

N. PROCEDURE VOLUME AND CLINICAL OUTCOMES

The Institute of Medicine held a workshop on the “volume-outcome” relationship in May 2000. One of the two papers commissioned by the workshop was, “How Is Volume Related to Quality in Health Care—A Systematic Review of the Research Literature” by Ethan Halm and others. This paper reviewed the existing literature on the subject, which is— 88 papers concerning 8 conditions and

- Higher volume was associated with better outcomes in 79 percent of studies analyzing hospital volume and 77 percent of studies analyzing physician volume.
- Volume was not associated with negative outcomes.
- The positive relationship between procedure volume and outcomes was noted in each of the 16 studies with the best methodologies.

The authors caution, however, that the outcomes vary greatly, particularly regarding low volume providers. They note that the volume effect is most dramatic with new procedures, and as procedures become more commonplace, the association between volume and outcome appears to weaken. There is also a “chicken-egg” hypothesis that states more successful centers get more referrals and therefore build volume. This alternative view suggests that volume is a consequence, rather than a cause, of good outcomes. Even where volume-outcome relationships exist, it is difficult to set volume thresholds that define an absolute boundary between higher and lower quality. Finally, evidence suggests that hospital volume and physician volume are probably independent effects.

VOLUME AND CABGS IN VISN 12

In VISN 12, one of the more vexing issues center on the volume of coronary artery bypass grafts (CABGs), so we reviewed this issue in greater detail. Halm identified nine CABG studies that met his methodological inclusion criteria. In these studies, the definition of low hospital volume ranged between 100 and 224 cases per year. The definition of high hospital volume ranged between 259 and 650 CABGs a year. A study by Hannan isolated the effects of physician and hospital volume and found increased mortality related to hospitals that performed fewer than 200 CABGs a year. Shroyer studied CABG outcomes at 44 VAMCs and found no relationship between volume and outcomes. However, the range of volume was very limited, with only three hospitals performing between 300 and 400 procedures, and no hospitals performing more than 400 procedures.

In VISN 12, CABGs are performed at three sites—Madison, Milwaukee, and Hines. In FY 2000, the hospitals performed the following number of cases: Madison—88 major and 35 minor cases; Milwaukee—274 major and 31 minor cases; and Hines—181 major and 42 minor cases. Although it is difficult to establish an absolute standard for low CABG volume, Madison appears to be in a range that would raise concern and stimulate further scrutiny. Madison’s volume issue is, however, mitigated partly by its relationship with the University of Wisconsin Medical Center. The two institutions are

physically connected, and resources and physicians flow freely between the two facilities. One could argue that the CABG volume in the two institutions should be added when considering total volume for quality purposes.

While we do not, at this time, have specific 2010 projection figures for CABGs, the volume at Milwaukee is likely to drop between now and 2010, and fall more precipitously thereafter. It may be advisable to move Madison CABG workload to Milwaukee to maintain adequate volume at Milwaukee. Alternatively, with workload dropping at all three sites, a sound argument could be made for concentrating all CABG workload at Hines. We suggest Hines because it is located in the largest population center in the VISN and will increase in size relative to all the other facilities in the VISN. Investing the appropriate resources to make Hines a center of excellence in this regard is likely to promote quality as well as efficiency.

CABGs and open heart surgeries are VA tertiary services that occupy the apex in a tiered system of care. Consequently, they are regional in nature and have implications beyond VISN 12. It would be prudent to defer a recommendation regarding the consolidation of CABG procedures until we have an opportunity to examine the resources in the neighboring VISNs and can obtain actuarial projection data that is CABG specific. In the meantime, it is reasonable to say that with three borderline volume CABG programs within 2 hours of each other, some consolidation will be indicated.