

CENTER TIMES

FEBRUARY 2020

A PUBLICATION OF THE UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER

CAMPUS EDITION

Looking inside a tiny heart to fix a big problem

By Lori Sundeen Soderbergh

When Haley and Zachary Sanders had their first baby, Rowan, and learned she had multiple heart defects, they were shattered. They never imagined technology borrowed from video games would help save their baby's life.

"The goal of using virtual reality is to create an immersive environment where we can get in-depth information about a patient's anatomy prior to surgery," said Dr. Animesh (Aashoo) Tandon, one of the innovators behind the new tool.

The Assistant Professor of Pediatrics and Radiology for UT Southwestern and pediatric cardiologist at Children's Medical Center Dallas has been developing and refining virtual reality software over the past two years to address complex congenital heart defect cases like Rowan's.

According to the American Heart Association, out of 1,000 births, at least eight babies will have some form of congenital heart defect.

Rowan's case was extreme. She was born with a large hole in her heart. To make matters worse, her heart was not connected correctly, and the



Baby Rowan and her parents, Zachary and Haley Sanders

two main arteries carrying blood out of her heart were near the wrong pumping chamber. She also suffered from a narrowing of the aorta and pulmo-

nary stenosis, a condition that restricts blood flow from the lower right chamber to the pulmonary arteries, which deliver blood to the lungs.

Heart 2020

More inside on Page 4: Racial disparities in heart failure explained and developing a biomarker blood test.

"You can't really prepare for sending your baby into the operating room where they will stop her heart," said Rowan's father. "You just hope and pray while the surgeon works on your little baby. Knowing that the doctors could find more information with this virtual reality tool than a normal scan would find – this gave us greater peace of mind."

Dr. Tandon and his colleague, UTSW Associate Professor of Pediatrics and Radiology Dr. Tarique Hussain, collaborated with computer scientists at UT Dallas to create the specialized software system. It takes three-dimensional imaging data

Please see HEART on page 4

Pediatric cancer specialist to discuss metabolism's role in disease at President's Lecture



Dr. Ralph DeBerardinis

By Katie Regan

The metabolic pathways that allow cells to make and consume energy have been mapped out for decades. Medical students memorize these pathways, studying the black-and-white figures for their exams, only to forget them soon after. Like most students, Dr. Ralph DeBerardinis assumed these pathways existed to work silently in the background and did not contribute to disease.

That all changed when, as a pediatric resident, he began to encounter children with inborn errors of metabolism (IEMs) – rare and potentially treatable diseases caused by mutations in metabolic

Please see PLS on page 7

PRESIDENT'S LECTURE

Date: Thursday, March 5

Time: 4-5 p.m., with a reception immediately following

Location: Tom and Lula Gooch Auditorium on South Campus

Presentation: "Finding and Fixing Metabolic Defects in Human Diseases"

UTSW honors legacy of Dr. Martin Luther King Jr.

By Amy Stumbris

Dr. Dayna Bowen Matthew stood before a packed campus audience and challenged every person attending to reduce health care disparities. On a screen behind her were maps of Dallas that vividly showed how these differences still exist – even more than a half-century after passage of the Civil Rights Act.

"We know that health equity is all the rage, but what's that got to do with medicine?" Dr. Matthew asked. "It turns out that Title VI [of the Civil Rights Act of 1964], the law that embodies justice in the United States, happened because physicians, dentists, and patients collaborated to bring justice to medicine. I want that to inspire you."

Dr. Matthew, keynote speaker for UT Southwestern's annual Martin Luther King Jr. Commemorative Celebration, emphasized how justice in medicine starts with the individuals in the room, as well as with UT Southwestern as an institution.

Welcoming attendees to the Jan. 15 event was Dr. Shawna Nesbitt, Associate Dean in the Office

Please see MLK on page 5



Keynote speaker Dr. Dayna Bowen Matthew



Dr. Caroline Park (right) led a study that found simulated surgery training can help shave critical minutes off trauma interventions.

Simulation training improves interventional time, teamwork in trauma treatments

By Patrick Wascovich

Complex simulated surgery training can help trainees and their care teams shave critical minutes off lifesaving trauma interventions in real care settings, findings of a UT Southwestern study show.

UTSW is home to one of the nation's largest medical simulation training centers. As instructors ramped up the complexity of the training at UT Southwestern's Simulation Center and Parkland Memorial Hospital to challenge time-sensitive decision-making and performance

under pressure, these physicians significantly reduced response times during trauma bedside procedures, the study found.

For example, median response times for resuscitative thoracotomies, which call for "opening the chests" of pulseless patients, dropped from 14 to 3 minutes – a 467 percent improvement. Median response times for recognizing and performing tube thoracotomies, needed to immediately relieve pressure to patients whose chest cavities are filling with

Please see TRAINING on page 8

INSIDE THIS ISSUE

INSIDE THIS ISSUE	PAGE
FACULTY HONORS	2, 3
FOCUS: AMERICAN HEART MONTH	4
GIFTS FOR UT SOUTHWESTERN	6
ALUMNI AND EDUCATION NEWS	7

Visit our website at utsouthwestern.edu/ctplus

BACK FROM THE DEAD

Researcher wins Hackerman Award for research on zombie enzymes.

Page 3

GLOBAL OUTREACH

Partnership with Ethiopia's Bahir Dar University Hospital expands beyond neurology.

Page 5

WHAT LIES BENEATH

UTSW Radiology faculty work with the Dallas Museum of Art to scan the interior of an African Senufo helmet mask.

Page 8

Maddrey named Professor Emeritus of Internal Medicine

By Patrick Wascovich

Dr. Willis Crocker Maddrey, an accomplished academic and clinical leader at UT Southwestern for three decades, has been named Professor Emeritus of Internal Medicine. Recognized as one of the world's leading authorities on liver disease, he has also served with distinction in the Medical Center's administration as Special Assistant to the President for the past 11 years.

Following his recruitment to UT Southwestern in 1990 as Vice President for Clinical Affairs and Professor of Internal Medicine, Dr. Maddrey led the integration of private clinical care while continuing a distinguished academic career. He has authored seminal textbooks and pursued extensive research in the areas of drug- and alcohol-induced liver disease, liver transplantation, chronic viral hepatitis, and primary biliary cholangitis.

His national leadership roles include serving as President of both the American College of Physicians and the American Association for the Study of Liver Diseases (AASLD), and he has been recognized with the Distinguished Service Award of the AASLD, Distinguished Educator Award from the American Gastroenterological Association, and the Distinguished Alumnus Award of the Johns Hopkins University School of Medicine. He is a member of



Dr. Willis Crocker Maddrey

the Johns Hopkins Society of Scholars.

"Dr. Maddrey's contributions to our understanding of liver disease have aided countless patients directly and indirectly as well as generations of physicians," said Dr. Daniel K. Podolsky, President of UT Southwestern, who appointed Dr. Maddrey as Special Assistant to the President in 2009. "I am also tremendously grateful for his thoughtful counsel and exceptional leadership in developing UT Southwestern's clinical enterprise. He has had a profound impact on the Medical Center."

At UTSW, Dr. Maddrey held the

Arnold N. and Carol S. Ablon Professorship in Biomedical Science and the Adelyn and Edmund M. Hoffman Distinguished Chair in Medical Science.

He began his 30-year affiliation with UT Southwestern tasked with filling the then-newly opened Zale Lipshy University Hospital.

"UT Southwestern, in conjunction with the Dallas community, had just established its first private hospital, and my job was to make our clinical services up to par with the biomedical sciences and education and training at UT Southwestern," Dr. Maddrey said of

the challenge set before him.

Since then, Dr. Maddrey's influence has helped to recruit numerous UT Southwestern clinicians, researchers, administrators, deans, and executives.

"We were interested in attracting the very best physicians to allow us to compete with the best," he said. "We wanted to be able to continue our scientific leadership while developing and delivering excellent clinical care."

The son of a physician, Dr. Maddrey grew up in Roanoke Rapids, North Carolina. He graduated summa cum laude from Wake Forest University and earned his medical degree in 1964 from Johns Hopkins University School of Medicine.

He completed his residency on the Osler Medical Service of The Johns Hopkins Hospital, followed by two years in India as a U.S. Public Health Service officer with the National Institutes of Health, and a fellowship in liver disease at Yale University School of Medicine.

Dr. Maddrey joined the Johns Hopkins faculty in 1971, served as Assistant Dean from 1975-1979 while directing the liver unit, and subsequently served as Associate Physician-in-Chief. He became Magee Professor and Chairman of the Department of Internal Medicine at Thomas Jefferson University Jefferson Medical College (now the Sidney Kimmel Medical College) in 1982 and served until his

recruitment to UT Southwestern. Dr. Maddrey served as Executive Vice President for Clinical Affairs from 1993 to 2009.

