

Temple Health

FALL 2016

Magazine



STEVEN HOUSER:
The American Heart
Association President's

Golden Opportunity

GAME ON:
SPORTS MEDICINE
FOR THE SENIOR
VARSITY

IGOR ASTSATUROV:
GETTING PERSONAL
WITH PANCREATIC
CANCER







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Temple Health Magazine

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Temple Health refers to the health, education, and research activities carried out by the affiliates of Temple University Health System, Inc. (TUHS), and the Lewis Katz School of Medicine at Temple University. TUHS neither provides nor controls the provision of health care. All health care is provided by its member organizations or independent health care providers affiliated with TUHS member organizations. Each TUHS member organization is owned and operated pursuant to its governing documents.

Hearts, Minds, and Hands

At Temple, we embrace humanity at its most diseased, defiant, compliant, and courageous. All comers are welcome. We turn no patient away. But when it comes to students, it's a different story. Every year, more than 10,000 people apply to Temple's MD program. Only 200 get in. Hundreds compete for our MS and PhD programs — and our master's program in urban bioethics (the nation's first). Few are accepted. Temple launched a physician assistant program this year. Hundreds vied for a seat. Only 20 were chosen. Assembling a first-class first class was top priority.

For the sake of tomorrow's patients, we are highly selective about the future clinicians we accept. Impressive test scores and grade point averages matter, of course, but we also look for candidates with determination, creativity, and grace. Maturity and open-mindedness. Unstoppable drive to do good in this world. Absent these, health care is little more than a technical transaction that society can neither abide nor afford.

For health care to do right by patients, we must choose the right professionals for it. Medicine's future (indeed our lives and the lives of our loved ones) depends on their hearts, minds, and hands.

Larry R. Kaiser, MD, FACS

Senior Executive Vice President for Health Affairs, Temple University
Dean & Professor of Surgery, Lewis Katz School of Medicine
President & CEO, Temple University Health System

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IHC - suppl.

Abstract - to

Rescue of proliferation in LXR^{hul}
MEFs
Nsdh1/LXR

Δ Nsdh1
sterol in LXR KO
 Δ Nsdh1 Δ N / Δ LXR
CDLR \downarrow \uparrow
Ki67 \downarrow \uparrow



