

Thyroidectomy complication rates are lower if surgeon performs 25 or more cases yearly

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Patients undergoing a total thyroidectomy are 34 percent less likely to experience complications if their surgeon performs at least 25 cases per year of this operation to remove the entire thyroid gland, according to new study results presented at the 2015 Clinical Congress of the American College of Surgeons. Yet, the research results show that most U.S. adults under-going total thyroidectomy have a surgeon who annually performs fewer of these surgical cases.

"Although the surgeon's experience is one of the most predictive factors for patient outcomes from total thyroidectomy, the number of cases that defines a high-volume thyroid surgeon was unclear," said the study's senior investigator, Julie Ann Sosa, MD, FACS, chief of the section of endocrine surgery at Duke University Medical Center, Durham, N.C.

This study is one of the first to identify a surgeon volume threshold associated with improved patient outcomes for total thyroidectomy, according to Dr. Sosa.

Complete removal of the thyroid gland, located at the base of the neck, is a common operation, with 72,344 total thyroidectomies performed in the United States in 2011.¹ Total thyroidectomy is performed to treat thyroid cancer or benign thyroid diseases such as symptomatic goiter (swelling of the [thyroid gland](#)) and Graves' disease (overactive thyroid). Usually the operation requires a traditional "open" surgical approach and an overnight stay in the hospital, Dr. Sosa said.

For this study, the researchers used the Nationwide Inpatient Sample to identify 16,954 adults who underwent total thyroidectomy between 1998 and 2009 (the last year that the surgeon identifier was available from this health care database at the national level).² Of these patients, 47 percent had thyroid cancer, and 53 percent had noncancerous thyroid disease.

Overall, 6 percent of patients experienced complications in the hospital, the researchers found. Complications included injury to the nearby recurrent laryngeal (voice box) nerves; hypoparathyroidism, a low level of a hormone that controls calcium in the body, which often occurs with injury or removal of the parathyroid glands in the neck; excess bleeding; poor wound healing; breathing difficulties; heart problems; urologic conditions; and death. After adjusting for differences in patient and disease characteristics, the investigators found that the likelihood of experiencing an in-hospital complication decreased as the surgeon's individual volume of thyroidectomies increased, up to 25 cases per year. The researchers then compared complication rates among patients who underwent surgery by high-volume [surgeons](#) (25 or more total thyroidectomies performed yearly) and patients who had low-volume surgeons (fewer than 25 cases each year).

Patients of high-volume surgeons reportedly had only a 4.2 percent chance of experiencing a complication from total thyroidectomy compared with a 6.4 percent risk among patients who had low-volume surgeons.

However, only 19 percent of patients underwent the operation by high-volume surgeons, and the median (middle) annual surgeon volume was just seven cases of total thyroidectomy.

Patients, whose surgeons performed only one total thyroidectomy each year, had a 65 percent increased risk of complications compared with patients of high-volume surgeons, Dr. Sosa reported. Indeed, more than

half of the surgeons in the database performed just one thyroidectomy per year.

She recommended that before selecting a thyroid surgeon, patients ask the surgeon how many thyroidectomies he or she performs per year, on average.

Knowing what defines a high-volume thyroid surgeon is important not only for patient safety, Dr. Sosa said, but also for containing costs. The study found that, on average, [patients](#) with a low-volume surgeon had twice as long a hospital stay (two days versus one day) and higher inflation-adjusted hospital costs (\$6,375 versus \$5,863).

These results potentially have implications for quality improvement and reimbursement by Medicare and other payers, according to the study authors.

"As organizations move toward value-based reimbursement to improve the quality of surgical care, hospitals and payers may be interested in knowing if there is a surgeon volume threshold to help define a high-volume [thyroid](#) surgeon," Dr. Sosa said.

The study findings do not necessarily apply to robotic or alternative-approach thyroidectomy, she said. However, a prior study by her research group found that robotic thyroidectomy is uncommon in the United States.³

More information: 1 Sosa JA, Hanna JW, Robinson KA, Lanman RB. Increases in Thyroid Nodule Fine-Needle Aspirations, Operations, and Diagnoses of Thyroid Cancer in the United States. *Surgery*. 2013;154(6):1420-1426.

2 Data have been updated since the abstract was accepted by the

American College of Surgeons.

3 Adam MA, Speicher P, Pura J, et al. Robotic Thyroidectomy for Cancer in the U.S.: Patterns of Use and Short-Term Outcomes. *Ann Surg Oncol.* 2014;21(12):3859-3864.

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