An accomplished lecturer, Dr. Maddrey published extensively and has edited or co-edited nine books, including *Transplantation of the Liver* and *Schiff's Diseases of the Liver*, considered authoritative texts in the field. He has also served in editing roles at numerous journals including *Medicine*, *The American Journal of Medicine*, *Gastroenterology*, and *Hepatology*.

"I have been fortunate to work with leaders with great vision," said Dr. Maddrey, who retired Jan. 31. "I hope I'll be remembered for helping young physicians develop their careers. My tenure at UT Southwestern has been gratifying. It has been an honor and a great pleasure to participate in the further emergence of UT Southwestern as one of the leading medical universities in the world."

Dr. Podolsky holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.

More online: Read the full story on *Center Times* Plus at utsouthwestern.edu/ctplus.

Faculty who founded DFW Association of Black Psychologists connect with community to advance mental health

By Steve Kaskovich

Early in her career, Dr. Mona Robbins benefited from being mentored and networking with professionals in her field, including other psychologists who look like her, she said. Having attended the national conference of The Association of Black Psychologists, she wanted to expand those connections after moving to Dallas in 2013. However, the group did not have a local chapter.

So she decided to form one. After reaching out to several UT Southwestern colleagues and other mental health professionals, she co-founded the Dallas-Fort Worth Association of Black Psychologists in 2018. She currently serves as Chapter President.

The organization seeks to advance awareness of mental health concerns that affect the black community, with a focus on education, service, training, academic advancement, mentorship, and peer networking. It also provides a collective space where black psychologists can share personal and professional experiences.

"You need to have the comfort to approach people," said Dr. Robbins, an Assistant Professor of Psychiatry at UT Southwestern. "Connections help to bring down walls, make people feel more comfortable, and help start



From left: Drs. Olufunke Awosogba, Jennifer Mayfield, Mona Robbins, and Michael Selders founded the DFW Chapter.

meaningful conversations more quickly."

Drs. Michael Selders, Olufunke Awosogba, and Jennifer Mayfield, also UTSW Assistant Professors of Psychiatry, joined Dr. Robbins in forming the Chapter and all serve on its executive board.

Addressing stigmas surrounding mental health is a priority for the group.

"In the black community, it is thought that you don't talk about private business with people you don't know. Mental health care is often seen as a luxury or privilege," Dr. Robbins said.

Dr. Selders, who also serves as Chief of Psychology at Parkland Memorial Hospital, said being involved with the organization helps him to be a community resource.

"It's rare to find a licensed black psychologist in the community, particularly one with a university affiliation," said Dr. Selders, who also practices in South Dallas. Networking with other mental health professionals equips him to make referrals for patients who need other services, he said.

Connecting with the community is an important goal for the group's members. Over the past two years, the Chapter has participated in fundraisers, hosted social networking events, and launched a mentorship program at Paul Quinn College to assist undergraduate students interested in psychology.

"The ultimate goal is to improve the psychological well-being of people of African descent," said Dr. Awosogba, who serves as the Chapter's Director of Education. "Many issues plague a lot of us. It takes courage to seek out help."

The DFW Chapter has about a dozen members, but expects to grow. In addition to psychologists, the Chapter welcomes other mental health professionals including counselors, psychiatrists, and social workers.

As a relative newcomer to Dallas, Dr. Robbins said she is grateful for the support she has received from members of the community. "It's been an amazing experience," she said.

NEWS MAKERS

Brown, Goldstein honored as fellows of National Academy of Inventors

Nobel Laureates **Drs. Michael S. Brown**, and **Joseph L. Goldstein** will be inducted as 2019 fellows of the National Academy of Inventors (NAI) April 10 during the organization's annual meeting in Phoenix.

The NAI is a member organization of U.S. and international universities and governmental and non-profit research institutes with more than 4,000 individual inventor members and fellows from 250-plus institutions. Drs. Brown and Goldstein are among 168 scientists named as new fellows.

The UTSW scientists, who have run a laboratory together since 1972, jointly hold 30 U.S. patents. They shared the 1985 Nobel Prize in Physiology or Medicine and received the U.S. National Medal of Science and many other awards for discovering the low-density lipoprotein receptor and working out how it controls cholesterol levels in the blood. Their work laid the theoretical groundwork for development of the statin class of cholesterol-lowering drugs, now taken daily by millions of people around the world.

Dr. Brown, Professor of Molecular Genetics and Internal Medicine, is Director of the Erik Jonsson Center for Research in Molecular Genetics and Human Disease. Dr. Goldstein is Chair of Molecular Genetics and Professor of Molecular Genetics and Internal Medicine.

Dr. Brown, a Regental Professor, holds The W.A. (Monty) Moncrief Distinguished Chair in Cholesterol and Arteriosclerosis Research and the Paul J. Thomas Chair in Medicine.

Dr. Goldstein, a Regental Professor, holds the Julie and Louis A. Beecher, Jr. Distinguished Chair in Biomedical Research and the Paul J. Thomas Chair in Medicine.

Camp, dela Cruz receive psychiatry innovation honors

Associate Professor of Psychiatry **Dr. Molly Camp** and Assistant Professor of Psychiatry **Dr. Adriane dela Cruz** recently received Faculty Innovation in Education Awards from the American Board of Psychiatry and Neurology Inc.

The awards support the development of academic leaders in psychiatry and neurology and are only given to two psychiatrists and two neurologists per year. UT Southwestern faculty took home both psychiatrist awards. The fellowship is for two years, with funding of \$50,000 per year.

Dr. Camp was recognized for her project in neurocognitive psychiatry education, while Dr. dela Cruz will use her funding to develop a journal club podcast, "Yeah No Journal Club."

Kirk to receive award from American College of Physicians

Dr. Lynne M. Kirk, Professor Emeritus of Internal Medicine and Family and Community Medicine, has been awarded the Alfred Stengel Memorial Award by the American College of Physicians (ACP), a national organization of internists.

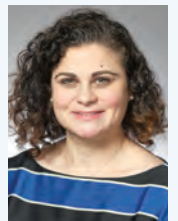
The award will be presented at ACP's Convocation Ceremony on April 23.

The Alfred Stengel Memorial Award recipient is selected based on exceptional contributions to the aims and purposes of the College, as well as the recipient's outstanding influence in maintaining and advancing the best standards of medical education, medical practice, and clinical research.

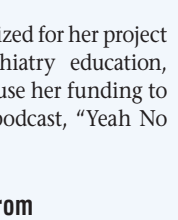
Dr. Kirk currently serves as Chief Accreditation Officer at the Accreditation Council for Graduate Medical Education. At UT Southwestern, she served successively as Associate Dean for Medical Education, Director in the Office of Medical Education, Associate Dean of Undergraduate Medical Education, and Clinical Sciences Director.



Dr. Camp



Dr. dela Cruz



Dr. Kirk

CENTERTIMES

Center Times is published by the Office of Communications, Marketing, and Public Affairs at UT Southwestern Medical Center. UT Southwestern is an Affirmative Action/Equal Opportunity Employer. Women, minorities, veterans, and individuals with disabilities are encouraged to apply.

President: Dr. Daniel K. Podolsky

Executive Vice President for Institutional Advancement: Dr. Marc Nivet

Associate Vice President for Communications: Dr. Audrey Huang

Director, Institutional Communications: Debbie Bolles

Design Editor: Mark Hoffer

Tagliabracci honored with Hackerman Award for chemical research

By Deborah Wormser

Molecular biologist Dr. Vincent Tagliabracci's significant contributions in the field of biochemistry have led to his receipt of the 2020 Norman Hackerman Award in Chemical Research.

Dr. Tagliabracci, Assistant Professor of Molecular Biology and a Cancer Prevention and Research Institute of Texas (CPRIT) Scholar in Cancer Research, is the eighth UT Southwestern researcher to receive the prestigious prize since its establishment in 2002.

The Welch Foundation, one of the nation's oldest and largest sources of private funding for basic research in chemistry, presents the \$100,000 award annually to a rising star at a Texas institution. The award is named after the late Dr. Norman Hackerman, an internationally known chemist, former President of UT Austin and Rice University, and longtime Chair of the Foundation's Scientific Advisory Board.

The award recognizes Dr. Tagliabracci's high impact discoveries involving pseudokinases, or zombie enzymes. These enzymes were once thought to be inactive because they lack key amino acid residues needed for phosphorylation, the chemistry that defines the more than 500 known protein kinases in humans. However, his lab showed that some pseudokinases actually work through



Dr. Vincent Tagliabracci (right) is assisted in the lab by Dr. Anju Sreelatha.

different kinds of chemistry that can govern the spread of deadly bacteria and have important implications for a number of diseases, including cancer and neurodegenerative disorders.

"I feel truly honored to be selected as this year's Hackerman Award recipient," Dr. Tagliabracci said. "A long list of remarkable scientists are previous recipients, and I am grateful to join this prestigious group."