LXR activation/effect

FBS
LD5+LDL
LDS \uparrow



GW3965
T-PCR: Conditioning



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CANCER CENTER
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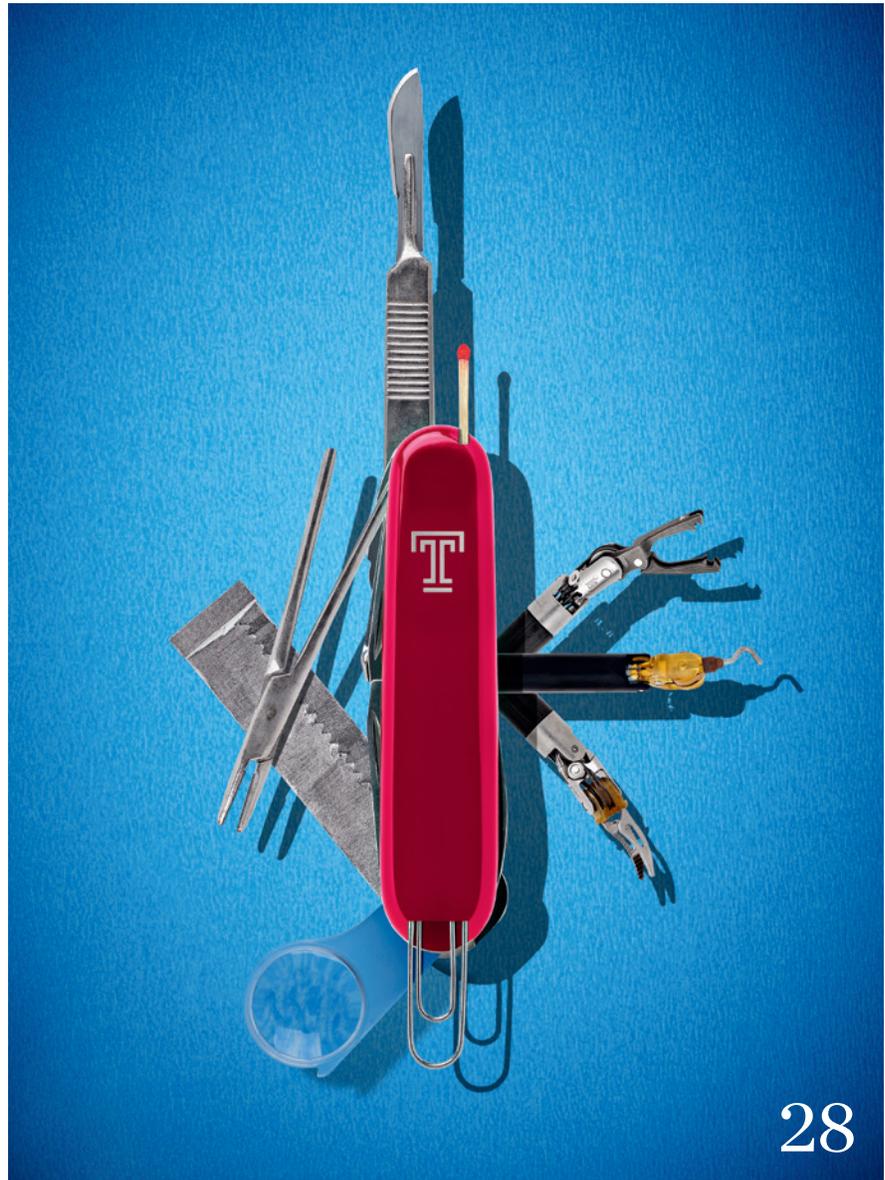
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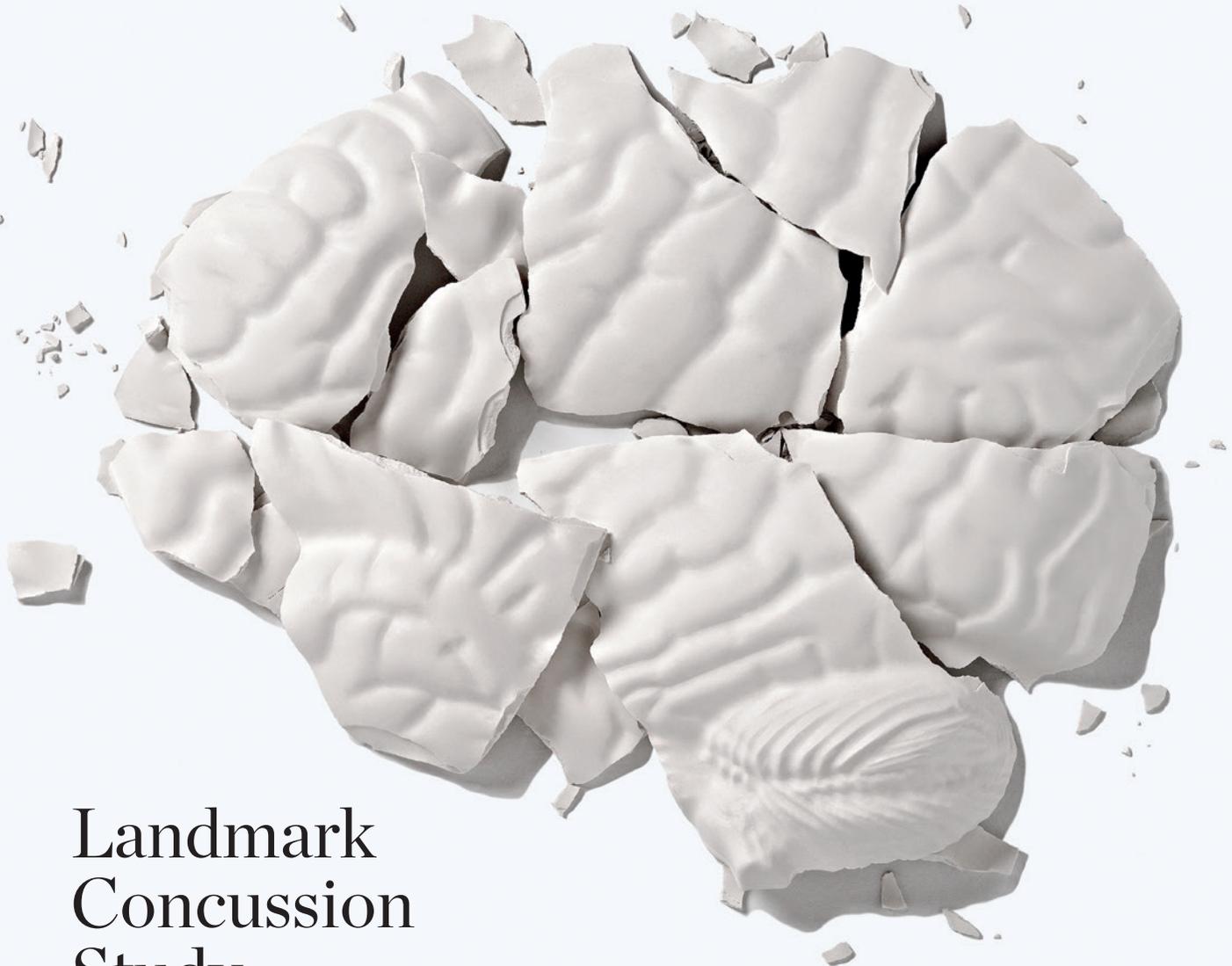
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OPPOSITE: JOSEPH V. LABOLITO; TOP RIGHT AND BOTTOM LEFT: CLINT BLOWERS; BOTTOM RIGHT: BRIAN STAUFFER

ON THE COVER: Temple's Dr. Steven Houser is the new American Heart Association President. Photo by Colin Lenton.

