

# Getting to the Heart of It

## Surgeon's secret: horse valves

As director of cardiac and vascular surgery at Spartanburg Regional Medical Center in South Carolina, **Steve Leyland '76** performs more than 400 operations a year. For the past two years, he's used a cutting-edge heart-valve technique and has trained surgeons from Asia, Europe, and across North America in its use.

The secret: horse valves.

"It's not really a horse valve," Leyland explains further. Instead it is crafted from the pericardium—or sack—surrounding a horse's heart. It's functionally identical to a typical human valve because, among other things, it contains no metal like traditional prosthetic valves do.

"To the untrained eye, it looks like a normal valve, which is just amazing," he says. "I really think their use is going to take off."

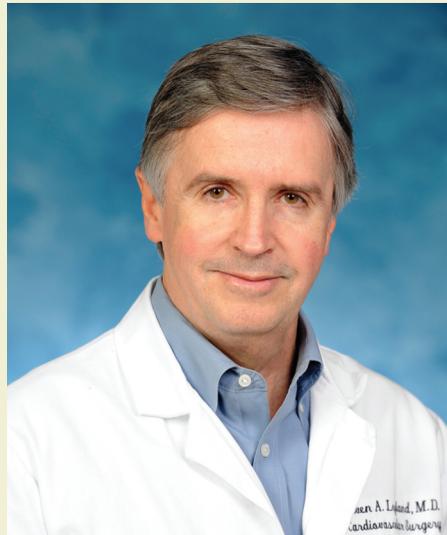
And he should know. He is the second most experienced surgeon in the United States when it comes to operating with horse valves.

Leyland also is a pioneer in robotic-assisted endoscopic beating-heart surgery. He first used the technique in late 2008—the first time it had been performed in the southeastern United States—although he's been using the beating-heart technique for many years. Combining these methods results in the most minimally invasive bypass surgery there is. There is no need for a heart/lung machine, and smaller incisions mean less pain and recovery time.

Cutting edge Leyland is, but boastful he is not. It wasn't until the interview's end that it came out he graduated second in his medical school class at Wright State University. And when he took his certification exam with the American Board of Thoracic Surgery, he got the country's highest score.

Originally from Cincinnati, Leyland came to Centre not knowing what he wanted to do.

His mother, former director of the



Heart surgeon **Steve Leyland '76**

infectious disease lab at the University of Cincinnati Children's Hospital, was a member of Dr. Albert Sabin's research team that developed the oral polio vaccine. His father had a Ph.D. in organic chemistry and was involved in pharmaceutical research. Leyland did "pretty well" in high school, he says, but he never studied.

"When I got to Centre, I really wasn't the greatest student. I didn't study much the first year," he says.

Things changed his sophomore year when he met a woman who was an exceptional student.

"She had a big impact on me, and I assimilated her study habits," he says.

His chemistry professor Charles Girard also had a big impact, and he decided to major in the discipline. He recalls Girard, now professor emeritus, as a "typical Renaissance man" who "was my favorite teacher by far."

"He could take the most complicated subjects and present them in a manner almost anybody could understand," Leyland adds.

That same year, Leyland began volunteering at the Danville hospital and decided to become a doctor. During his second year of medical school, he began considering surgery.

Now he "couldn't imagine doing anything else," he says. "It's really a privilege."

True, it's a privilege that can come with unexpected consequences. During snowstorms earlier this year, he was trapped at the hospital for 48 hours and five surgeries.

That was nothing, however, compared to his resident experience at the University of Alabama-Birmingham in a training program considered the country's best and most physically demanding. Leyland was involved in more than 800 operations a year.

"I got about 10 years of experience in three years," he says. "It wasn't uncommon for me to work 120 hours a week, with two or three hours of sleep a night, for a long time."

Leyland's wife, Patricia, would bring their young children to the hospital for weekend visits.

Leyland says of his preparation for medical school: "I was raring to go. I had students in my class from Harvard, Princeton, Dartmouth, and Centre prepared me as well as any of them."

Leyland laughs when he recalls a Centre biochemistry course taught by Ray Hammond, now professor emeritus.

"That was the most difficult course I took at Centre. But when I got to medical school, it was very easy."

Leyland says that his wife of 29 years and their three children, Matthew, Christopher, and Stephanie, have been very supportive, and he feels he could not have accomplished what he has without them.

"I've been very fortunate in my life," he says. "I've met a lot of remarkable people, at Centre and beyond, who have had a huge impact on my life."

—Abby Malik  
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