

SUMMER 2016

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VA Medical Center Share  
TAVR Expertise

Advancing the Science of Surgical Care

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# UF Health, Malcom Randall VA Medical Center Share TAVR Expertise

The University of Florida College of Medicine has a strong affiliation with the North Florida/South Georgia Veterans Health System. Many UF surgeons share dual privileges at UF Health Shands Hospital and the Malcom Randall VA Medical Center in Gainesville.

Surgery and other residents also receive a significant portion of their education treating VA patients and assisting in surgical procedures.

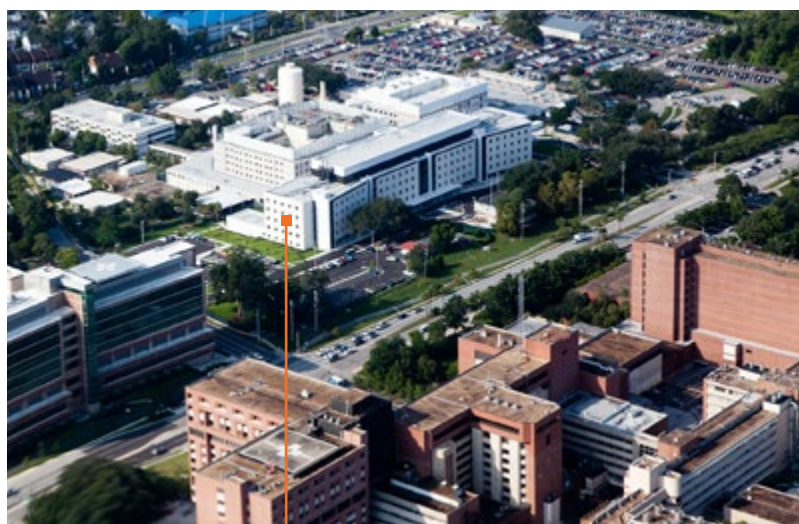
“The Malcom Randall VAMC is a wonderful resource for UF surgeons, residents and students. We have extensive collaboration with the VA in our clinical, research and education missions,” said Kevin E. Berhns, MD, chairman of the UF Department of Surgery and the Edward R. Woodward Professor. “The collegiality of the VA administration and faculty helps foster these relationships and promote new endeavors.”

The two hospitals also partner in certain patient care initiatives — including the transcatheter aortic valve replacement, or TAVR, program at the Malcom Randall VAMC. Since March 2012, UF’s TAVR program has allowed surgeons and cardiologists to treat patients who face a high risk of complications during a traditional aortic valve replacement. Once UF Health established the TAVR program, its team approached surgeons and cardiologists at the Malcom Randall VAMC.

“It was a natural extension to take this skill set and apply it to a population of VA patients who could benefit from the surgery,” said Anthony Bavry, MD, an associate professor in the UF Department of Medicine’s division of cardiology. Bavry currently practices at UF and the Malcom Randall VAMC.

Veterans tend to have multiple comorbidities that make them poor candidates for traditional aortic valve replacements, explained Wade Stinson, MD, an associate professor in the UF Department of Surgery’s division of thoracic and cardiovascular surgery.

“For example, many veterans have lung diseases, like chronic obstructive pulmonary disease. Putting them under general anesthesia with an endotracheal tube for even a short amount of time can be detrimental,” said Stinson, who practices solely at the VA and oversees the TAVR program there.



*The Malcom Randall VA Medical Center sits just across the street from the main UF Health Shands Hospital.*

The team at UF worked with their colleagues at the Malcom Randall VAMC for about a year to bring the TAVR program to the veterans, Stinson said. That included helping optimize the hybrid operating suite for TAVR procedures, running mock cases and assisting in training cardiothoracic surgeons and cardiologists. In the early stages of the program, UF cardiothoracic surgeons proctored TAVR cases at the Gainesville-based VA.

“We are presently the highest-volume TAVR program among VAs nationwide, and we have the fourth-largest cardiac surgical program in the United States,” Stinson said. Malcom Randall now serves as a referral center for hospitals in Florida, the surrounding region — including Georgia and South Carolina — and Puerto Rico.

The TAVR programs at UF Health and the Malcom Randall VAMC now function independently. TAVR teams from both hospitals, however, may collaborate on difficult patient cases, or share best practices. UF cardiothoracic surgeons are also available to assist in complex TAVR cases as needed.

“We are working in parallel with UF Health,” Stinson said. “The interchange of ideas between the VA and UF helps our surgeons to keep up with current practice.”

# XVIVO Lung Perfusion System Increases Transplant Options

Robin Thomas lived one struggling breath at a time. Diagnosed with end-stage chronic obstructive pulmonary disease, her only option for survival was a lung transplant.