CURRENTS



Landmark Concussion Study

Temple University has been selected to participate in the largest-ever study of concussion in sport, a landmark \$30 million NCAA-U.S. Department of Defense initiative called CARE, the Concussion Assessment, Research and Education (CARE)

Consortium. The CARE Consortium will enroll an estimated 25,000 student athletes over a three-year period.

As part of CARE's Longitudinal Clinical Study Core (led by the University of Michigan), Temple will examine the natural history

of concussion among NCAA student-athletes. "The safety of our student-athletes is our number one priority. So we take pride in being part of this study, which should help not just Temple student-athletes, but student-athletes around the country," said Temple University Director of Athletics Patrick Kraft, who is leading the study at Temple with T. Dianne Langford, PhD, Associate Professor of Neuroscience and Neurovirology at the Lewis Katz School of Medicine. Langford studies how the brain responds to physical insults at a molecular level.

Clinical Partnerships

New clinical partnerships are bringing Temple's advanced expertise to community hospitals closer to home for patients in the Philadelphia region and beyond.

Temple neurologists and neurosurgeons are now onsite at Holy Redeemer Hospital in Huntingdon Valley, PA. Temple also provides clinical expertise in cardiology to Chestnut Hill Hospital (Philadelphia, PA); cardiothoracic surgery — Brandywine Hospital (Coatesville, PA); liver transplantation — St. Luke's Health System (Bethlehem, PA); thoracic surgical oncology — Delaware County Memorial Hospital (Drexel Hill, PA) and medical oncology — Atlanticare Regional Medical Center (Atlantic City, NJ).

Temple's own regional offices make advanced care more accessible to regional patients, too. These facilities include Temple Health Center City (Philadelphia, PA); Temple Health Fort Washington (Ft. Washington, PA); Temple Health Oaks (Oaks, PA); and Temple Health Elkins Park (Elkins Park, PA).

TEMPLE MEDFLIGHT PROVIDES

24/7

CRITICAL CARE TRANSPORT IN EASTERN PA, NJ, DE, NY, AND MD.

KATHLEEN DUFFY



Kamel Khalili, PhD

AIDS: Closer to a Cure

A gene-editing system designed by scientists at the Lewis Katz School of Medicine to disable the DNA of HIV, the virus that causes AIDS, could pave the way to an eventual cure. In laboratory studies, the high-tech method has proven safe and effective in eliminating the HIV virus, in both its active and latent forms.

The first breakthrough came in 2014, when the team led by Neuroscience Chair Kamel Khalili, PhD, became the first to successfully eliminate the HIV-1 genome from human cells grown in culture. Then, in March of 2016, they cleared the next hurdle, eliminating the virus from the genome of human T-cells *in vitro* with no adverse effects on host cells. They also obtained successful results in *ex vivo* studies using T-cells from the blood of patients infected with HIV. Next, they passed another significant milestone: they excised a segment of

HIV-1 DNA from the genomes of living animals, which led to permanent inactivation of viral DNA.

"These discoveries are major steps forward in a potential cure for patients with AIDS," says Khalili. "The implications are far-reaching. The technique can be adapted to target mutated strains of HIV-1 — and potentially other viruses as well."

According to Khalili, the method protects cells against reinfection, introducing mutations into the viral genome that permanently inactivate its ability to replicate. "Moreover, the treatment is safe, producing no off-target effects on genes, and no toxicity. The HIV-1-eradicated cells grow normally," Khalili says.

The studies were published in *Scientific Reports*, *Gene Therapy*, and *The Proceedings of the National Academy of Sciences*, and were then covered by media around the world, including *Time*

magazine and the BBC. Other institutions that participated in the Temple-led, NIH-supported research include the University of Milan, the University of Nebraska, the University of South Carolina, and Case Western Reserve University.

In other HIV-related news, Yuri Persidsky, MD, PhD, Chair of Pathology and Laboratory Medicine, is principal investigator on a new NIH grant to test the ability of certain cannabinoid receptor compounds to protect the brain against the debilitating syndrome known as HAND (HIV-Associated Neurocognitive Disorder). In addition, Jeffrey Jacobson, MD, an internationally-renowned expert in clinical research on HIV, has joined the School's faculty. He will help expand the school's AIDS clinical research program along with Khalili in the newly established Center for Translational AIDS Research.



