

The Volume-Outcomes Debate-What it means for the private practice surgeon.  
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In the past few years a discussion in the literature has raged regarding the relationship between quality of care and volume of surgical cases. Many argue for certain procedures being performed at high volume institutions while others believe the evidence is not strong enough to draw such a conclusion, and warn of hasty and faulty policy changes based on flawed studies. At the heart of the controversy is the desire to improve patient care and understand factors that influence outcomes. Weaknesses plague the supporting research and definitive conclusions have eluded the proponents of both side. If a relationship exists between volume and quality of outcomes, the implication follows that each surgeon should be limited those procedures of which she does “enough”. This in turn may lead insurance companies to limit payment to those providers who meet certain standards of volume. Community and rural surgeons stand to suffer from decreases in referrals and in payments and the theoretical end of this logic suggests that all surgery will be done at specialty centers that only do a few types of surgery. Patients will go to one center for their hernias and another center for their gallbladders. This may pose a threat to the patient with a ruptured AAA who will likely die en route to the “proper” care center that may be hours away. Such specialization is impractical for the present and the rural surgeon or community surgeon will still need to know how to deal with a wide range of surgical problems.

The Leapfrog Group, a consortium of healthcare purchasers, has recommended volume standards for hospitals for certain procedures and supports “evidence based hospital referral” (EBHR). Also in support is the Center for Medical Consumers which produced a report called “More Is Better” recommending patients seek medical care according to volume of procedures performed. Other researchers have looked at the science behind the volume-outcomes relationship and found some trends in the association between volume and outcomes in some cases but not all cases, and have noted that all of the available studies have been observational.

The following is an example of the conflicting facts:

1. “123 of 128 published studies showed some evidence of a ‘volume-quality’ relationship”, from a 2003 editorial in the JNCI titled: “Taking Action on the Volume-Quality Relationship: How Long Can We Hide Our Heads in the Colostomy Bag”.
2. “There is not a single study that confirms an absolute relationship between quality of care and overall volume of procedures performed”-from a 2003 article in General Surgery News, “Sifting Through the Quantity-Quality Relationship in Surgery”.
3. “The research in this field...consists mainly of cross-sectional studies, often using information from administrative databases with relatively little clinical detail”-from an editorial in Qual Saf Health Care, 2004;13:325-326, “The volume-quality relationship: insufficient evidence for use as a quality indicator”.
4. “These studies have emphasized that the quality of systems of care was more important than volume in determining the overall quality of surgical care at an institution” –from a 2005 article in the World J. Surg. “The case against volume as a measure of quality of surgical care”.

5. Threshold volumes have been variously recommended for carotid endarterectomy, coronary artery bypass grafting, pancreatic surgery, esophagectomy, rectal cancer surgery, any complex cancer surgery, and abdominal aortic aneurysm surgery. For carotid endarterectomy at least, the recommendations for minimal volumes changed from 100 per year (to receive Leapfrog's Evidence Based Hospital Referral status), to no optimal threshold volume and being dropped from the EBHR list after the evidence was re-examined.

More rigorous research needs to be done to draw definitive conclusions regarding a consistent relationship between volume and outcome. Such research will have to use prospective data. The ACS PBLs, which centralizes case logs, can provide some of this data. However it will only reflect that information provided by those surgeons who voluntarily participate, so it will be somewhat limited in its scope, and contain the sort of error that results from self-selection. Will the data confirm the relationship between volume and patient outcomes? Or will it point to subtleties in the outcomes analysis that will warrant more investigation. Missing from much of the research is the effect of patient factors and hospital practices on the volumes-outcomes relationship. Surgical education will need to adapt to the new expectations of more specialization and balance these with the broader surgical education that gives us surgeons our basic skills. The idea that "practice makes perfect", or that "more is better" makes intuitive sense. But not all surgery is craft, some is art and requires something other than simple numbers for success.

(For more information on the literature on the volume-outcomes relationship see a General Surgery News series of articles from June to October 2003 by Christina Frangou.)