



Editorial

Limiting Readmissions Following Cardiac Surgery—A “Common Sense” Solution

Harold L. Lazar, MD

Division of Cardiac Surgery, Boston University School of Medicine, Boston, Massachusetts, USA

See article by Tam et al., pages 1655–1664 of this issue.

In this issue of the *Canadian Journal of Cardiology*, Tam et al.¹ report the results of their review of readmissions after cardiac surgery. In this study involving patients in Ontario from 2008 to 2016, the 30-day readmission rate after isolated coronary artery bypass graft (CABG) surgery, isolated and multiple valve surgery, or combined CABG-valve surgery was 11.5%. They identified 5 factors associated with an increased risk for readmission: prolonged length of stay, isolated valve surgery, sepsis, an acute myocardial infarction, and concomitant CABG + valve surgery. The most common causes for readmission were congestive heart failure, arrhythmias, pleural effusions, surgical site infections, angina, and pneumonia. In 8.9% of readmissions, no definitive indication could be identified.

Numerous studies have looked at factors predicting readmission after CABG based on events in the postoperative period and have reported similar results. Recently, Benezillo et al.² developed a model to predict hospital readmissions after isolated CABG from data derived at the time of admission and found that older age, diabetes, and preoperative serum albumen levels were also risk factors for readmission. The study by Tam et al. differs from other studies in that it includes both CABG and valve surgery and is derived from multiple institutions. The authors propose developing a “mobile apparatus” to help clinicians identify those patients at higher risk for readmission so that those interventions associated with higher costs can be targeted only at those patients with the highest risk for readmission.

Reducing hospital readmissions after cardiac surgery has become an important priority for government and third-party payors. With the introduction of bundled payments, hospital administrators realized that discharging patients earlier would result in increased profits. Third-party payors used national administrative databases to determine the “proper” length of stay for various surgical procedures and adjusted

reimbursements accordingly. Surgeons who sent their patients home earlier were considered to be better clinicians who practiced more efficiently in an era of cost containment. Patients who required readmission simply generated another set of charges that were reimbursed.

Thirty-day readmission rates for CABG in the United States range from 15% to 21%,³ and average 14.9% for Medicare patients.⁴ Not only does early readmission after CABG surgery increase hospital costs, more importantly, it is associated with increased morbidity and mortality, and ultimately, decreased quality of life. In 2016, the Centers for Medicare and Medicaid Services began to track CABG readmission rates, and in 2017, the Centers for Medicare and Medicaid Services instituted monetary penalties for those hospitals whose readmission rates were significantly higher than the national average in an attempt to reduce hospital readmissions and curb costs.

How can we reduce hospital readmissions after cardiac surgery, while simultaneously curbing medical costs? What follows is a “Common Sense” solution to this problem:

- (1) *Patients should be discharged home when the following criteria are met:*
 - (a) Be afebrile with stable vital signs without arrhythmias for at least 36–48 hours before discharge.
 - (b) The sternum should be stable and all surgical incisions should have no signs of infection.
 - (c) Patients should tolerate a regular diet with regular bowel movements.
 - (d) Patients should be on a stable discharge medication schedule.
 - (e) The discharge weight should be within 1–2 kg of the preoperative weight.
 - (f) A discharge chest radiograph should be devoid of any significant pleural effusions.
 - (g) Patients discharged on Coumadin should attain a stable international normal ratio (INR) and have adequate plans for follow-up at a Coumadin clinic or physician’s office.
 - (h) Patients should be able to ambulate without assistance and be educated on sternal precautions.
 - (i) Patients should be on a stable pain medication regimen.

Received for publication September 18, 2018. Accepted September 21, 2018.

Corresponding author: Dr Harold L. Lazar, Division of Cardiac Surgery, Boston University School of Medicine, 80 E Concord Street, Boston, Massachusetts 02118, USA. Tel.: +1-617-833-0452.

E-mail: Harold.l.lazar@gmail.com

See page 1550 for disclosure information.

- (2) *Rehabilitation facilities should only be used for patients requiring extended periods of postoperative hospitalization.* Most cardiac surgery patients can be discharged home within 7 days of surgery. However, a significant percentage of patients may not meet discharge criteria on postoperative day 7. For those patients who require 1-3 days of in-patient stay to meet discharge criteria, it is safer and more cost-effective to keep them in the hospital rather than send them to a rehabilitation facility that results in “cost shifting” and increases medical cost.⁵ Furthermore, those patients requiring aggressive respiratory care should be transferred to the appropriate facility so that they can receive the proper pulmonary toilet to prevent pneumonia that results in an extended period of in-hospital length of stay.⁶
- (3) *Early after discharge follow-up.* Patients may develop issues after discharge that are only identified when seen on their first postoperative visit 2-3 weeks after discharge. Some programs have sent their physician assistants (PAs) on home visits within a week after surgery. Although this has the potential to reduce readmissions, it adds to medical costs and puts additional strain on PA manpower. It is nonsustainable and is rarely practiced today. Early postoperative visits also add to cost, may be difficult for patients and their families, and are not necessary in the majority of patients. A workable strategy is to have in-house PAs, and nurse clinicians call patients within the first week after discharge. This can allay anxieties amongst patients and help to identify those issues that might need to be addressed in an outpatient visit.
- (4) *The cardiac surgeon must be the gate keeper for all readmissions.* This is one area where cardiac surgery readmissions can be significantly decreased. Too often, patients are readmitted through the emergency department or through a community hospital without the surgeon, or a member of the surgical team actually seeing the patient. These noncardiac surgery providers are not familiar with postoperative changes to determine whether

chest pain is cardiac or noncardiac, the normal appearance of a sternotomy or leg incision, and the normal changes on a postoperative chest radiograph. Emergency department physicians should not be permitted to directly admit a postoperative cardiac surgical patient unless a member of the surgical team has evaluated the patient.

Not all readmissions are preventable. Similar to risk scores for determining operative mortality, some patients will be more prone to readmissions no matter what we do. As physicians, we should take the lead in initiating these “common sense” solutions and not wait for government agencies to legislate and mandate policies for readmission; for as we know, you cannot legislate “common sense.”

Disclosures

The authors have no conflicts of interest to disclose.

References

1. Tam DY, Fang J, Tran A, et al. A clinical risk scoring tool to predict readmission after cardiac surgery: an Ontario administrative and clinical population database study. *Can J Cardiol* 2018;34:1655-64.
2. Benuzillo J, Caine W, Evans RS, et al. Predicting readmission risk shortly after admission for CABG surgery. *J Card Surg* 2018;33:163-70.
3. Hannan EL, Zhang Y, Lahey SJ, et al. 30-day readmissions after coronary artery bypass graft surgery in New York State. *JACC Cardiovasc Interv* 2011;4:569-76.
4. United States Department of Health and Human Services. Hospital Compare. Available at: <https://www.medicare.gov/hospitalcompare/search.html>. Accessed December 1, 2017.
5. Lazar HL, Fitzgerald CA, Ahmed T, et al. Early discharge following CABG: are patients really going home earlier? *J Thorac Cardiovasc Surg* 2001;121:943-50.
6. Lazar HL. Preventing postoperative pneumonia: spending a buck will save a buck. *J Thorac Cardiovasc Surg* 2017;154:553-4.