After receiving a bachelor's degree

from the University of Indianapolis, Dr. Tagliabracci went on to earn his Ph.D. in biochemistry and molecular biology from Indiana University. He next joined the laboratory of Dr. Jack Dixon as a postdoctoral fellow at the University of California, San Diego, where he identified a novel family of "secreted" kinases that phosphorylate proteins destined for secretion from the cell. That work included revealing Fam20C as the bona fide Golgi casein kinase, an enzyme that

had escaped identification for many years.

In 2015, he joined UT Southwestern. Since then, his honors have included a National Institutes of Health Director's New Innovator Award (2019) and selection as a Searle Scholar (2018).

"The Welch Foundation has been impactful on my career from the

early stages," Dr. Tagliabracci said. "The Foundation supported my work when I first started my lab, and so many of the discoveries we have made would not have been possible without that funding."

Dr. Tagliabracci is a Michael L. Rosenberg Scholar in Medical Research.

Previous UTSW Hackerman Award winners

Dr. Uttam Tambar, Associate Professor of Biochemistry (2019)

Dr. Neal Alto, Professor of Microbiology (2017)

Dr. Benjamin Tu, Professor of Biochemistry (2014)

Dr. Kim Orth, Professor of Molecular Biology and Biochemistry (2010)

Dr. Patrick Harran, former Professor of Biochemistry (2007)

Dr. Zhijian "James" Chen, Director of the Center for Inflammation Research and Professor of Molecular Biology and in the Center for the Genetics of Host Defense (2005)

Dr. Xiaodong Wang, former Professor of Biochemistry (2003)

Dr. Alto holds the Lorraine Sulkin Schein Endowed Distinguished Professorship in Microbial Pathogenesis and is a Rita C. and William P. Clements, Jr. Scholar in Medical Research and a UT Southwestern Presidential Scholar.

Dr. Chen holds the George L. MacGregor Distinguished Chair in Biomedical Science and is a Howard Hughes Medical Institute (HHMI) Investigator.

Dr. Orth holds the Earl A. Forsythe Chair in Biomedical Science and is an HHMI Investigator and a W.W. Caruth, Jr. Scholar in Biomedical Research.

Dr. Tambar is a W.W. Caruth, Jr. Scholar in Biomedical Research.

Dr. Tu holds the Martha Steiner Professorship in Medical Research and is a W.W. Caruth, Jr. Scholar in Biomedical Research and a UT Southwestern Presidential Scholar.

Bringing zombie enzymes back to life

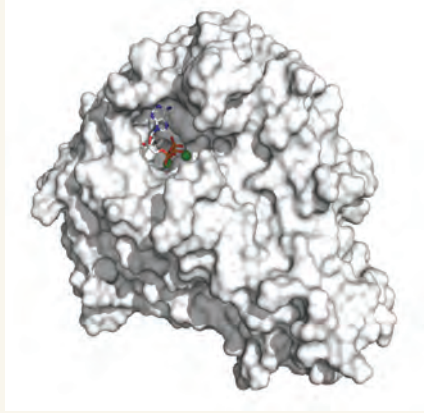
By Deborah Wormser

Dr. Vincent Tagliabracci studies so-called "zombie enzymes" in work that is bringing those pseudokinases back from the scientific dead.

In humans, there are more than 500 protein kinases. Classical kinases are enzymes that transfer phosphates from a high-energy molecule such as adenosine triphosphate (ATP) to proteins to regulate a multitude of cellular processes. However, about 10 percent of family members lack key amino acid residues needed for phosphorylation, thus rendering them useless for transferring phosphate groups.

But in studies published in *Cell* in 2018 and *Science* last year, the Tagliabracci laboratory found that some pseudokinases are only dead when scientists are specifically looking for phosphorylation.

"No one would detect phosphorylation



Structure of the zombie enzyme SelO

in them because they do something else – a different kind of chemistry. We found that they catalyze an entirely new reaction for a member of the protein kinase superfamily," he said. He's referring to the *Cell* study

in which his lab identified one pseudokinase that does AMPylation, which involves moving an adenosine monophosphate (AMP) molecule onto a protein.

His lab also reported that another pseudokinase carries out glutamylation, the transfer of the amino acid glutamate to a protein. Both pseudokinases are now considered important to cell signaling as well as to the spread of deadly bacteria.

Dr. Tagliabracci's zombie hunt begins with a bioinformatics-based search for protein kinases that seem to lack the key catalytic sequences that otherwise fit the family profile.

"These are usually so different that most people haven't noticed that they are kinases. In fact, the amino acid sequences have diverged so much that they are not recognized by standard bioinformatic methods and they don't show up in databases of kinases," he said.

Dr. Tagliabracci's career journey – and the winding path on which he happily mentors others – carries the excitement of following the science where it leads. He gravitates toward riskier projects but is aware these investigations are harder to get funded.

"We have a pretty good time in the lab. It's quite a vibrant environment, and I try to make sure everyone's having fun. No one wants to come to work every day and be miserable. Science is not easy. It can be tough, projects fail," he said, adding: "You learn something from every failed experiment."

"They teach you what not to do," he said with a laugh.

More online: Want to learn more about Dr. Tagliabracci's work? Read the *In Pursuit* story at utsouthwestern.edu/research/in-pursuit/.

Combo diabetes treatment amplifies effectiveness, improves drug adherence

By Patrick Wascovich

A once-daily combination treatment for those with uncontrolled Type 2 diabetes amplifies the treatment's effects – lowering both weight and the number of hypoglycemic events. The combo treatment also leads to greater medication adherence and improves quality of life and glucose control.

These findings, from a clinical trial led by UT Southwestern, were based on research comparing a once-daily combination treatment – basal insulin and a glucagon-like peptide-1 receptor agonist shot given at the same time each day – against more frequent doses of basal-bolus insulin.

It is the first such report evaluating the different regimens in people with highly elevated blood sugar levels (hemoglobin A1c), which elevates the risk of complications.

"These important findings challenge conventional thinking that patients with uncontrolled diabetes need to be treated with a four-shot-a-day insulin regimen," said senior author Dr. Ildiko Lingvay, Professor of Internal Medicine and Population and Data Sciences. "We found that this easier regimen not only got patients to better



Dr. Ildiko Lingvay

glucose control, but also led to less weight gain, fewer episodes of low glucose, and patients had to take less insulin. The results provided much needed evidence to support a new treatment paradigm in patients who have very high blood sugar levels."

The findings are important to hundreds

of millions dealing with diabetes and prediabetes – especially those with very high glucose levels. Recent UT Southwestern studies report that approximately 50 percent of patients with Type 2 diabetes are not on target for glycemic control, at least partially due to nonadherence to medications. The resulting poor glucose control can lead to increased hospitalizations; diabetic complications like premature death, vision loss, heart disease, stroke, kidney failure, and diabetes-related amputations; and increased health care resource use and costs.

According to the Centers for Disease Control and Prevention (CDC), more than 100 million adults in the U.S. live with diabetes or prediabetes, with diabetes being the seventh leading cause of death in the U.S. at the time of the CDC's report.

The findings evolved from the SIMPLE study (Simple basal Insulin titration, Metformin Plus Liraglutide for Type 2 diabetes with very Elevated HbA1c), which divided 120 adults with Type 2 diabetes into two groups, receiving either the combination treatment (GLP1RA+BI) or basal-bolus insulin (BBI). Following randomization, follow-up clinical visits occurred at one, three, and six months and included testing, reviews of

study-specific daily logbooks, and evaluations of expected medication usage against personal medication stocks remaining. Compared with the BBI group, study participants following the simplified combo treatment plan stayed on track at rates near 80 percent higher.

This study was conducted at the Parkland Health & Hospital System outpatient diabetes clinic, a safety-net health care system characterized by high minority representation and low socioeconomic status. The patient selection for the study closely matched the characteristics of a population that is disproportionately affected by diabetes and its complications.

Initial findings comparing the two regimens appeared in *Diabetes, Obesity and Metabolism*, with additional findings on adherence to medications appearing in the *British Medical Journal's* open access journal *Diabetes Research & Care*. The published findings follow on preliminary findings reported at the 78th Scientific Sessions of the American Diabetes Association.

More online: To read the full story, go to utsouthwestern.edu/newsroom/articles/year-2020/combo-diabetes-treatment.html.

FOCUS: AMERICAN HEART MONTH

Racial disparities in heart failure explained

Experts hopeful that findings could help identify individuals who might benefit from earlier intervention

From Staff Reports

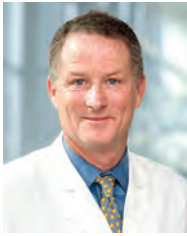
Researchers at UT Southwestern have uncovered evidence that the higher prevalence of “malignant” enlargement of the heart among blacks contributes to the higher incidence of heart failure in this population. The study was published online recently in the journal *Circulation*.