Academia's "Carnegie Hall"

The Carnegie Classification of Institutions of Higher Education reflects the productivity and scale of a university's research enterprise — and Temple University has been elevated to its top tier — placing it among the top four percent of all four-year institutions in the nation.

To rank among the top-rated institutions (especially Temple's ranking, *Doctoral Universities — Highest Research Activity*) is a coveted academic distinction. Temple is one of just 115 institutions nationwide, five in Pennsylvania, and seven among American Athletic Conference schools, to obtain the top classification.

According to Larry R. Kaiser, MD, FACS, President and CEO of Temple University Health System and Dean of the Lewis Katz School of Medicine, "the Carnegie Classification reflects Temple University's increasing productivity and excellence — with

a significant contribution from biomedical research at the Lewis Katz School of Medicine. An explosion of innovative research is taking place at Temple every day."

This year, University faculty generated 115 inventions, and during the past five years launched 15 startups. Since 2012, Temple has hired nearly 200 tenured or tenure-track faculty, including many star researchers. Seven are in the top one percent of the most-cited scholars in medicine, pharmacy, and the liberal arts — and four have five of the most-cited scientific papers, putting Temple at No. 29 in Google Scholar citations. Over the past five years, Temple discoveries have driven groundbreaking treatments for HIV, heart failure, and influenza.

The top-tier Carnegie classification makes Temple even more attractive to top faculty and top students. It helps attract more research dollars. And increases the value of a Temple degree. "Carnegie's main stage is the place to be," says Kaiser.

PA Program with a Twist

On June 1, the Lewis Katz School of Medicine welcomed its inaugural class of Physician Assistant (PA) students. Hundreds of applicants competed for a seat, and just 20 were selected for the brand-new 26-month M.S. degree program. PAs are "physician extenders." They examine and treat patients, make diagnoses, prescribe medications, assist in surgery, counsel patients, and perform minor procedures in a wide variety of specialties and settings.

As a PA program embedded within a medical school, Temple's PA program is a program with a twist. Such programs are few and far between — yet highly advantageous in this era of team-based health care delivery. "Health care professionals who practice together benefit when educated together," says program director Kathryn McCluskey, JD, MPH, PA-C. Temple's program enables PA students and medical students to hone their clinical skills together. In future years, class size will be increased to 50.

FOX CHASE
CELEBRATES

42

CONTINUOUS
YEARS OF NCI
COMPREHENSIVE
CANCER CENTER
STATUS.

Elected, Appointed

INTERURBAN CLUB

Richard I. Fisher, MD, President and CEO of Fox Chase Cancer Center, and Jonathan Chernoff, MD, PhD, Chief Scientific Officer, have been elected to the historic Interurban Clinical Club, founded in 1905 by Sir William Osler.

NEW PRESIDENT

John “Drew” Ridge, MD, PhD, FACS, Chief of Head and Neck Surgery and the Louis Della Penna Family Chair in Head and Neck Oncology at Fox Chase Cancer Center, has been named President of the American Radium Society, the oldest academic group devoted to the study and treatment of cancer.

AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION

Joseph Cheung, MD, PhD, the Evans Professor and Chair of Medicine at Temple, has been elected to the American Clinical and Climatological Association, which selects members on the basis of leadership, excellence, and integrity.

FIRST FELLOWS

The Society of Nuclear Medicine and Molecular Imaging has inducted Leon Malmud, MD, the Herbert Stauffer Professor of Radiology, and Alan Maurer, MD, Professor of Radiology and Director of Nuclear Medicine at Temple, into its inaugural class of Fellows — recognizing their contributions to the field.

COMMISSION ON CANCER

Nestor Esnaola, MD, MPH, MBA, FACS, a surgical oncologist at Fox Chase Cancer Center, has been invited to serve on the American College of Surgeons’ Commission on Cancer, a group of 102 professionals dedicated to improving cancer care nationwide.

ORTHOPAEDIC TRAUMA BOARD

Saqib Rehman, MD, MBA, Director of Orthopaedic Trauma at Temple, has been



Richard I. Fisher, MD

elected to the Executive Board of the Foundation for Orthopaedic Trauma. This national organization promotes the advancement of orthopaedic traumatology.

NIH CENTER FOR SCIENTIFIC REVIEW

Raj Kishore, PhD, Director of Temple’s Stem Cell Therapy Program, has been named a charter member of the Center for Scientific Review’s task force on Myocardial Ischemia and Metabolism. Members review grant applications submitted to the National Institutes of Health and survey the status of research in the field.

