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# Alliric Willis Leads Study Exploring Demographics, Disparities and Outcomes in Substernal Goiters

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*Changing Lives Through Research*



Alliric Willis, MD, recently published a study of healthcare disparities and outcomes in a subset of thyroid disease patients. He pursued the research after noticing trends in his own practice which specializes in breast, melanoma and endocrine surgery.

# Alliric Willis Leads Study Exploring Demographics, Disparities and Outcomes in Substernal Goiters

Lack of iodine makes goiters—enlargement of the thyroid gland in the neck—common in some parts of the world. In the United States, salt is enriched with iodine, so the condition is far less common. When goiters do occur, it is typically due to other factors, such as Graves’ disease (overactive thyroid) or Hashimoto’s disease (underactive thyroid), as well as an individual’s anatomy or family history. And when goiters go untreated, they can grow down into the chest, spreading behind the breastbone and collarbone; in some cases, they grow all the way down to the arch of the aorta. These substernal goiters tend to grow slowly and steadily—sometimes with symptoms, sometimes without.

Because of how and where they grow, substernal goiters can be very difficult to remove, with increased risk of complications. In his practice, Alliric I. Willis, MD, Associate Professor of Surgery, observed that substernal goiters seemed to occur more frequently among minority patients, older patients and patients who perhaps lacked access to care because of their insurance.

“The condition also appeared to be relatively more common with men, even though women make up the majority of thyroid surgery patients whether for goiter or malignancy,”

he says. “I became interested in trying to find out: Does this condition have particular demographic risk factors or disparities?”

To explore that question, Dr. Willis collaborated with Dylan P. Thibault, MS, and Allison W. Willis, MD, MSCI, (also his wife) from the Center for Clinical Epidemiology and Biostatistics at the University of Pennsylvania. He was also assisted by Ambria S. Moten, MD, a surgical resident (PGY 1 and 2) that he mentored at Temple University. The team used data from the National Inpatient Sample—a federally funded

dataset that provides insights into about 20 percent of the population and thus can form the basis of a national sample. The data showed that 110,889 patients underwent thyroidectomy for goiter from 2000 to 2010. Of those, 5,525 (5%) were substernal goiters.

Their analysis confirmed that Dr. Willis’ clinical observations were, in fact, accurate. Patients with substernal goiters were indeed older, more likely to be Black or Hispanic and to have Medicare insurance. In addition, they had a higher comorbidity index

While the Department of Surgery is renowned for operating on people, Velvet Cain specializes in another type of “surgery”: analyzing and managing complex numbers. As the Department’s Senior Financial Analyst, she is instrumental in planning budgets, tracking expenses, generating reports and monitoring various components of compensation for faculty and non-faculty staff.

Velvet joined Jefferson in 1999 as a staff accountant in the Controller’s Office. She transferred to Jefferson University Physicians’ Finance Department in 2001 before assuming her current position in Surgery in 2007. While she has remained in the same role, her day-to-day work has changed dramatically over the past nine years.

For starters, she says, the number of staff within the Department has grown tremendously. Faculty alone have increased from 25 to more than 50—doubling her workload in terms of financial oversight and planning for all clinical and academic activities. The tools she uses have evolved, as well. Spreadsheets are no longer the preferred method for budgeting; instead, she now uses sophisticated software.

Velvet notes that her favorite part of the job is budgeting, and she is proudest of her contributions to controlling costs: “The budget is very challenging,” she says. “As we face challenges in the healthcare environment, setting and sticking to our budgets is more important than ever. I work hard to make sure we stay within what we budgeted.”

(meaning they had other conditions, such as high blood pressure, diabetes and/or obesity) and were more likely to be admitted on an emergency basis.

“We also found that these patients were more likely to have postoperative complications, and most alarmingly,

*“Patients with substernal goiters were indeed older, more likely to be Black or Hispanic and to have Medicare insurance.”*

we found that substernal thyroidectomy patients had 73 percent increased odds of death during admission compared to those patients undergoing a nonsubsternal thyroidectomy,” Dr. Willis explains. He also notes that insurance seems to play an especially significant role, with privately insured patients far less likely to have a substernal goiter. These findings emphasize the importance of early referral of goiter patients for surgical evaluation and an increased appreciation of the challenges associated with substernal goiter operations.

With Dr. Willis as principal author, the findings were published in *The American Journal of Surgery*. This study builds on similar research Dr. Willis has conducted around the role of demographics in the diagnosis and treatment of cancers of the breast, rectum and stomach.

“It’s an interesting field that is becoming increasingly appreciated as we talk about quality and outcomes,” he says. “We can’t just look at the big picture. We have to focus at the individual patient level, including those who may not be achieving great outcomes. As clinicians, we can ask the right questions, team up with good epidemiologists and biostatisticians, and do analyses to figure out what’s significant—and what we can do to make outcomes better for everyone.”

*On the Job*



Velvet Cain

While some of her friends have questioned how she doesn’t get “bored” looking at numbers all day, she asserts that her job is anything but dull.

“Someone always needs a report, and everyone wants something simple—on a single page,” she explains, adding that those “simple” reports require a lot of work on her part. She thoroughly enjoys the process of extracting, analyzing and presenting data from multiple sources.

And she takes seriously the opportunity to lessen the administrative burden for her colleagues who deliver patient care: “I know how important it is for them to focus on their patients. When they have a purchasing, accounts payable or other administrative issue, I am always available to help them—even if it means making a ‘house call’ to where they are.”