

The SCA should recommend credentialing guidelines to hospitals for CT Anesthesiologists – CON

Gary W. Roach, M.D.
Chief, CV Anesthesiology
Kaiser Permanente, San Francisco
Clinical Professor of Anesthesiology, University of California, San Francisco

Introduction

The public increasingly expects demonstration of competency from the physicians providing their care and, perhaps unfortunately, regulatory organizations often respond to public pressure. The ones that could affect the practice of SCA members include ABMS (and its member board, the American Board of Anesthesiology), Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and even local hospitals through their independent credentialing and privileging processes. In addition, health maintenance organizations and business cooperatives such as the Leapfrog Group and the Institute for Healthcare Improvement (IHI) have demonstrated interest in setting volume requirements for institutions and surgeons performing cardiac surgery.

Every year the Society of Cardiovascular Anesthesiologists office receives requests from members and/or hospitals as to whether minimum volume recommendations for cardiac anesthesiologists exist. These requests largely stem from literature regarding the impact of hospital and surgeon volume on outcomes and the resulting recommendations from groups that consider volume when making healthcare choices. As an organization that advocates for improving patient care, it may be argued that the Society has an interest in making evidence-based recommendations assuming that evidence exists.

Background information

Over the two decades, a substantial amount of literature has been published in the medical literature regarding the association, or lack thereof, between hospital volume and outcomes. Likewise, a significant amount of literature discusses the relationship between surgeon volume and outcomes. One of the most consistent correlations has been for coronary artery bypass surgery, which has led some regulatory agencies as well as non-governmental groups such as Leapfrog to recommend minimum volumes for hospitals and surgeons performing coronary artery bypass graft (CABG) surgery (recommended hospital volume >450 cases/year; recommended surgeon volume > 100 cases/year). Twenty-six states require a Certificate of Need for new cardiac surgical services.

Given this data and subsequent volume recommendations for hospitals and surgeons, it is predictable that questions arise as to whether there should be volume recommendations for cardiac anesthesiologists as well. While at first glance this may seem reasonable, it

warrants a critical review of the literature and the responses of other specialty societies and boards.

As stated previously, there is an extensive body of literature regarding the association between surgeon and/or hospital volume and outcomes including mortality and readmission rates. However, there is a body of literature as well which demonstrates the relationship is not always present and that low volume centers can have excellent outcomes as well.

Recognizing that there would be a substantial push to limit cardiac surgery to high-volume centers and high-volume surgeons, the Society of Thoracic Surgeons examined the issue in 1996. They concluded, “there are no data to conclusively indicate that outcomes of cardiac operations are related to a specific minimum number of cases...” They went on to recommend that “..volume should not be used as a criterion for credentialing of cardiac surgeons by hospitals, managed care groups, or others. Instead each surgeon should be evaluated on his or her individual results.”

Conversely, the American College of Cardiology and American Heart Association have actively been involved in collecting data and making recommendations for minimum volumes for percutaneous cardiac interventions (PCI), both for individual operators as well as institutional volume. Ironically, the drive to perform PCI as a primary intervention for myocardial infarction has led to an increasing number of low volume surgical centers due to the perceived need for cardiac surgical back-up on site. Currently, there is no hard data which balances the effects of the calculated increased survival conferred by PCI in the setting of ST elevation myocardial infarction with the potentially decreased survival and increased morbidity of cardiac surgery performed in low volume settings.

Given the pressure to consider minimum volume requirements, a number of issues need to be addressed for cardiac anesthesiologists. It is widely believed that most of the cardiac anesthesiologist currently practicing in the United States are part-time cardiac anesthesiologists. Although no hard data exists concerning this matter, a 2001 survey of Cardiovascular/Thoracic anesthesiologists in Canada revealed that 84% practice some cardiac anesthesia, but only 32% indicated cardiac anesthesia as their primary area of practice (personal communication with David Mazer, M.D). The median number of hours/week spent performing cardiac anesthesia was ten suggesting the average anesthesiologist provides anesthesia for one to two cases/week in a setting where cardiac surgery has intentionally been regionalized. It is unclear how one would deal with a setting where an anesthesiologist may be involved in the care of multiple cardiac cases for which (s) he does not receive credit. One could argue that care of patients undergoing major vascular surgery should receive credit or taking care of cardiac patients in and intensive care unit, or other clinical activities, which might correlate with an ability to provide quality anesthetic care to cardiac surgical patients. Similarly, how does one account for experience? Should a cardiac anesthesiologist with twenty-five years or more of experience be required to perform the same number of cases as a new anesthesiologist who may not have completed an accredited fellowship program? Another factor which

complicates the decision is how to accredit practitioners in rural areas. If these practitioners cannot achieve the numbers needed for accreditation, it could result in diminished services to rural populations.

It must be recognized that cardiac anesthesiologists have accommodated minimum volume recommendations in some circumstances. The criteria for an ACGME accredited cardiac anesthesia fellowship include minimum volume recommendations (>40 valves, > 50 CABG, > 70 total procedures). Similarly the National Board of Echocardiography has minimum requirements for board certification that is often viewed as a surrogate for certification in cardiac anesthesiology. The basis of these recommendations is unclear, but is likely based on expert opinion.

Even if cardiac surgeons have declined to issue minimum volume recommendations, should there be recommendations for cardiac anesthesiologists? Oddly, the literature is essentially non-existent on this issue. In the absence of evidence to support an association, it is impossible to make a recommendation based on anything other than a guess which could not be particularly well educated.