NEW CEO FOR ACP

Darilyn Moyer, MD, FACP, Professor of Medicine and Assistant Dean at the Lewis Katz School of Medicine, has been named Chief Executive Officer of the American College of Physicians (ACP), the largest specialty organization in the United States. Moyer has served on ACP’s Board of Regents, chaired its Board of Governors, and is a past Southeastern Pennsylvania Chapter Governor. Her interests include medical education, high-value care, patient safety, professionalism and digital media, and HIV/infectious diseases.

Happily Blue

NO TEARS HERE: Sometimes it's good to be blue. As one of the first hospitals to receive the Blue Distinction® Center for Maternity Care designation from Independence Blue Cross, Temple University Hospital is tickled pink. Hospitals so-designated demonstrate better quality and improved outcomes for patients. Temple University Hospital is also a Blue Distinction® Center for bariatric surgery, cardiac care, complex and rare cancers, knee and hip replacements, spine surgery, and transplants.

BLUER STILL: Jeanes Hospital is pleased to be blue, too — having earned Blue Distinction® status for knee and hip replacement. And likewise proud to be one of only 466 hospitals across the nation to receive Healthgrades' Patient Safety

Excellence Award for 2016 — ranking among the top 10 percent for 14 patient safety indicators defined by the Agency for Healthcare Research and Quality.

ROCK THOSE RANKINGS: The Lewis Katz School of Medicine at Temple University has again ranked among the top research-oriented medical schools in the nation, earning a prominent place on the 2017 *U.S. News & World Report* "Best Graduate Schools" list. The school earned the second-highest ranking in Philadelphia and the third-highest in Pennsylvania.

RARE AIR: Truly lung-elite, the Temple Lung Center is now part of the Airways Clinical Research Centers of the American Lung Association, a select group of

17 centers nationwide that conduct clinical trials to help advance care for people with asthma and chronic obstructive pulmonary disease. One of the largest lung hospitals and pulmonary surgery centers in the nation, the Temple Lung Center is a destination of choice for patients with serious lung problems.

QUITE THE CONNECTION: Ever setting the pace, Fox Chase Cancer Center received the 2016 Innovator Award of the Association of Comprehensive Cancer Centers for its Care Connect Program. Through Care Connect, Fox Chase Cancer Center and community physicians in the Philadelphia area work together to integrate cancer prevention education, screening, treatment, and survivorship care plans into clinical practice.



THE 2016
RESIDENCY MATCH:

TEMPLE:

100%

NATIONAL AVERAGE:

93.7%

Cancer Moonshot

On June 29, 2016, in partnership with the American Cancer Society and the U.S. Department of Health and Human Services, Fox Chase Cancer Center hosted a Regional Cancer Moonshot Summit — launching President Obama’s edict to double the rate of progress in cancer science during the next five years. Representing the Mid-Atlantic region, the Fox Chase summit was timed to coincide with the national summit, led by Vice President Joseph Biden in Washington, D.C. Biden’s address was live-streamed.

“This history-making effort marks the first time that all cancer stakeholders are convening under one national charge,” said Richard Fisher, MD, President of Fox Chase, who hosted the summit with Wafik El-Diery, MD, PhD, Deputy Director for Translational Research. The summit featured three panel discussions and drew such dignitaries as Joanne Grossi, regional director of the U.S. Department of Health and Human Services.

At the invitation of the White House, Temple oncologist Deric Savor, MD, attended the national summit in Washington, D.C.



Tell Me a Story

Michael Vitez, a prize-winning journalist who wrote for the Philadelphia *Inquirer* for 30 years, has joined the Lewis Katz School of Medicine as Director of Narrative Medicine. In this role, he will expand the school’s humanities curriculum by teaching electives in storytelling and reflection.