Left ventricular hypertrophy or LVH is the enlargement and thickening of the muscular wall of the left ventricle of the heart, the lower left chamber. This thickening can be detected on an electrocardiogram or with imaging tests like an echocardiogram.

LVH can occur in several forms. In about half of cases, LVH occurs without other evidence of heart damage or stress, and in these cases the prognosis appears to be benign and similar to people without LVH. In contrast, in the other half of cases, when LVH occurs together with signs of damage or stress to the heart muscle, the course is malignant and associated with a markedly higher risk of heart failure.

“Malignant LVH is easily identifiable with widely used tests in the clinic, so now that we’ve found this association, we are hoping to identify patients with higher risk for heart failure earlier, when preventive interventions can have a greater impact on future risk,” said Dr. James de Lemos, Professor of Internal Medicine.

Previous studies described a malignant type of left ventricular hypertrophy but did not include enough participants to enable researchers to conclude whether the observed differences in



Dr. James de Lemos



African American men and women have disproportionately high rates of heart failure, a significant health disparity that persists despite considerable advances in cardiovascular care.

malignant LVH contribute to a higher risk of heart failure for black versus white individuals. So the UT Southwestern researchers pooled data from three biracial cohort studies – the Atherosclerosis Risk in Communities (ARIC) Study, the Dallas Heart Study, and the Multi-Ethnic Study of Atherosclerosis (MESA) – to test the hypothesis that malignant LVH may contribute to disparities in heart failure risk.

For this study, the researchers excluded participants with cardiovascular or kidney disease and those who were not self-identified as white or black, which resulted in a study group of 15,710 participants in eight states.

Individuals with left ventricular hypertrophy

were identified by ECG, and the malignant form of LVH was further defined as having abnormal blood marker levels reflecting injury or stress to the heart muscle. For blood markers, the researchers looked for abnormal high-sensitivity cardiac troponin levels or abnormal N-terminal pro-brain natriuretic peptide levels.

Using these characteristics, the team classified all study participants into groups based on whether they had ECG-LVH and abnormal blood markers. Then they determined how many of these participants had been hospitalized or had died due to a heart failure event in the 10 years of follow-up.

The team found that participants with malig-

nant LVH were older, more likely to be male, with diabetes, hypertension, and high blood pressure compared with those without LVH or those with LVH but normal blood tests. They also found that the prevalence of malignant LVH was three times higher among black men and women compared with white men and women.

Heart failure occurred in 512 participants (3.3 percent) over the 10 year study period. Of those, 56 percent were men and 39 percent were black. The rates of heart failure were highest for black men, intermediate for white men and black women, and lowest among white women. Of the participants with malignant LVH, 13 percent developed heart failure compared with 2.7 percent in the group with LVH and normal biomarkers.

“Our study helps explain why African American men and women have disproportionately high rates of heart failure, a significant health disparity that persists despite considerable advances in cardiovascular care,” said Dr. Alana Lewis, a cardiology fellow at UT Southwestern and lead author of the study. “We hope these findings can help cardiologists identify those at higher risk for developing heart failure and intervene earlier.”

Dr. de Lemos holds the Sweetheart Ball-Kern Wildenthal, M.D., Ph.D. Distinguished Chair in Cardiology.

More online: To read the full story, which includes a list of other contributing authors, disclosures, and information on study support, go to the newsroom at utsouthwestern.edu/newsroom/articles/year-2020/racial-disparities-heart-failure.html.



Dr. Ambarish Pandey (left) and Dr. Parag Joshi believe some patients at risk of heart disease could be helped by a biomarker blood test.

Biomarker blood test could reveal high risk heart patients in need of treatment

By Lori Sundeen Soderbergh

Preventive cardiologists are looking for ways to detect early stage heart disease in people who aren’t currently in treatment – and a new blood test for protein biomarkers could be the answer.

A UT Southwestern study, published in *Circulation*, pooled data of nearly 13,000 patients from three major patient populations, including multiple ethnicities. The team asked whether measuring levels of two biomarkers – proteins in the blood – would identify people in need of treatment.

The researchers found that approximately one-third of adults with mild hypertension who are not currently recommended for treatment have slight elevations of one of these two biomarkers; these individuals were more likely to have heart attacks, strokes, or congestive heart failure over the next 10 years.

“We think this type of test can help in the shared decision-making

process for patients who need more information about their risk,” said preventive cardiologist Dr. Parag Joshi. “These blood tests are easily accessible and are less expensive than some other tests for risk assessment.”

In this study led by Dr. Joshi and Dr. Ambarish Pandey, both Assistant Professors of Internal Medicine, the researchers analyzed data from 12,987 participants (mean age 55 years, 55 percent female) who experienced 825 cardiovascular events, such as heart attacks and strokes, over a median follow-up time of 10 years. The information was compiled from the Atherosclerosis Risk in Communities Study, the Dallas Heart Study, and the Multi-Ethnic Study of Atherosclerosis.

Further studies are needed to determine whether informing blood pressure treatment with these biomarkers has an effect on patient outcomes.

“One of the proteins, high sensitivity troponin, measures injury to the heart muscle, and the other,

called NT-proBNP, measures stress on the heart muscle,” Dr. Pandey explained. “The presence of these proteins is indicative of subtle long-term cardiac injury, like wear and tear over time.”

High blood pressure is known to increase the risk of heart attacks, strokes, and congestive heart failure. Other factors that play a role in cardiovascular disease include high cholesterol, age, gender, smoking, poor diet, lack of exercise, and diabetes.

“The process of developing heart disease can be difficult to pick up on based only on these risk factors. Now we have tests to detect markers of heart disease in people without any symptoms who are actually at higher risk for cardiovascular events,” Dr. Joshi said.

More online: To read the full story and watch a video, go to the UTSW newsroom at utsouthwestern.edu/newsroom/articles/year-2019/biomarker-blood-test.html.



Dr. Animesh Tandon uses virtual reality technology to prepare for baby Rowan’s heart surgery.

Heart Continued from page 1

and then pumps out models of patient-specific anatomy – in this case a model of Rowan’s heart that physicians could virtually step inside.

Outfitted with a special virtual reality headset and using hand controls to “steer” through the heart, Rowan’s UTSW cardiac surgeon, Dr. Camille Hancock Friesen, studied Rowan’s heart from multiple angles, became familiar with its intricacies, and uncovered with extreme specificity what fixes were needed. This better prepared the Professor of Cardiovascular and Thoracic Surgery and her team for what they would see in the operating room.

The use of virtual reality for surgical planning is evolving. Drs. Tandon and Hussain are pushing the field forward by bringing more medical technology into pediatrics and pediatric cardiology. Dr. Tandon serves on the American Heart Association’s (AHA) Center for Health Tech and Innovation Advisory Group and is that group’s liaison to the AHA Young Hearts Council, which focuses on pediatric cardiology. He’s currently researching wearable biosensors and how to predict adverse events in children, in addition to imaging and virtual reality.

The UTSW physicians are leaning heavily on their experience in 3D printing to specifically customize software for some of the most complicated heart surgeries. Their technology now holds promise for other types of high-risk surgeries involving other organs. Ultimately, they hope that using virtual reality will reduce mortality, the number of complications, and the length of procedures.

Rowan is a prime example of what virtual reality in medicine can make possible. She has frequent follow-up doctor visits, but otherwise is focused on all the typical infant milestones and achievements: teething, crawling, and trying new foods. Her family is looking forward to celebrating Rowan’s second birthday in July.

“Every kid’s heart is slightly different,” said Dr. Tandon. “This is truly personalized medicine.”

More online: To watch a video, go to the UTSW newsroom at utsouthwestern.edu/newsroom/articles/year-2020/tiny-heart-big-problem.html.

BORNE initiative expands to improve health care in Ethiopia

By Nyshicka Jordan

Dr. Lindsay Flax, Assistant Instructor of Emergency Medicine, is often the first line of defense when a patient arrives at Parkland Memorial Hospital's emergency room in critical condition. Her expertise in resuscitation, critical care, and acute care guides the triage of patients for lifesaving treatment.

While this is standard for hospitals in the U.S., in other parts of the world, emergency medicine is in its infancy. That includes Ethiopia, where the UT Southwestern Emergency and Disaster Global Health fellow is preparing for a return visit to Bahir Dar University Hospital in April to help the handful of emergency medicine physicians grow the teaching hospital's emergency medicine education. Dr. Flax will travel with other emergency medicine physicians from UTSW and Parkland.

"I feel encouraged that there is an understanding in Ethiopia of the need for a frontline doctor with critical care experience," Dr. Flax said. "For example, having a doctor be able to manage a patient's airway immediately without having to call specialty services is invaluable. I look forward to supporting emergency medicine education for Ethiopian physicians on how to integrate the specialty into their health care system to improve morbidity and mortality."

