative variables into their modeling was appropriate but may have been cautious. The failure to

Number of articles recorded in PubMed with “failure to rescue” in the title over time.

CENTRAL MESSAGE

Failure to rescue is emerging as an important metric focused on identifying institutional opportunities for improvement in post-operative patient care.

change the c-statistic has many explanations, not the least of which may be the impact of rare but powerful effects that may not influence overall model discrimination but may manifest in specific situations—net reclassification index, calibration, and other parameters warrant examination as well. Although the calibration of their model improved with the inclusion of a broader range of complications, one addition factor that may have also been worthy of exploration is the interactions of specific combinations of complications as these associations can be quite variable and dramatic.

In our appropriate passion to address this issue, we should not overstate the case. Complications and their management represent only one phase of care driving mortality in cardiac surgery.⁴ As such, FTR does not replace any of our current well-established metrics but rather informs and augments them in a potentially actionable fashion.

One of the most important contributions of this report is the IMPROVE Network itself. If the authors’ conclusions suggest the ability of greater-performing institutions to help inform their lower-performing colleagues, then it is specifically the sort of data-sharing networks such as this one that have a unique potential not only to identify these opportunities but to actually develop the initiatives that can yield positive results. The balance between sufficient volume to generate meaningful data and limited scope that permits individual interaction and collaboration may be the very model for actualizing the improvements advocated. The medium is the message.⁵

From the Division of Cardiac Surgery, Department of Surgery, Columbia University, New York, NY.

Disclosures: The author reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Jan 25, 2021; revisions received Jan 25, 2021; accepted for publication Jan 26, 2021; available ahead of print Feb 3, 2021.

Address for reprints: Paul Kurlansky, MD, Columbia University Irving Medical Center, Black Building 210, 650 West 168th St, New York, NY 10032 (E-mail: Pk2245@cumc.columbia.edu).

J Thorac Cardiovasc Surg 2023;165:144-5

0022-5223/\$36.00

Copyright © 2021 by The American Association for Thoracic Surgery

<https://doi.org/10.1016/j.jtcvs.2021.01.107>

References

1. Silber JH, Williams SV, Krakauer H, Schwartz JS. Hospital and patient characteristics associated with death after surgery. A study of adverse occurrence and failure to rescue. *Med Care*. 1992;30:615-29.
2. Likosky DS, Strobel RJ, Wu X, Kramer RS, Hamman BL, Brevig JK, et al. the National Cardiac Surgery Quality IMPROVE Network; Interhospital failure to rescue after coronary artery bypass grafting. *J Thorac Cardiovasc Surg*. 2023; 165:134-43.e3.
3. Edwards FH, Ferraris VA, Kurlansky PA, Lobdell KW, He X, O'Brien SM, et al. Failure to rescue rates after coronary artery bypass grafting: an analysis from the Society of Thoracic Surgeons Adult Cardiac Surgery database. *Ann Thorac Surg*. 2016;102:458-64.
4. Shannon FL, Fazzalari FL, Theurer PF, Sutcliffe KM, Prager RL, for the Michigan Society of Thoracic and Cardiovascular Surgeons. A method to evaluate cardiac surgery mortality: phase of care analysis. *Ann Thorac Surg*. 2012;93:36-43.
5. McLuhan M. *Understanding Media: The Extensions of Man*. Canada: McGraw-Hill; 1964.

See Article page 134.

Commentary: It takes a village: The next frontier in quality improvement

James R. Edgerton, MD^{a,b,c}

In this issue of the *Journal*, Likosky and colleagues¹ describe a retrospective observational study of 83,747 cases of coronary artery bypass at 90 centers in 6 regional collaboratives. Rates of (1) complications, (2) operative mortality, and (3) failure to rescue (FTR), defined as death following a complication, were compared across hospital observed to expected mortality terciles. The data revealed significant interhospital variation in mortality, which was driven much more by FTR than by rate of complications. Further, FTR rate after major complications was not correlated with case volume. As the authors state, “interhospital variation in mortality is driven more by how a hospital manages complications than the rate of complications.”

In a quest to improve cardiac surgical care, surgeons have pursued additional training, developed procedural refinements, and improved both care algorithms and patient selection criteria. This has resulted in improved morbidity and mortality despite the ever-increasing comorbidity of our patients. Others have demonstrated significant institutional variation in outcomes.²⁻⁴ This study shows again that high-performing centers

CENTRAL MESSAGE

Reducing failure to rescue is the next frontier in quality improvement. This requires a team approach to care, development of new relationships with shared responsibilities, and new paradigms of care.

with low mortality do not have fewer complications but rather lower mortality in those who experience a complication.

Surgical outcomes are sometimes viewed as a reflection of surgeon competence. However, quality performance encompasses a range of processes. This study spotlights the next frontier in cardiac surgery quality improvement: institutional competence. Reducing complications is desirable. However, rate of complications is more likely due to patient comorbidities than to quality of hospital care.⁵⁻⁸ An important aspect of improving institutional performance is to reduce FTR rate. To accomplish this, hospitals first need a benchmark FTR rate for each procedure against which they may gauge their institutional performance. To focus their quality-improvement efforts, they also need a benchmark for FTR after each individual complication. For example, they may excel at rescuing patients who suffer a stroke but fall behind in rescue after renal failure.

From the ^aDivision of Cardiothoracic Surgery, Washington University, Barnes Jewish Hospital, St Louis, Mo; ^bBaylor Scott and White Health, Dallas, Tex; and ^cDepartment of Biology, College of Charleston, Charleston, SC.

Disclosures: The author reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Jan 28, 2021; revisions received Jan 28, 2021; accepted for publication Jan 29, 2021; available ahead of print Feb 5, 2021.

Address for reprints: James R. Edgerton, MD, Cardiac Surgery, Washington University in Saint Louis, St Louis, MO 63130 (E-mail: james.e@email.wustl.edu).

J Thorac Cardiovasc Surg 2023;165:145-6

0022-5223/\$36.00

Copyright © 2021 by The American Association for Thoracic Surgery

<https://doi.org/10.1016/j.jtcvs.2021.01.131>