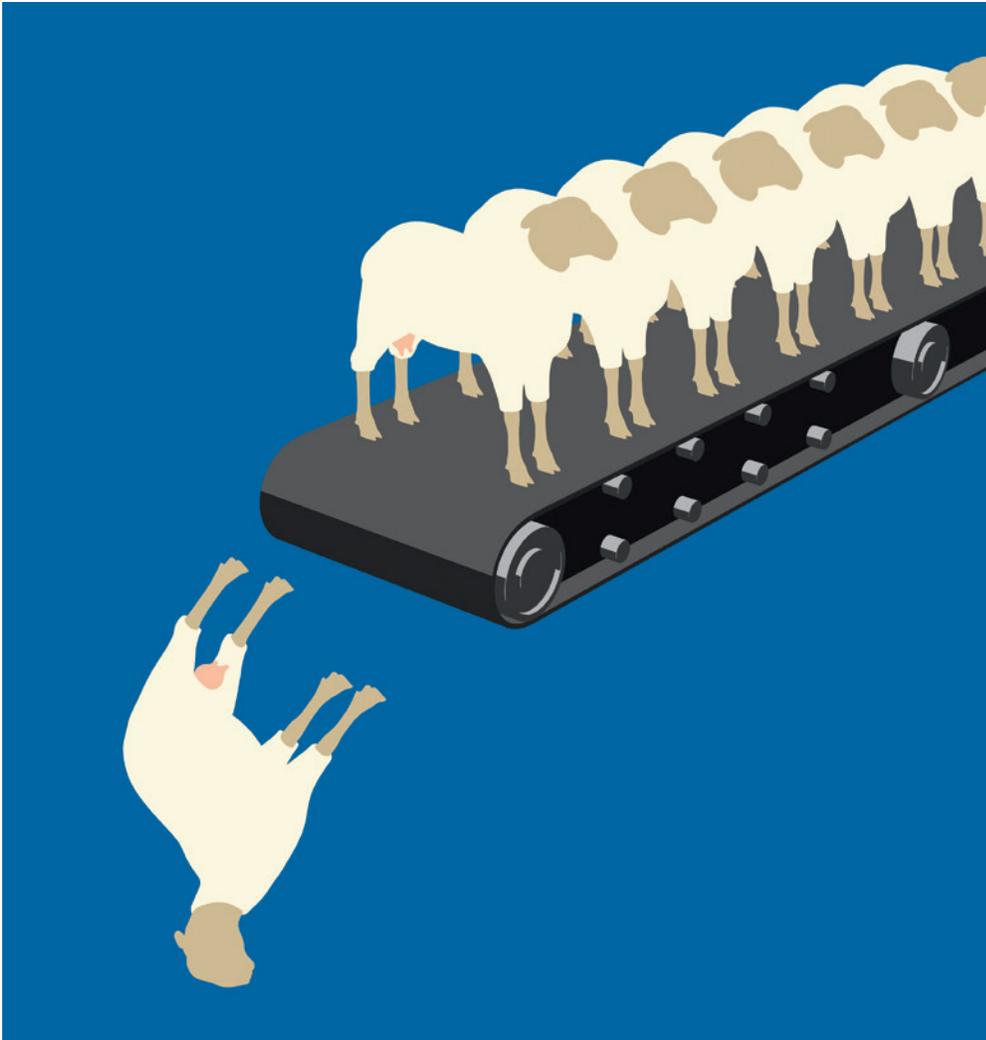
“My mission is to become a ‘story engine,’ encouraging students, staff, and patients to write their stories. Stories have the power to heal, to bring people together,” says Vitez, who will focus on the human side of medicine. Many medical schools recognize narrative medicine’s value. Columbia University offers a Master of Science degree in the field.

“There’s more to medicine than technical knowledge,” says Larry Kaiser, MD, FACS, President and CEO of Temple University Health System and Dean of the School of Medicine. “We deal with difficult situations, and to be able to put one’s thoughts and feelings into words is very important.”

Medical storytelling is familiar territory for Vitez, who won the Pulitzer Prize for Explanatory Journalism in 1997 for his work documenting critically ill patients and the decisions they faced during their final days. “You build community when you tell stories,” says Vitez. “You underscore what’s important: our humanity, our compassion, our resilience.”

Vitez Says

In addition to helping Temple tell stories, Michael Vitez is telling stories himself. To explore the struggle of a passenger who spent 77 days in Temple’s ICU after the 2015 Amtrak train derailment (and to read other work by Vitez), go to medicine.temple.edu/. Look for additional artful writing by Vitez in this magazine, starting in the spring.



New Leaders

Abbas El-Sayed Abbas, MD, has been named Thoracic Surgeon-in-Chief and Surgical Director of the Lung Cancer, Thoracic Malignancy and Foregut Disease Programs for Temple University Health System. An expert in robotic and minimally invasive approaches, Abbas specializes in procedures available at select hospitals nationwide.

Oneida Arosarena, MD, has been appointed Associate Dean for Diversity and Inclusion at the Lewis Katz School of Medicine. In this role, she will advance initiatives that reinforce the school's commitment to an inclusive academic and patient care environment and promote intercultural understanding. Arosarena is Associate Professor of Otolaryngology-Head and Neck Surgery.

Benjamin Krevsky, MD, MPH, FACP, has been named Section Chief of Gastroenterology at Temple University Hospital. A faculty member since 1984, Krevsky will maintain his role as Professor of Medicine at the Lewis Katz School of Medicine. His interests include endoscopy, esophageal and colon cancers; motor disorders of the GI tract; and the use of scintigraphic techniques.

Lars Ola Sjöholm, MD, a faculty member since 2011, has been named Chief of Trauma and Surgical Critical Care in the Department of Surgery and Medical Director of the Trauma Program at Temple University Hospital.