Dr. Flax connected with the Ethiopian hospital through the UTSW-affiliated global health initiative called Bahir Dar Outreach for Neurology Education (BORNE). For five days in July 2019, she took part in the initiative's annual summer medical education outreach trip in the city of Bahir Dar.

'BORNE' of necessity

Dr. Mehari Gebreyohanns, BORNE's founder and an Assistant Professor of Neurology and Neurotherapeutics, began the partnership in 2016 after learning the hospital had no neurologists. While BORNE's primary focus remains developing neurology services there, as the partnership has evolved, the participation of other UT Southwestern physicians who work closely with neurology has grown. Emergency



Participants from UT Southwestern's medical outreach trip to Ethiopia in July 2019 pose for a group photo on the rooftop of a Bahir Dar University building with colleagues from the local university's hospital.

medicine, internal medicine, and physical medicine and rehabilitation specialists have all worked with the program.

BORNE's success prompted a formal partnership between UT Southwestern and Bahir Dar University Hospital, with a memorandum of understanding signed in October to facilitate collaborative educational, clinical, and research activities between the two institutions.

"When I first started working in Bahir Dar, it was just me giving lectures and doing clinical rounds at the hospital. But each year since, we've been able to expand the educational opportunities and have recruited the support of physicians from different departments," Dr. Gebreyohanns said.

Outreach program grows

Last summer, Dr. Gebreyohanns traveled to Bahir Dar with BORNE's largest group so far – 21 members including UTSW faculty, residents, and other medical personnel. Additionally, American college and high school interns interested in pursuing health care careers took part in the effort.

During the visit, BORNE sponsored a two-day symposium and workshops attended by 285 participants. Separate from the event, UTSW's medical team also conducted teaching rounds and lectures.

Since 2016, Bahir Dar University Hospital has added one neurologist to



In a team-building activity, outreach trip participants climbed a hill to reach the ancient monastery of Asheton Maryam outside the town of Lalibela.

its staff and is developing a neurology residency training program. BORNE also is assisting in training electroencephalogram (EEG) technicians there and sponsors web-based certification courses for trainees. Meanwhile, UTSW has experimented with a tele-EEG system as an additional resource to enable UTSW doctors here in Dallas to interpret test results that are uploaded from Bahir Dar.

In addition to medical staff improvements, other goals include creating specialized stroke care units to improve patient care outcomes. BORNE also

provided public education by training Ethiopians about neurological conditions and proper patient care at home.

"Stroke used to be the No. 3 cause of mortality in the United States, but through awareness campaigns and creating standardized care in hospitals it has dropped to fifth, so we know education works. Now we want Africa to be the beneficiary of our experience in the U.S.," Dr. Gebreyohanns said.

Reciprocal benefits

Meanwhile, the initiative helps train early career UTSW physicians.

"It's important that our residents learn that many other parts of the world do not have the same medical resources available at UT Southwestern – so you have to be creative about how to solve problems," Dr. Gebreyohanns said. "We hope the program will teach them something that will spur their thinking so they can also solve problems in America where low-resource communities also exist."

This is the exact lesson fourth-year UTSW resident Dr. Dominique Van Beest, a physical medicine and rehabilitation specialist, received as she conducted post-stroke care education on the outreach trip.

In preparation to lead workshops, Dr. Van Beest learned a new medical technique. It replaces an ankle-foot orthosis, commonly used in Western medicine, with an elastic bandage to treat foot drop, a gait abnormality that often occurs after a stroke and involuntarily positions the foot in a downward angle.

"At Parkland, I call Prosthetics and Orthotics and they arrive with exactly what I need – like magic. But that's not an option in Bahir Dar, so we used Ace wrap to show students how to pull the foot back and how to stretch those muscles to help a patient walk," said Dr. Van Beest, a 2016 UTSW Medical School graduate.

Working with BORNE was her first professional international experience, and she said her 17-day visit in Bahir Dar made her think more critically about using medical resources. Additionally, because Dallas-Fort Worth is home to tens of thousands of Ethiopian immigrants, Dr. Van Beest said the trip has been beneficial in connecting with patients of Ethiopian descent whom she often treats at Parkland.

As BORNE continues to grow, leaders are considering training opportunities that would bring doctors and students from Bahir Dar to UTSW. The initiative is also planning to publish a stroke awareness research project using data collected on the streets of Bahir Dar.

More online: Read the full story on *Center Times Plus* at utsouthwestern.edu/ctplus.

MLK Continued from page 1

of Student Diversity and Inclusion, whose opening remarks carried the same message of community involvement.

"Community service was at the heart of Dr. King's work, and our celebration today highlights the continuation of that service through the work of our outstanding students," Dr. Nesbitt said. "At UT Southwestern, this commitment is at the very core of our mission. We practice it daily and aspire to teach students about the importance of service in their learning experiences."

First-year medical student Deborah Oyedapo sang the John Legend hit "If You're Out There" to welcome visitors to the program, which was held in a Eugene McDermott Plaza Lecture Hall on South Campus.

UT Southwestern President Dr. Daniel K. Podolsky then spoke about Dr. King's legacy: "At UT Southwestern, we are deeply committed to the principles and actions that are encompassed within diversity and inclusion. We continue to look critically at how we apply those principles in our daily lives, ensuring that we have the very best decision-making possible in place by including diverse perspectives in addressing solutions to the challenges that confront us."

Dr. Nesbitt introduced Dr. Matthew, the William L. Matheson and Robert M. Morgenthau Distinguished Professor of Law and the F. Palmer Weber Research Professor of Civil Liberties and Human Rights at the University of Virginia School of Law. The keynote speaker also holds an appointment in the School of Medicine's Department of Public Health Sciences and is the author of *Just Medicine: A Cure for Racial Inequality in Amer-*

ican Health Care.

Dr. Matthew talked about continued disparities in Dallas-area health care among different races, and how fixing those disparities depends upon health care workers first. She encouraged those in attendance to take decisive actions for progress.

"What you're doing at UT Southwestern is remarkable in this country, and I'm saying you still need to do more," she continued. "As an institution, as an anchor in your community, you are the answer to justice in health care. Your mission states that you are dedicated to promoting health and a healthy society. You understand that you are part of a whole – you are not just here to treat an individual, you are here to treat a community."

Dr. Nesbitt cited several examples of how UT Southwestern is working to reduce health care disparities, including plans to establish a new medical center at the former Red Bird Mall, educational programs that target underrepresented minorities such as STARS (Science Teacher Access to Resources at Southwestern) and HPreP (Health Professions Recruitment and Exposure Program), and the Healthcare in Underserved Communities class that connects medical students with those in need of health care access.

The event, which ended with a reception, was co-sponsored by the Office of Student Diversity and Inclusion, and the Office of Institutional Equity and Access.

■
Dr. Podolsky holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.

A heart for service: Students awarded MLK scholarships

By Amy Stumbris

The dedication of three UT Southwestern students to serving their community led to them being honored with scholarships at the Martin Luther King Jr. Commemorative Celebration.

Christina Martinez, a second-year physical therapy student in the School of Health Professions, won the \$5,000 Martin Luther King Jr. Scholarship for Community Service. Finalists Brandon Winward and Cameron Ward, both second-year UTSW medical students, received \$500 scholarships.

At the event, Ms. Martinez spoke about the importance of giving back.

"As a second-year student, the generosity of this award has made my dreams of becoming a physical therapist more of a reality," she said. "During my two years at UT Southwestern, I have tried to emulate Dr. King's passion for community service and his love for people through community involvement. This scholarship has not only lifted some financial burden, but also allowed me to showcase my passion for service."

Read more about the scholarship recipients' passion for community service below:

- **Christina Martinez** started volunteering at the Ronald McDonald House during her undergraduate studies and has continued to volunteer while earning her doctorate in physical therapy. She also has volunteered regularly with the UTSW Parkinson's Boxing program, as well as with the R.I.S.E. Adaptive Sports program and Back On My Feet, a community program that combats homelessness. This year, she served as the United to Serve Health Fair physical therapy and fitness booth coordinator. More recently, she has started volunteering for Brighter Bites, a nonprofit that creates communities of health through fresh food.

- **Brandon Winward** served as a full-time missionary in the Philippines from 2013 to 2015, but found he wanted to do more about diseases in the area – so he became interested in medicine. While at UT Southwestern, he



From left: Cameron Ward, Christina Martinez, and Brandon Winward

has taken on a handful of responsibilities in free clinics, student organizations, and service trips. He is co-chair of UTSW's student-run Free Clinic Committee, which oversees seven clinics, and serves as manager of the largest of these clinics, the Union Gospel Mission. He participated in the very first UTSW global service trip to Antigua, Guatemala, in 2019, where he and colleagues saw more than 500 patients in five days.