Robin Thomas was UF Health's first XVIVO patient.

However, the odds of finding a set of donor lungs did not appear to be favorable. By some estimates, nearly 80 percent of donor lungs are unsuitable for transplant. But an innovative technology at UF Health gave Thomas new hope.

Known as the XVIVO Lung Perfusion System, the technique allows surgeons additional time to evaluate a set of donor lungs. In some cases, lungs otherwise not viable for transplant can be rehabilitated.

In February, Thomas received a new set of lungs at the hands of Tiago Machuca, MD, PhD, an assistant professor in the division of thoracic and cardiovascular surgery and a lung transplant surgeon who leads UF Health's lung perfusion program.

"That first breath was amazing," Thomas said. "Before the transplant, it took me hours just to make a sandwich."

She couldn't play with her dog, Harley, a rambunctious Australian Cattle Dog. Thomas was limited by the 50 feet of tubing connected to her oxygen machine. Each day, she did less as her condition grew worse.

Thomas was the first patient at UF Health to receive a pair of lungs placed on the XVIVO system. To date, UF Health surgeons have performed at least four such transplants.

The machine, called XPS, pumps a special preservation solution along with oxygen into the lungs to maintain and possibly improve their health outside the body. The lungs contract and expand inside the XPS for hours, allowing transplant surgeons to assess them over time. Machuca estimates that 50 to 60 percent of donor lungs placed on XVIVO become suitable for transplant.

"Some lung damage, like pulmonary edema or impaired gas exchange, is reversible," Machuca said. "If those conditions are addressed, the lungs may be excellent candidates for successful transplant."

Traditionally, a surgeon at the medical center offering the lungs evaluates the lungs considered for transplant, while the organs remain inside the donor. Such assessments may not provide all the information the transplanting surgeon desires, and it can be difficult to reach conclusions about the organs' viability at that point in the process.

"The function of most of these lungs can now be improved by use of the XVIVO system," Machuca said. "This technique will help to expand the pool of acceptable donor lungs, hopefully shortening the waiting period for donor lungs and preventing deaths of those whose health condition cannot afford the wait time."

Thomas is grateful to be among those patients who have benefited from the XVIVO system. She recently celebrated her 60th birthday — a milestone she feared she would not reach.

"I went to a cookout with friends, and my niece came down from Ohio to celebrate with me," she said. "A year ago, none of this would have been possible."

UF Health obtained the XVIVO Lung Perfusion System in 2014. It is one of 15 organizations nationwide testing the lung perfusion system. The device is currently approved by the U.S. Food and Drug Administration.

"XVIVO gives us a comfort zone to accept lungs that we can actually transplant directly if we find they are suitable," said Thomas M. Beaver, MD, a professor and chief in the division of thoracic and cardiovascular surgery at the UF College of Medicine. "UF Health is now among the most active XVIVO programs in the country thanks to Dr. Machuca."



## UF Health Shands Transplant Center Celebrates Golden Anniversary

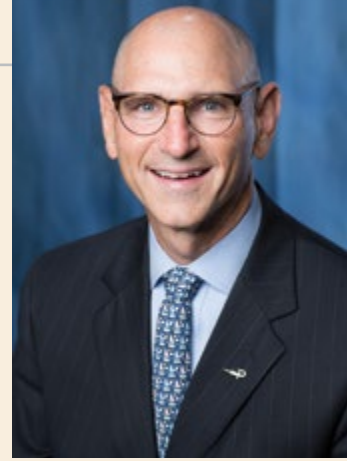
On June 8, 1966, UF surgeons performed the state's first adult kidney transplant, a procedure that marked the beginning of the UF Health Shands Transplant Center. In the 50 years since, thousands of lives have been saved at the center thanks to the collaboration between expert clinical teams and organ procurement staff. To date, UF Health physicians and medical teams have performed more than 8,300 transplants, making it one of the largest, most successful and most innovative organ transplant centers in the Southeast. The center is the longest continual provider of organ transplantation in Florida and has become a pioneer in transplantation research.



## UF Health Children's Surgical Center Relocates

UF Health clinicians and leaders participate in a ribbon-cutting at the new location of the UF Health Children's Surgical Center on Hull Road off Southwest 34th Street in Gainesville. The new center is connected to the UF Health Florida Surgical Center, an adult outpatient surgical center. This state-of-the-art children's surgery center is designed to support UF Health's youngest patients and their families, including a nature-themed design, a family-friendly entrance and waiting area and separate preoperative, postanesthesia care and postoperative recovery areas. The facility also includes four large operating rooms designed specifically for procedures for children and adolescents.