Sleep & Parkinson's Disease

According to Domenico Praticò, MD, Professor in the Center for Translational Medicine at Lewis Katz School of Medicine, chronic lack of sleep and irregular sleep-wake cycles may be risk factors for Parkinson's disease. Praticò's research, published in *Molecular Psychiatry* and supported by the Wanda Simone Endowment for Neuroscience, is the first to demonstrate that an environmental factor — chronic daily exposure to long periods of light with brief exposure to dark (which alters circadian rhythm) — can exacerbate Parkinson's. "Many think that sleep

disturbances are secondary to Parkinson's disease," Praticò explained. "But circadian rhythm disturbances are increasingly reported *before* the onset of Parkinson's."

A chronic and progressive disorder involving neuronal malfunction, Parkinson's disease affects approximately eight million worldwide. Men are slightly more likely to develop the disease than women, and the incidence increases with age. While there is currently no cure for Parkinson's, medications help manage symptoms. "In select cases, surgical options, such as deep brain stimulation, can be helpful," Praticò says.

Heartfelt Honors

WOMAN OF HEART:

Deborah Crabbe, MD, FACC, FAHA, Associate Professor of Medicine at Temple, has been named a 2016 Woman of Heart for her leadership and advocacy of the American Heart Association's Go Red For Women campaign. The honor recognizes Crabbe's resolve to combat heart disease and stroke — especially with regard to women.

MORE HEARTFELT NEWS:

Temple University Hospital has achieved three American Heart Association distinctions: The Get With The Guidelines® Resuscitation Gold Quality Achievement Award for the treatment of patients who suffer in-hospital cardiac arrests; the Get With The Guidelines® Stroke Gold Plus Award; and Target: Stroke Honor Roll Elite Plus recognition. Jeanes Hospital also received a Get With The Guidelines® Stroke Gold Plus Quality Achievement Award.

ELLIS ISLAND MEDAL OF HONOR:

Garo Garibian, MD, Chief of Cardiology at Jeanes Hospital, received a 2016 Ellis Island Medal of Honor — one of the nation's most prestigious accolades, for his medical mission work in service to Armenia. The medal honors individuals who share their knowledge, compassion, and generosity — maintaining the traditions of their ethnic heritage as they uphold the ideals and spirit of America.

INTERNATIONAL NURSING HONOR:

Anne Jadwin, RN, MSN, AOCN, NE-BC, Vice President of Nursing Services and Chief Nursing Officer at Fox Chase Cancer Center, received the 2016 Outstanding Nurse Award from the Sigma Theta Tau International Honor Society of Nursing, recognizing leadership in nursing practice, administration, research, and education.

(ANOTHER) LIFETIME ACHIEVEMENT AWARD:

Bennett Lorber, MD, MACP, Thomas M. Durant Professor of Medicine in Temple's Section of Infectious Diseases, has been presented with the Lifetime Achievement Award of the Anaerobe Society of the Americas. Lorber is also recipient of the Alexander Fleming Lifetime Achievement Award of the Infectious Diseases Society of America.

CFO TO KNOW:

Robert H. Lux, CPA, FHFMA, Senior Vice President, Treasurer and Chief Financial Officer of Temple University Health System, has been named one of this year's top "150 Hospital and Health System CFOs to Know" by *Becker's Hospital Review*. Lux has served as Vice President and CFO at Temple since 1996.

TOP TEACHER IN STATE:

David O'Gurek, MD, FAAFP, Assistant Professor of Family and Community Medicine at the Lewis Katz School of Medicine, has been named Pennsylvania's Top Physician Teacher for 2016 by the Pennsylvania Academy of Family Physicians. O'Gurek directs Temple's Family Medicine Clerkship.

WORLD CONGRESS PRESIDENT:

Michael Selzer, MD, PhD, FRCP, Director, Shriners Hospitals for Children Pediatric Research Center and Professor of Neurology at Lewis Katz School of Medicine, just completed his term as President of the World Congress on NeuroRehabilitation.

RARE MASTERY:

Two School of Medicine faculty members have been named Masters of the American College of Physicians: Ellen Tedaldi, MD, Director of Temple's HIV Program, and Thomas Fekete, MD, Chief of Infectious Diseases. Masterships are conferred on physicians with distinguished records. Bennett Lorber, MD, holds the distinction as well.



Deborah Crabbe, MD, FACC, FAHA

The American Heart Association President's

GOLDEN OPPORTUNITY

T

he American Heart Association, the nation's oldest and largest volunteer-driven heart health organization, has named a new President: **Steven R. Houser, PhD, FAHA** — an internationally respected, straight-talking heart researcher with a can-do, “Temple tough” approach to science and life.

