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Designation Does Matter

In his article entitled "Bariatric Surgery Outcomes at Designated Centers of Excellence vs Nondesignated Programs,"[1] Dr Livingston asserts that "designation as a bariatric surgery center of excellence does not ensure better outcomes" and "neither does high annual procedure volume." Livingston uses complex statistical equations and formulas to convince readers that he has done his research. Most will skim through the intricate details and move quickly to the commentary, leaving the statistical analyses to Livingston, who wrote the article alone without a statistician coauthor.

We, however, did not skim. Surgical Review Corporation (SRC) attempted to duplicate Livingston's research. We obtained the 2005 Nationwide Inpatient Sample (NIS) and used the same SAS software to reproduce and corroborate his findings. After considerable analysis, SRC biostatisticians, in consultation with biostatisticians from the University of North Carolina, concluded that the article contains significant inaccuracies and misinterpretations.

One example is Livingston's use of general additive models to assess the relationship between complications and procedure volume. His interpretation of the findings is that there is not a significant relationship between the two. However, the statistical results Livingston reports show that a significant linear relationship does exist: "The OR (95% CI) for procedure volume in relation to complication rates was 0.84 (0.78-0.90) ($P < .001$)." Livingston misinterprets that "the complication–procedure volume relationship is weak." Instead, the odds ratio of 0.84 with a 95% confidence interval that excludes 1.0 indicates the opposite: the odds of complications occurring at high-volume centers are significantly less.

Another issue with the article is that Livingston draws his conclusions from 2005 data. Surgical Review Corporation did not begin designating centers until September 2005, and most of the undesignated centers cited in the analysis ultimately became an American Society for Metabolic and Bariatric Surgery or American College of Surgeons center of excellence (COE) or a participant in one of these programs. The fact that a significant number of the non-COEs later achieved COE status could likely explain why there was little difference in outcomes between the 2 groups.

Livingston also admits that the NIS provides a weak basis for outcomes interpretation because it focuses on in-house complications and mortality, but he downplays this significant limitation by saying that "[readmissions] should be equally distributed among COEs and non-COEs." This assertion has no basis. To accurately assess the difference between the two, outcomes must be viewed longitudinally. Analysis using solely inpatient data cannot support the conclusion that COE designation does not ensure better outcomes.

Finally, Livingston claims that SRC's Bariatric Outcomes Longitudinal Database (BOLD) has "[not] been shown to improve bariatric surgery outcomes." It is inconceivable how this conclusion could be reached from the analysis Livingston conducted, since BOLD data entry did not begin in earnest until 2008. The BOLD now contains data for nearly 200 000 patients, providing an optimal platform to identify evidence-based improvements in surgical care. As BOLD continues to grow, we expect that the data will unequivocally demonstrate that COE designation represents superior outcomes.

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1. Livingston EH. Bariatric surgery outcomes at designated centers of excellence vs nondesignated programs. *Arch Surg*. 2009;144(4):319-325.

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