### FROM THE CHAIRMAN



Summer is a time of transition in academic surgery. New faculty members are coming on board, and the department is eagerly greeting new interns and saying a fond farewell to chief residents and fellows.

With these transitions come opportunities for personal and professional growth. Each year at our celebration for the departing chief residents and fellows, I leave them with some words of wisdom, which I would like to share with this broader audience.

As we transition in our careers, we should consider five principles that will lead to professional growth. First, we must leave our comfort zones and expand our horizons. This notion provokes anxiety because of fear of failure. We should not fear failure, but embrace it as a way to enhance our professional development. Second, we should analyze our strengths and weaknesses — and play to our strengths and minimize the weaknesses. Third, as we grow professionally, we should seek to lead or participate in projects that will deliver a great good and not serve primarily to augment our curriculum vitae. Fourth, though we are frequently confronted with stressful situations in surgery and medicine, we must always conduct our business with a professional demeanor. This virtue can be shortened to “never let them see you sweat.” Finally, we should love what we do.

Physicians are passionate about their work, and should share the excitement for this vocation with others. Show your joy to those with whom you work on a daily basis. To surgeons who are in transition this summer, and to all medical professionals at any level in your career, think about these principles of professional development as a guide to growth and good fortune.

Best wishes!

Kevin E. Behrns, MD  
Chairman

# Leading-Edge Research Continues at UF Sepsis and Critical Illness Research Center



The University of Florida Sepsis and Critical Illness Research Center continues to spearhead research to develop clinical solutions for sepsis, as well as illnesses that stem from it and their enduring effects. The center, one of the first of its kind in the nation, studies long-term outcomes in patients treated for sepsis in the surgical and trauma intensive care units at UF Health Shands Hospital.

To follow are a few examples of recent research projects.

## Developing adjuvants or immune stimulants to prevent sepsis

Shawn Larson, MD, and James Wynn, MD, are working toward a vaccine adjuvant to prevent sepsis in premature infants. Sepsis can affect up to six of every 10 babies born prematurely and results in death or major lifelong disability in four of 10 who become infected.

Larson is an assistant professor in the division of pediatric surgery in UF's Department of Surgery; Wynn serves as an

associate professor of pediatrics in the division of neonatal-perinatal medicine in UF's Department of Pediatrics.

Wynn and Larson's research team believes that stimulating the baby's innate immune system can help fight — and even prevent — sepsis.

According to their research with neonatal mice, introducing sterile components of bacteria into the bloodstream can prompt the neutrophils — a type of white blood cell — to seek and destroy invading organisms.

They hope to replicate the results in humans. With a drop of blood, they have already developed a method to gauge a premature infant's immune system response to sepsis.

## Blocking a protein in blood may prevent sepsis in neonates

Another study led by Wynn has found that blocking a certain protein in the blood with medication could help protect premature infants from sepsis, according to a new study that combines findings from a mouse model and from premature infants.

The findings were published in the Proceedings of the National Academy of Sciences.

In a mouse model, the team is specifically targeting a protein — interleukin 18, or IL-18 — that can severely damage the intestines in premature infants who have sepsis. Interleukins are small proteins the immune system produces as a means of communication.

The researchers found that high IL-18 concentrations during sepsis increased levels of another interleukin — IL-17A — that severely and sometimes fatally injured the intestine.

In newborn mouse models exposed to IL-18, levels of IL-17A were more than 140 times higher than those not exposed to the protein.

"Using a drug to block IL-17A in the mouse model, we significantly reduced death from sepsis caused by high IL-18 production," Wynn said. "This discovery brings new hope for novel treatments that may reduce intestinal damage and death from sepsis in premature infants."

Data from neonatal mouse models in the study suggest the same can happen in human infants.

## Certain type of immune cells found in cancer and sepsis patients

A study led by the UF Sepsis and Critical Illness Research Center suggests that certain types of immune cells found in cancer — myeloid-derived suppressor cells, or MDSCs — are also present in certain patients diagnosed with severe sepsis and septic shock. MDSCs are a group of immunosuppressive cells that increase when a person has cancer, inflammation and infection.

Specifically, the team believes that MDSCs may play a major role in inducing persistent inflammation, immunosuppression and catabolism syndrome, an underlying condition linked to poor long-term outcomes following the onset of sepsis. Brittany Matthias, MD, a research resident with the UF Department of Surgery, is the lead author on a paper appearing online in the *Annals of Surgery*.