- **Cameron Ward** has committed himself to impactful projects focused on pipeline programs that seek to increase underrepresented minorities in STEM careers, improving the lives of the underprivileged and encouraging others to help their communities. He served as a mentor in the Health Professions Recruitment and Exposure Program (HPREP), helped coordinate the Black Men in White Coats Youth Summit, and joined United to Serve. During a spring break trip to the Dominican Republic, he and other participants in this global health outreach saw more than 500 patients over five days. He also regularly serves breakfast at the Cathedral of Hope.

DOCS Program Scholar focuses on finding better treatments for a tough cancer

From Staff Reports

Dr. Ravikanth Maddipati studies pancreatic cancer, tumor metastasis, and pancreatitis in hopes of better understanding these diseases and discovering new treatments. His dedication to advancing patient care led to his recent selection as a 2019 UT Southwestern Disease-Oriented Clinical Scholar (DOCS).

Growing clinical research is the goal of the DOCS Program. UT Southwestern's 21 Scholars – who can receive as much as \$1 million in support over four years – must have held the rank of Assistant Professor for less than three years and devote at least half of their time to research.

An Assistant Professor of Internal Medicine with a secondary appointment in the Children's Medical Center Research Institute (CRI) at UT Southwestern, Dr. Maddipati earned his medical degree at the Boston University School of Medicine. He then completed an internal medicine residency at Massachusetts

General Hospital, followed by a gastroenterology fellowship at the University of Pennsylvania, where he stayed on as a faculty member until joining UTSW in 2019.

Dr. Maddipati, UTSW's newest Scholar, recently shared some insights into his background, perspectives, and goals:

When did your interest in medicine and research begin?

My research interests really began in college. While I had always been interested in biology, I decided to train as a computer and electrical engineer. This instilled in me a deep desire to understand how things worked at their most fundamental level, especially in the human body. My interest in research grew during medical school, where I had the opportunity to interact with and care for patients with a variety of disorders. I was fascinated by the pathophysiology of each disease and wanted to understand more about how these conditions developed and how treatments could be improved.



Dr. Ravikanth Maddipati

Why are your areas of investigation important to you?

Cancer is a leading cause of mortality and pancreatic cancer, specif-

ically, has a dismal prognosis. Too often patients who develop pancreatic cancer are in the prime of their lives and have limited therapeutic options.

My lab is interested in understanding how this disease develops and why it has such a high propensity to metastasize to different organs. Our goal is to not only understand the biology, but to also develop better treatments to improve patient outcomes for this deadly disease.

What does the DOCS Program mean to your research?

The Program has been an important source of funding and support. It has been vital to helping me start my laboratory and creating the infrastructure to conduct my research. Most importantly, it has afforded me the opportunity to explore novel ideas that I would have normally been unable to investigate.

Tell us more about yourself.

I am originally from Ann Arbor, Michigan, and went to undergrad at the University of Michigan. I have two wonderful children and a wife. In my spare time, I love to run, hike, travel, and spend time with my family.

GIFTS FOR UT SOUTHWESTERN

Deedie Rose's \$5M gift aids depression research

Prominent Dallas businessman, former Texas Rangers co-owner, and outdoorsman Rusty Rose touched countless lives through a philanthropic partnership he shared with his beloved wife of 50 years, Deedie.

In 2016, at the age of 74, Mr. Rose ended his life after a decadeslong struggle with severe clinical depression. Mrs. Rose is hopeful that her \$5 million gift to further research at UT Southwestern's Peter O'Donnell Jr. Brain Institute will eliminate the devastating effects of depression, bipolar disorder, and other mood disorders for those affected and their families.



Dr. Trivedi

As Director of the Center for Depression Research and Clinical Care (CDRC), Dr. Madhukar Trivedi is working to accelerate discoveries into the causes of and treatments for depression, bipolar disorder, and related conditions.

"My dream is that we will have tests for the general population so that we can immediately identify people at risk as well as introduce measures to prevent the onset of the illness. For those who are already depressed, we would treat them immediately and aggressively so that they can have a full and normal life," said Dr. Trivedi, also Professor of Psychiatry and Chief of the Division of Mood Disorders.

Dr. Trivedi holds the Betty Jo Hay Distinguished Chair in Mental Health and the Julie K. Hersh Chair for Depression Research and Clinical Care.

Judge Weber's gifts advance UT Southwestern research

Former Dallas County Judge Garry A. Weber has made a planned gift of \$3 million to further the mission of UT Southwestern in honor of the "top-notch patient care" he has received here.

Judge Weber joined The Heritage Society by making this planned gift to be divided three ways: bolstering spine-related research at the Peter O'Donnell Jr. Brain Institute, in honor of Dr. Carlos Bagley, Associate Professor of Neurological Surgery and Orthopaedic Surgery; supporting urological disease research at the Department of Urology, in honor of Dr. Claus Roehrborn, Professor and Chair of Urology; and aiding addiction research, also at the O'Donnell Brain Institute.



Dr. Roehrborn

"All of my doctors are at UT Southwestern," said Judge Weber, who is now CEO and Chairman of the Board of Weber Financial Inc., a full-service investment firm. "I hope my gift helps the faculty to better care for more people and develop new treatments through research."

In 2017, he created the Garry Weber Physician Assistant Postgraduate Fund in Urology at UT Southwestern to prepare physician assistants interested in urology for a meaningful career. He supports the Fund with annual gifts.

Dr. Roehrborn holds the E.E. Fogelson and Greer Garson Fogelson Distinguished Chair in Urology and the S.T. Harris Family Chair in Medical Science, in Honor of John D. McConnell, M.D.

Sweetheart Ball funds cardiology advancements

The 2019 Sweetheart Ball has raised \$2,360,535 for UT Southwestern cardiology research and programs. This total includes \$1,180,267 from the event, as well as additional matching funds.

"It is well known that UT Southwestern is a leader in heart disease treatment and research," said community philanthropist Lisa Troutt, Chair of the 2019 event. "Heart disease is devastating for far too many families. I am grateful to the people of Dallas who came together to support such an important cause that continues to have a far-reaching impact."

Since the fundraiser was created in 1981, Sweetheart Ball gifts totaling more than \$33 million have been directed toward UTSW cardiovascular research. Funding from the event previously established the Gail Griffiths Hill Chair in Cardiology, held by Dr. Sharon Reimold, Professor of Internal Medicine, and the Sweetheart Ball-Kern Wildenthal, M.D., Ph.D. Distinguished Chair in Cardiology, held by Dr. James de Lemos, Professor of Internal Medicine.

Broughton Foundation gift bolsters Alzheimer's research

A \$1 million gift from the G.C. Broughton Jr. Foundation will further Alzheimer's research at UT Southwestern's Peter O'Donnell Jr. Brain Institute, specifically supporting Dr. Marc Diamond's investigations into the role of the tau protein in neurodegenerative disorders.

"With this gift, I am encouraged that Dr. Diamond's team will come up with new ways to diagnose, treat, and prevent this most tragic of disorders," said Mrs. Jean Broughton-Powell, President of the G.C. Broughton Jr. Foundation.



Dr. Diamond

The work of Dr. Diamond, founding Director of the Center for Alzheimer's and Neurodegenerative Diseases, is accelerating disease treatments including drug development. Abnormalities in the tau protein are an indicator of Alzheimer's disease, and Dr. Diamond has uncovered the precise point in the disease process in which healthy tau becomes toxic, but has not yet begun forming deadly tangles in the brain. This finding offers hope that one day we will be able to detect Alzheimer's before it takes hold and develop treatments that stabilize tau proteins before they become toxic.

"I've been working in this field for 17 years, and this is perhaps the most exciting discovery I have made," Dr. Diamond said.

Dr. Diamond holds the Distinguished Chair in Basic Brain Injury and Repair.

Foundation awards \$1M for Prostate Cancer Center

UT Southwestern is developing a collaborative Prostate Cancer Center that has the potential to become an industry leader in both caring for patients with the disease and those at risk.

Boosting these efforts at UT Southwestern is a \$1 million research award from the Prostate Cancer Foundation (PCF) to aid the study of neuroendocrine prostate cancer (NEPC), a rare and lethal form of the disease.

Dr. Ganesh V. Raj, Professor of Urology and Pharmacology, oversees UT Southwestern's Prostate Cancer Program. He hopes the Center will unite scientists from many departments under a common umbrella for programmatic development of basic science and translational studies to uncover what causes prostate cancer, how it progresses, and why the tumors of some patients respond well to treatment while others do not.

With the award, Dr. Raj will develop and test new drugs to target NEPC, with the goal of advancing them to clinical trials for patients.

Dr. Raj holds The Dr. Paul Peters Chair in Urology in Memory of Rumsey and Louis Strickland.

Horchow gift supports work at O'Donnell Brain Institute

Members of the Horchow family, longtime supporters of UT Southwestern, have committed more than \$4.3 million to the Medical Center. Now, the family's latest contribution of \$500,000 will be used to help build the third tower of William P. Clements Jr. University Hospital to expand brain care

through the Peter O'Donnell Jr. Brain Institute.

