

Study examines hospital complication rates of bariatric surgery

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An examination of hospital complication rates of bariatric surgery for more than 15,000 patients in Michigan finds that the frequency of serious complications is relatively low and is inversely associated with hospital and surgeon procedural volume, according to a study in the July 28 issue of *JAMA*.

With rates of bariatric surgery increasing over the last decade, it has become the second most common abdominal operation in the United States. "Despite trends toward declining [mortality rates](#), payers and patient advocacy groups remain concerned about the safety of bariatric surgery and uneven quality across hospitals," the authors write.

Nancy J. O. Birkmeyer, Ph.D., of the University of Michigan, Ann Arbor, Mich., and colleagues studied perioperative outcomes of bariatric surgery in Michigan, including comparing complication rates by procedure and among hospitals and the relationship between procedure volume, [hospital safety](#), and centers of excellence (COE) accreditation. Standards for COE accreditation vary somewhat between programs, but generally include minimum procedure volume standards, availability of specific protocols and resources for managing morbidly [obese patients](#), and submission of outcomes data to a central registry.

The study involved 25 hospitals, 62 surgeons statewide and data from a [clinical outcomes](#) registry. The researchers evaluated short-term [morbidity](#) in 15,275 Michigan patients undergoing 1 of 3 common bariatric procedures between 2006 and 2009, and used various analytic tools to assess variation in risk-adjusted complication rates across hospitals and the association with procedure volume and COE designation status.

The researchers found that overall, 7.3 percent of patients experienced 1 or more perioperative complications, most of which were wound problems and other minor complications. Serious

complications were most common after gastric bypass (3.6 percent), followed by sleeve gastrectomy (2.2 percent), and laparoscopic adjustable gastric band (0.9 percent) procedures. After adjustment for patient characteristics and procedure mix, rates of serious complications varied from 1.6 percent to 3.5 percent across hospitals. Infection was the most frequent type of surgical site complication (3.2 percent) and was most common among patients undergoing gastric bypass (4.4 percent) and sleeve gastrectomy (2.5 percent) procedures. Fatal complications occurred in 2 patients receiving laparoscopic adjustable gastric band (0.04 percent), 0 patients receiving sleeve gastrectomy, and 13 patients receiving [gastric bypass](#) (0.14 percent).

"Risk of serious complications was inversely associated with average annual bariatric procedure volume. For surgeon volume, rates in the low-, medium-, and high-volume categories were 3.8 percent, 2.4 percent, and 1.9 percent, respectively. For hospital volume, adjusted rates of serious complications were 4.1 percent, 2.7 percent, and 2.3 percent in low-, medium-, and high-volume hospitals, respectively. Serious complication rates were about twice as high (4.0 percent) for low-volume surgeons at low-volume hospitals than for high-volume surgeons at high-volume hospitals (1.9 percent)," the authors write. Overall, adjusted rates of serious complications were similar among patients undergoing surgery at COE hospitals (2.7 percent) and among those undergoing surgery at non-COE hospitals (2.0 percent).

The researchers note that the findings of this study may not be generalizable outside of the state of Michigan, but "believe that the results reported in this study represent the outcomes of bariatric surgery that are possible, but not necessarily those that are typical in community settings."

"These data may serve as useful safety performance benchmarks for hospitals performing

bariatric surgery. We hope that they might also inform the debate about the effectiveness of various approaches to ensuring high-quality care for bariatric surgery patients."

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