*"This discovery brings new hope for novel treatments that may reduce intestinal damage and death from sepsis in premature infants."*

— JAMES WYNN, MD

"We found that these cells are present and in greater numbers in patients who die early — less than 14 days in the hospital or after the onset of sepsis," Matthias said. "Patients who do survive and remain in the ICU for 14 days or longer are significantly more likely to be transferred to a long-term rehabilitation facility — rather than home — if their levels of MDSC remain persistently high. They are also more likely to have a repeat hospital infection."

Created in 2014, the center and its research are funded by a \$12 million, five-year grant from the National Institutes of Health.

## UF Department of Surgery Welcomes New Faculty

**Alexander L. Ayzengart, MD, MPH, FACS**, is an assistant professor in the University of Florida Department of Surgery's division of general surgery. He earned his medical degree from the University of Michigan Medical School, Ann Arbor. Dr. Ayzengart completed his general surgery residency at the University of California San Francisco Medical Center. He completed training in advanced laparoscopic, metabolic and bariatric surgery at the Cedars-Sinai Medical Center in Los Angeles.

He also served as a lieutenant commander in the U.S. Navy Medical Corps. Dr. Ayzengart was a staff general surgeon at the U.S. Naval Hospital in Camp Pendleton and a department head of staff, general surgeon, at the U.S. Naval Hospital in Yokosuka, Japan.

Dr. Ayzengart's clinical interests include bariatric, foregut and hernia surgery. He is a fellow of the American College of Surgeons and a member of the Society of American Gastrointestinal and Endoscopic Surgeons, the Society for Surgery of the Alimentary Tract and the Naffziger Surgical Society. He is also board-certified through the American Board of Surgery.

**Joshua Samuel Carson, MD**, is an assistant professor in the UF Department of Surgery's division of acute care surgery. He received his medical degree from Weill Cornell Medical College and his undergraduate degree from Harvard University. Dr. Carson completed a fellowship in burn surgery and critical care at the University of Texas Medical Branch/Shriner's Hospital for Children. He completed his general surgery residency at the University of California Los Angeles Health System, as well as a two-year fellowship in surgical research at the Memorial Sloan Kettering Cancer Center in New York.

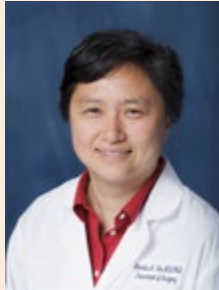
Dr. Carson is a board-certified general surgeon. His clinical interests include all aspects of burn surgery, including acute burn care, pediatric burn care and burn reconstruction surgery. Academically, his focus is on clinical outcomes in burn care, surgical nutrition and burn reconstruction techniques.

**Moiz M. Mustafa, MD**, is an assistant professor in the UF Department of Surgery's division of pediatric surgery. He earned his medical degree from New Jersey Medical School and completed a pediatric surgery fellowship at the University of Texas Medical School at Houston. Dr. Mustafa completed his general surgery residency at the University of Rochester Medical Center, also serving as the administrative chief resident in general surgery. He is board-certified in general surgery.

Dr. Mustafa's clinical interests include neonatal surgery, minimally invasive pediatric surgery, Hirschsprung disease and anorectal malformations. He is a member of the American College of Surgeons, the American Pediatric Surgical Association and the American Academy of Pediatrics.

## Sanda Tan, MD, PhD, Inducted into UF Society of Teaching Scholars

Sanda Tan, MD, PhD, an associate professor of surgery at the University of Florida College of Medicine, was appointed to the UF Society of Teaching Scholars. She is the only UF surgeon to join the Society.



Tan is a board-certified colorectal surgeon who spends a significant portion of her time teaching medical students and residents. She leads a specialized program designed to prepare fourth-year medical students who are entering surgical residencies. She also oversees simulation activities through the College of Medicine.

“Surgeons are really into teaching. It’s a big portion of what I do, and I enjoy it.” Tan said. “It’s nice to be recognized.”

*“Dr. Tan has contributed significantly to the education of our medical students and surgery residents.”*

— GEORGE SAROSI, MD

Current members of the society select new members based on nominations and educational contributions.

“People who devote a portion of their time to education deserve recognition,” said George Sarosi, MD, the Robert H. Hux professor in the UF Department of Surgery and a society member. “Dr. Tan

has contributed significantly to the education of our medical students and surgery residents.”

The society’s members are recognized experts who demonstrate excellence in teaching and commitment to educating physicians and scientists. They play an active role in the quality improvement process of the educational program, and also serve as mentors and role models for junior faculty, residents and students. Additionally, society members are advisers for the Faculty Development Committee and the College of Medicine Education Center.