Supporting brain disorder initiatives is very important to Roger Horchow – now more than ever.

"I have several good friends with dementia or Alzheimer's disease, and it's devastating to see them deteriorate before my eyes," Mr. Horchow said. "Through my involvement with UT Southwestern, I have always been so impressed with the science, the faculty, and the way they care for people – it's extraordinary."

The expansion of Clements University Hospital will help meet growing patient demand with the addition of a 12-story tower, scheduled to open in the fall of 2020. The tower will serve as the clinical home for the O'Donnell Brain Institute, consolidate inpatient neurological services currently provided at Zale Lipshy Pavilion – William P. Clements Jr. University Hospital, expand the Emergency Department, and add operating rooms, interventional suites, and two parking facilities.

Dekelboum Foundation gift funds mass cytometry unit

The Elsie & Marvin Dekelboum Family Foundation has made a substantial gift to UT Southwestern to purchase a leading-edge mass cytometry unit (MCU) for researching the properties of complex cellular systems and processes. The Foundation is passionate about eradicating pancreatic cancer – and the addition of an MCU will accelerate UT Southwestern's efforts to achieve this goal.

"The mass cytometry unit provides an exciting leap forward in our technological capabilities that will ultimately benefit patients and make innumerable contributions to the global understanding of pancreatic cancer and other diseases," said Dr. Herbert Zeh III, Chair and Professor of Surgery at UT Southwestern and an innovator and leader in the field of pancreatic cancer.

This powerful technology empowers biomedical researchers to view cells as never seen before, which means it offers insights into all types of cancer, autoimmune and infectious diseases, immunology, and immunotherapy research. Mass cytometry is revolutionizing how scientists around the world are analyzing cells and tissue samples, enabling them to study more than 50 markers simultaneously on millions of individual cells. Scientists can identify new cell types, functions, and biomarkers; this represents a quantum advance over the current standard methods of cell analysis.

Dr. Zeh holds the Hall and Mary Lucile Shannon Distinguished Chair in Surgery.



Dr. Zeh

Johnson appointed to new Distinguished Professorship in Clinical Education

By Patrick McGee

Dr. David Johnson, who led the Department of Internal Medicine for nearly a decade, has been appointed the first holder of the R. Ellwood Jones, M.D. Distinguished Professorship in Clinical Education.

The position is named after Dr. Johnson's personal friend and fellow physician, Dr. Jones. The two physicians said they frequently talk about medicine and their readings in military history.

"To have Dr. Johnson hold this endowment is a great honor for me," Dr. Jones said. "He is not only a brilliant clinician but also an extremely well-read person. Discussing medicine or history with him is enjoyable and refreshing. I am delighted he has this Professorship."

Earlier this month, Dr. Johnson stepped down as Chair of Internal Medicine, a position he had held

since 2010. His successor, Dr. Thomas Wang, came from Vanderbilt University – just as Dr. Johnson did. During his tenure as Chair, Dr. Johnson hired new talent, producing a net gain of 150 new faculty members in Internal Medicine, and he played a role in opening the new 460-bed William P. Clements Jr. University Hospital. For his work, he was honored with a Giant of Cancer Care award at the American Society of Clinical Oncology conference in Chicago in May.

In his continuing role as Professor of Internal Medicine, the Distinguished Professorship will help support Dr. Johnson's work as Master of Estabrook College, one of the Medical School's six Colleges that foster community and collaboration among students. As Master, Dr. Johnson oversees mentors who advise students from their academic work to their careers as doctors.

"It's a way of making a larger class of students seem smaller by bringing them together as a family to share in their educational experiences," Dr. Johnson said,

adding that he intends to continue making rounds with medical students, sometimes with Dr. Jones.

With the freedom the Professorship gives him, Dr. Johnson would also like to explore ways to form interdisciplinary teams of doctors who consult on rare, difficult cases that current medical science cannot treat and sometimes cannot even diagnose. He envisions this "discovery consult service" to work like a tumor board in which physicians of varying expertise huddle together to tackle the complexities of cancer patients' medical problems.

"We have tools today to probe the patient's situation much more deeply than we did in the past," said Dr. Johnson, who began his career as a lung cancer specialist.

Dr. Wang holds the Donald W. Seldin Distinguished Chair in Internal Medicine.



Dr. David Johnson

CLASS NOTES

IN MEMORIAM

MEDICAL SCHOOL

- Charles Frank Pelphey, M.D. ('44)
- Arthur W. Shannon Jr., M.D. ('45)
- Jim Tom Lawrence, M.D. ('47)
- Margaret Sue Curtis-Moore, M.D. ('50)
- John Gray Andrew, M.D. ('53)
- Charles Richard Queen, M.D. ('56)
- Barry Keyes Fawcett, M.D. ('63)
- John Norville Chatfield Jr., M.D. ('68)
- Daniel Pierdon Redmond, M.D. ('68)

GRADUATE SCHOOL

Patricia Anne Myers Polk ('61)

GRADUATE SCHOOL

Class of 1981: Ellen Puré, Ph.D., was appointed fellow of the world's largest scientific society – the American

Association for the Advancement of Science. Dr. Puré serves as Chair and Professor of the Department of Biomedical Sciences at the University of Pennsylvania School of Veterinary Medicine. She is also Director of the Penn Vet Cancer Center. Dr. Puré completed her doctorate in immunology and postdoctoral fellowships at UT Southwestern.

For the latest updates on alumni events and news, visit engage.utsouthwestern.edu/alumni and follow @utswalumni on Facebook.

Please send your Class Notes contributions or address changes to the Office of Development and Alumni Relations, UT Southwestern Medical Center, 5323 Harry Hines Blvd., Dallas, TX 75390-9009, email alumni@utsouthwestern.edu, or call 214-648-4539.

PLS Continued from page 1

enzymes. This experience cemented in his mind the connection between metabolism and disease, leading him to dedicate his career to understanding the role of metabolic abnormalities in disease.

"Metabolism is central to so many biological processes that it should not be surprising that diseases often involve abnormalities in these pathways," said Dr. DeBerardinis, a Professor at the Children's Medical Center Research Institute (CRI) at UT Southwestern and a Howard Hughes Medical Institute (HHMI) Investigator. "When the metabolic maps were drawn decades ago, there was a perception that we had little left to learn. But there is much to be gained by viewing diseases through the lens of metabolism."

Dr. DeBerardinis, also Professor of Pediatrics and Chief of the Division of Pediatric Genetics and Metabolism at UTSW, will speak about his work to understand how changes in metabolism contribute to disease at the next President's Lecture at 4 p.m. March 5 in the Tom and Lula Gooch Auditorium on South Campus. The talk will also focus on how his lab and the community of researchers and clinicians at UT Southwestern are working together to develop patient-focused approaches to study altered metabolism and to find new treatments for cancer and IEMs.

The DeBerardinis lab uses innovative approaches to study metabolism in cancer patients, providing researchers with insights impossible to obtain from purely laboratory-based experiments.

"Cancer involves cellular metabolic changes that contribute to tumor growth. But to understand those changes, we can't be satisfied with studying cancer cells in culture. We need to study them where they occur naturally – in tumors, in patients," Dr. DeBerardinis said. "At UT Southwestern, we can do that." Dr.

DeBerardinis and collaborators have studied metabolism in nearly a dozen forms of human cancer.

Through the Genetic and Metabolic Disease Program (GMDDP) at the CRI, Dr. DeBerardinis takes a similar approach to help children with IEMs. These genetic diseases prevent children from metabolizing or breaking down the sugars, proteins, and fats in food, resulting in permanent disability unless identified and treated at a young age. Although hundreds of IEMs have been discovered, Dr. DeBerardinis suspects many more have yet to be found.

"When we see a child in our clinics with a disease that we don't recognize, we take a few drops of blood back to the lab for analysis. There, we work to characterize the metabolic state, find the disease gene, model it in the mouse, and test new therapies," he said. "The hope is that some of these treatments will make it back to the patients."

The success of both the IEM program as well as the clinical research effort is attributable to the integration between clinic and lab, Dr. DeBerardinis said.

"These are team-based projects. We simply wouldn't be able to perform these studies without having partners across the entire UT Southwestern and Children's Health communities. Our scientists in the lab, the clinical staff of physicians, nurses, genetic counselors, and the entire team taking care of these patients have made these projects productive," he explained. "It's a fantastic example of the kind of integrative and collaborative science that UT Southwestern is built for."

Dr. DeBerardinis holds the Joel B. Steinberg, M.D. Chair in Pediatrics and is a Sowell Family Scholar in Medical Research and a Robert L. Moody, Sr. Faculty Scholar. He also directs CRI's GMDDP and is affiliated with the Eugene McDermott Center for Human Growth and Development and the Harold C. Simmons Comprehensive Cancer Center, both at UT Southwestern.