Conclusion

The lure of setting minimum volume levels for cardiac anesthesiologists may well prove as irresistible as catnip to insurers and regulators. The Society of Cardiovascular Anesthesiologists should work to ensure this does not occur in the absence of any science to guide these decisions.

Suggested Reading:

1. The Leapfrog Group. Fact Sheet: Surgeon volume. www.leapfroggroup.org/media/file/Leapfrog-Surgeon_Volume_Fact_Sheet.pdf
2. Zacharias A, Schwann TA, Riordan CJ, et al. Is hospital procedure volume a reliable marker of quality for coronary artery bypass surgery? A comparison of risk and propensity adjusted operative and midterm outcomes. *Ann Thorac Surg*. 2005;79:1961-9.
3. Peterson ED, Coombs LP, DeLong ER, et al. Procedural volume as a marker of quality for CABG surgery. *JAMA*. 2004;291:195-201
4. Crawford FA, Anderson RP, Clark RE, et al. Volume requirements for cardiac surgery credentialing: a critical examination. *Ann Thorac Surg* 1996; 61:12-16.
5. DiSesa VJ, O'Brien SM, Welke KF, et al. Contemporary impact of state certificate-of-need regulations for cardiac surgery. *Circulation*. 2006;114:2122-29.
6. Nallamothu BK, Saint S, Ramsey SD, et al. The role of hospital volume in coronary artery bypass grafting: is more always better? *J Am Coll Cardiol*. 2001;38:1923-30.
7. Early GL, Roberts SR. Excellence and low case volume: an example of the inapplicability of volume-based credentialing. *Ann Thorac Surg*. 2000;69:146-50.

8. Mack MJ, Herbert M, Prince S, et al. Does reporting of coronary artery bypass grafting from administrative databases accurately reflect actual clinical outcomes? *J Thorac Cardiovasc Surg.* 2005;129:1309-17.
9. Clark RE. Outcome as a function of annual coronary artery bypass graft volume. The Ad Hoc Committee on Cardiac Surgery Credentialing of The Society of Thoracic Surgeons. *Ann Thorac Surg.* 1996;61:21-6.
10. Hospital coronary artery bypass graft surgery volume and patient mortality, 1998-2000. Rathore SS, Epstein AJ, Volpp KG, Krumholz HM. *Ann Surg.* 2004;239:110-7.
11. Wen HC, Tang CH, Lin HC, et al. Association between surgeon and hospital volume in coronary artery bypass graft surgery outcomes: a population-based study. *Ann Thorac Surg.* 2006;81:835-42.
12. Marcin JP, Li Z, Kravitz RL, et al. The CABG surgery volume-outcome relationship: temporal trends and selection effects in California, 1998-2004. *Health Serv Res.* 2008;43:174-92.
13. Nallamothu BK, Saint S, Hofer TP, et al. Impact of patient risk on the hospital volume-outcome relationship in coronary artery bypass grafting. *Arch Int Med.* 2005;165:333-7.
14. Epstein AJ, Rathore SS, Krumholz HM, Volpp KG. Volume-based referral for cardiovascular procedures in the United States: a cross-sectional regression analysis. *BMC Health Serv Res.* 2005;5:42.
15. Hannan EL. The relation between volume and outcome in health care (ed). *N Eng J Med.* 1999;340:1677-79.
16. Hannan EL, Kilburn H, Bernard H, et al. Coronary artery bypass surgery: the relationship between in hospital mortality rate and surgical volume after controlling for clinical risk factors. *Med Care.* 1991;29:1094-107.
17. Shahian DM, Sharon-Lise TN. The volume-outcome relationship: from Luft to Leapfrog. *Ann Thorac Surg.* 2003;75:1048-58.
18. Grumbach K, Anderson GM, Luft HS, et al. Regionalization of cardiac surgery in the United States and Canada: geographic access, choice, and outcomes. *JAMA.* 1995;274:1282-88.
19. Tu JV, Naylor CD, et al. Coronary artery bypass mortality rates in Ontario. *Circulation.* 1996;94:2429-33.
20. Hannan EL, Racz MJ, Walford G, et al. Predictors of readmission for complications of coronary artery bypass graft surgery. *JAMA.* 2003;290:773-80.
21. Goodney PP, Lucas FL, Birkmeyer JD. Should volume standards for cardiovascular surgery focus only on high-risk patient? *Circulation.* 2003;107:384-7.
22. Birkmeyer JD, Siewers AE, Finlayson EVA, et al. Hospital volume and surgical mortality in the United States. *N Engl J Med.* 2002;346:1128-37.
23. Hannan EL, Chuntao W, Ryan TJ, et al. Do hospitals and surgeons with higher coronary artery bypass graft surgery volumes still have lower risk-adjusted mortality rates? *Circulation.* 2003;108:795-801.
24. Birkmeyer JD, Stukel TA, Siewers AE, et al. Surgeon volume and operative mortality in the United States. *N Engl J Med.* 2003;349:2117-27.
25. Christian CK, Gustafson ML, Betensky RA, et al. The Leapfrog volume criteria may fall short in identifying high-quality surgical centers. *Ann Surg.* 2003;238:447-57.

26. Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (ACC/AHA/SCAI Writing Committee to Update the 2001 Guidelines for Percutaneous Coronary Intervention). ACC/AHA/SCAI 2005 Guideline Update for Percutaneous Coronary Intervention—Summary Article. *Circulation*. 2006;113:156-175.