## UF Undergrad and Surgery Lab Researcher Named to University Scholars Program

Catherine Miney, a senior biomedical engineering major at the University of Florida, was recently accepted into the UF University Scholars Program. She is currently a student in a lab overseen by UF Department of Surgery faculty.

Miney’s work focuses on understanding the role a certain protein plays in blocking cellular destruction in patients with chronic non-alcoholic fatty liver disease, or NAFLD.

She is working under the guidance of Jae-Sung Kim, PhD, an associate professor in the department of surgery, pharmacology and therapeutics, the Institute on Aging, and anatomy and cell biology. The causes of NAFLD remain largely unknown. People who have the condition are most likely middle-aged and overweight, and they also tend to have diabetes and high cholesterol.

The researchers believe that chronic NAFLD is linked autophagy dysfunction — a process where the body releases proteins that target excess fat deposits and defective or damaged parts of energy-producing cells known as mitochondria. Miney and her team believe that enhancing the production of a certain protein can facilitate liver cells to remove excess fat and to clear dysfunctional mitochondria.

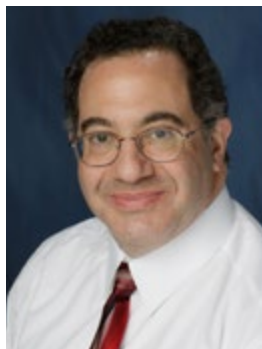
In a mouse model, researchers are treating liver cells with palmitic acid to replicate the effects of NAFLD and analyzing changes in certain proteins over 24 hours. Specifically, the team is targeting the chronic form of the disease.

Miney found that fat intake to the liver affects mitochondria, and too much fat intake significantly changes the mitochondrial autophagy — or mitophagy — process, Kim said. The changes aren’t immediately after fat intake — it takes time.

Miney’s data suggest that one-time or occasional exposure to a high-fat diet “is not that detrimental to the mitochondria” or may not place a person at a higher risk for NAFLD, Kim noted. “Repeated or chronic exposure makes the mitochondria dysfunctional or defective.”

The long-term goal, Kim said, is to develop therapeutic strategies against NAFLD and its progression to liver cirrhosis and cancer.

# Department Names New Chief of Transplantation Surgery



**Kenneth Andreoni, MD,** has been named the new chief of the division of transplantation surgery at the University of Florida College of Medicine. He oversees the division's

kidney, liver and pancreas transplantation program.

Andreoni, who joined UF Health in 2012, is also an associate professor of surgery. He served as interim chief of the division for nearly one year.

"We are fortunate to have a national leader in organ transplantation who provides top-quality leadership for this division. Andreoni's expertise in clinical care also will continue to serve our patients well," said Kevin Behrms, MD, chair of the department of surgery and the Edward R. Woodward Professor. "In addition, his national leadership experience will continue to propel our programs forward regionally and nationally with patients and referring physicians."

To date, UF Health's transplant teams have performed nearly 6,700 abdominal transplant procedures, including approximately 4,700 kidney transplants, 1,775 liver transplants, 200 kidney/pancreas transplants and 50 pancreas transplants.

UF Health transplantation surgeons work closely with a multidisciplinary transplant team, including various physician specialists, nurses, financial coordinators, donor coordinators, administrative support staff, social workers, physical and respiratory therapists and psychologists at the UF Health Shands Transplant Center.

"Our current — and future — goal is to provide cohesive multidisciplinary care for our liver, kidney and pancreas transplant patients and their referring physicians, both before and after transplantation," Andreoni said. "We want to couple this customer service with state-of-the-art immunosuppressive care and care for the patients' overall health condition."

Andreoni earned his medical degree from the Yale University School of Medicine and completed his general surgery residency training at The Johns Hopkins University, where he served as chief resident from 1994



*Transplant organs being transported to UF Health Shands Hospital.*

to 1995. He also completed a gastrointestinal surgery fellowship at Johns Hopkins and a transplant immunology research fellowship, followed by a clinical transplantation fellowship with the division of abdominal transplantation, at The Ohio State University.

He is past president of the United Network for Organ Sharing, or UNOS, the nonprofit organization that manages the nation's organ transplant system under contract with the federal government. He is past chair of the UNOS Kidney Committee; founding chair of the Kidney Paired Donation Project; a member of the American Society of Transplant Surgeons and current chair of its Business Practice Services Committee; a member of the American Society of Transplantation; and a member of the American College of Surgeons. He was one of a few transplant surgeons invited to participate in the White House Organ Summit in June.

Andreoni is board-certified in general surgery by the American Board of Surgery. His clinical interests include kidney, pancreas and liver transplant services for adults and children, as well as public policy in organ transplantation.

# THE STITCH

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