Devin McCallister, who earned a master's in physician assistant studies, receives her degree hood from Assistant Professor Veronica Coleman (left) and Dr. Venetia Orcutt, Associate Professor.

Congratulations School of Health Professions graduates of 2019!

In mid-December, 134 students earned master's or doctorate degrees from the UT Southwestern School of Health Professions during a graduation ceremony in Gooch Auditorium. The School, which marked its 50th anniversary in 2018, offers master's and doctorate degree programs in clinical research, physical therapy, counseling, prosthetics-orthotics, physician assistant studies, radiation therapy, and nutrition.

Dr. Caroline Cochran (left) and Julie Chrisman celebrate achievement of their doctorates of physical therapy.

The end of 2019 meant new beginnings for graduates of UT Southwestern's School of Health Professions.

Graduates line up to receive their diplomas.

Graduate Victoria Oliver, who earned a master's in clinical nutrition, celebrates with her family, Luke Oliver and baby Savannah.

Graduates watch the ceremony.

Beneath the surface

Radiology faculty assist DMA to scan the unseen components of a Senoufo helmet mask

By Patrick Wascovich

Beauty, they say, is in the eye of the beholder. With the help of advanced imaging from UT Southwestern, however, the inner beauty and unseen intricacies of a Senoufo helmet mask from the Dallas Museum of Art's African collection are being appreciated more than ever before.

Dr. Matthew A. Lewis, Assistant Professor of Radiology, straddled the art-medicine-science border while imaging the helmet mask with a Philips iQon dual-layer detector spectral computed tomography scanner that was going through its pre-release campus testing. Clinically, an iQon is used 20 to 30 times daily for imaging of patients at William P. Clements Jr. University Hospital.

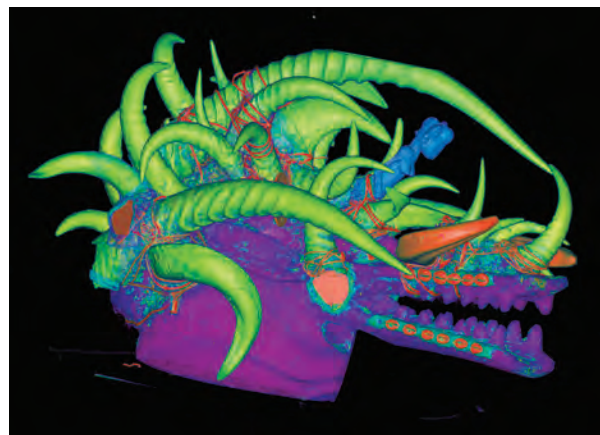
The resulting 3D images provided the foundation for the DMA's "Not Visible to the Naked Eye: Inside a Senoufo Helmet Mask" exhibit, which runs throughout this year. Images from this cutting-edge scanning technology provide museum visitors a deeper understanding of the mask-making process, its intricacies, and a detailed examination of materials and substances not visible to the naked eye. Those materials include buried animal skeletons, seeds, and metal underpinnings.

"Using the manufacturer's IntelliSpace Portal as well as custom tools that we developed, we were able to better distinguish materials in the mask than would be possible with conventional CT," said Dr. Lewis, who worked with colleagues at UTSW, UT Dallas, and the Dallas Zoo on the project.

A Senoufo helmet mask is worn by a medium at initiations, funerals, harvest celebrations, and secret events conducted by the powerful male-only Komo society, which has traditionally maintained social and spiritual harmony in Senoufo villages in Côte d'Ivoire, Mali, and Burkina Faso in West Africa. The DMA's mask – a 1997 donation to the collection from David T. Owsley – is ornately decorated with



UTSW's Dr. Todd Soesbe (left) and Dr. Matthew A. Lewis prepare to image the mask in the Philips iQon scanner.



The African Senoufo helmet mask on display at the Dallas Museum of Art is worn by a medium for various rituals. In above images, a UT Southwestern team imaged the mask with a spectral computed tomography scanner, revealing its inner components.

and empowered by 34 animal horns, a female figure, cowrie shells, and imported glassware. The CT scans further reveal unexpected materials and structures beneath the surface and

objects contained in the horns.

On March 18, museum curator Dr. Roslyn Adele Walker will discuss the community collaboration and the subsequent findings in a special

12:15 p.m. presentation in the DMA's Conservation Gallery.

UT Southwestern medical students enrolled in "The Art of Examination" course first saw the mask on tours led

by UTD's Bonnie Pitman, a Distinguished Scholar in Residence and a national leader in the public engagement of art. Ms. Pitman's work with The Edith O'Donnell Institute of Art History at UTD focuses on ways museums use their collections in developing close observation of works of art to enhance the diagnostic skills needed for medical practice.

Radiology's involvement subsequently developed through discussions with Dr. David McPhail, formerly UTD's Distinguished Chair of Conservation Science at the O'Donnell Institute and Professor of Chemistry.

"I wanted to tell him about the spectral CT scanner that Assistant Professor of Radiology Dr. Todd Soesbe and I were working with to see if there were any non-medical applications," Dr. Lewis said. "He told me about the DMA wanting to image the mask. Since Dr. Soesbe and I were doing a lot of technical development on the clinical spectral CT at the time, we arranged for the imaging session and analyzed the imaging data."

It's an effort the UTSW team undoubtedly would do again.

"It's been really satisfying to apply our knowledge of imaging to help people in the art community who obviously appreciate and use science," Dr. Lewis said. "I was especially happy when the tentative identification of the lizard skeleton inside the large lateral horn was confirmed, but many mysteries remain within the mask."

"What is the lump of metal in the bridge of the nose area? What are the other animals that are stuffed in the horns? What are the seed pods and other floral-looking items? How do we make the best artistic renderings of the mask that minimize the image artifacts due to all the metal nails and wire? It was all very exciting."

More online: To watch a video and view more images go to *Center Times Plus* at utsouthwestern.edu/ctplus.

Training Continued from page 1

blood, dropped from 13 to 6 minutes, a 217 percent improvement.

"What we found most powerful was the ability to recognize life-threatening injuries, to identify the need for and the location of equipment in the trauma bay, and to clearly communicate the plan of action to other members of the care team," said study author Dr. Caroline Park, UTSW Assistant Professor of Surgery. "These are basic concepts that can shave off critical seconds, perhaps minutes during a trauma resuscitation."

A trauma team – consisting of a trauma chief resident, junior resident, intern, and trauma nurse coordinator – reacts in real time as the simulated trauma scenario unfolds. Heart rate and oxygen saturation monitors are displayed and beeping, changing continuously or accelerating as the simulated patient's condition worsens – increasing the stress level. Once the team stabilizes the simulated patient/manikin, the "patient" is quickly advanced to a destination such as the operating room or interventional radiology suite, and the debriefing begins.

The study is believed to be the first to examine whether standardized, repeated educational and simulation curriculum implemented in a trauma surgery rotation could affect clinical performance among surgical trainees.

The prospective observational study reviewed 277 Level I trauma cases over eight months (July 2018-February 2019) before and after the training intervention at a Level I trauma center. Study findings, presented at the 78th annual meeting of the American Association for the Surgery of Trauma and Clinical Congress of Acute Care Surgery, were published online recently in *The Journal of Trauma and Acute Care Surgery*.

Simulation training – considered one of the most prominent advancements in medical education in the last 15 years, according to an Association of American Medical Colleges survey – is largely accepted as a keystone component



Simulation training is largely accepted as a keystone component in delivering effective medical education while improving patient safety.

in delivering effective medical education while improving patient safety.

"We know that repetition helps improve performance – the 'practice makes perfect' theme – but it can't be experienced in a bubble," Dr. Park said. "Medicine, specifically trauma surgery, is the ultimate team sport and solid leadership, clear communication, and familiarity of the environment are paramount."

The study involved residents at UT Southwestern, home to one of the largest surgical training programs in the country, using an interventional training program through its \$40 million, 49,000-square-foot training center, one of the largest and most advanced in the country. The Sim Center includes simulation ORs, high-fidelity intervention suites, a multi-purpose skills lab that can accommodate scores of learners, virtual reality and robotic suites, and numerous other high-tech components.

More online: To read the full story, go to utsouthwestern.edu/newsroom/articles/year-2019/simulation-training.html.



UT Southwestern's Simulation Center, one of the largest in the country, features simulators that closely replicate diseases, conditions, and other real-life patient scenarios.

UT Southwestern Sim Center

UT Southwestern's Simulation Center, accredited by the American College of Surgeons Accredited Education Institutes, supports:

- 1,400 residents and fellows for all departments annually
- 1,000 medical students for all training annually
- 150 learners from the UT Southwestern School of Health Professions
- Faculty training for 45 departments and other stakeholders
- UT Southwestern Health Care System training
- Interprofessional education