The presidency covers a number of roles, as does Houser's work at Temple University's Lewis Katz School of Medicine, where he serves as Senior Associate Dean for Research, holds the Vera Goodfriend Chair in Cardiovascular Research, is Director of the Cardiovascular Research Center, and is Professor of Medicine and Chair of the Department of Physiology. In tandem with these jobs, he's now leapfrogging all over the United States to represent the American Heart Association (AHA).

Houser earned his PhD in physiology at Temple in 1977 and completed a research fellowship at the school before joining its faculty in 1979. He has defined fundamentally important factors of normal and abnormal heart function — with more

than \$25 million in research grants funding his quest. Houser was an NIH MERIT investigator — an honor just five percent of all National Institutes of Health-supported scientists in the country can claim. His research has been at the cutting edge of cardiovascular science for more than 30 years.

He's also a long-time AHA volunteer. He began as a member of local AHA peer-review committees, eventually became President of the Southeastern Pennsylvania affiliate, then moved on to the national level. He served on the AHA Board of Directors, chaired the Basic Cardiovascular Sciences Council and National Research Committee — and on July 1, 2016, took the helm as President of the storied 92-year-old organization.

By GISELLE ZAYON
Photography by COLIN LENTON



It's said you're a different sort of president for the American Heart Association. How so?

I am only the second PhD scientist privileged to serve as President of the AHA, and the first basic scientist. I am known for speaking my mind and for embracing “disruptive” approaches in my research. I try to approach unanswered questions in research by looking at things in new — sometimes unusual — ways. As a child of the 1960s, I believe that we can change the world and make it a better place. I am driven to discover new knowledge — because that's the only way we can develop more effective therapies for patients with cardiovascular disease.

Your dad died of heart disease, correct?

Yes. My dad — my buddy, my mentor, and my coach in every sport — had a heart attack at 43. It left a large scar on his heart that eventually turned into a ventricular aneurysm, a thinning and ballooning of the heart wall. That led to heart rhythm problems, and eventually, heart failure. My dad was a three-pack-a-day smoker. His blood pressure and cholesterol were probably through the roof. He died at 51. I was in graduate school studying neuroscience, but his death set me on a new path. The path of the heart, you could say. Watching him die by degrees inspired me to study cardiovascular disease — and to volunteer for the American Heart Association. There had to be something more we could do for people like my dad. I've been working on it for almost 40 years now.

What do you talk about as AHA President?

This is my golden opportunity to talk about health to a variety of audiences throughout the world. And I often tell people that I study the consequences of a disease that is largely *preventable*. This is a tough message because living a heart-healthy life is not the normal path for many. There are many complex reasons for this, but we are not just innocent victims when it comes to heart disease. We can bring it on ourselves. By smoking. By eating the wrong kinds of food. Too many of us are overweight, and have uncontrolled high blood pressure, cholesterol, and blood glucose. Many don't get sufficient exercise. The Western lifestyle is practically designed to induce cardiovascular disease. Many people lack access to healthy food, healthy places to live and work, and high-quality medical care.

We have much to do to build a culture of health for all Americans. But it's kind of crazy that the number-one killer in the world is something that can largely be prevented. Today, the public is more aware that diet can impact their health, that we all need to get off the couch more. We can't change our genetics, but better heart health is there for almost everyone who can follow “Life's Simple 7,” the AHA's seven simple steps for better heart health. That's the message I'm broadcasting, that we have what it takes to turn this bus around. In 2000, the AHA established its first 10-year national goal: to reduce risk factors for coronary heart disease and stroke by 25 percent by 2010. We met that goal. In fact, not only met it, exceeded it.

A 25% reduction. Pretty good, right?

Yes, but we have more work to do. That's why the AHA's new goal is to reduce deaths by an additional 20 percent by 2020.



Cardiovascular disease still claims a life about every 90 seconds today. That's someone's wife or dad or best friend.

What are Life's Simple 7?

Manage your blood pressure, control your cholesterol, control your blood sugar, stay active, eat a healthy diet, maintain a healthy weight, and maybe most importantly, don't smoke.

What's the most significant thing we have learned about heart health since the AHA was founded?

In 1924, Paul Dudley White, one of the founders of the AHA, called the era “a time of almost unbelievable ignorance about heart disease.” There was very little understanding of the problem back then. The progress we've made is extraordinary, but no particular discovery stands out, because they are all important. They build on one another, interconnect. That said, one fundamental understanding towers head-and-shoulders above all: That all progress hinges on research. Research is the key that turns all locks. You cannot fix what you do not understand. The pivotal role of research — and the indispensable need for funding to support it — is a big talking point of my presidency. Nothing can advance without it.

You seem to have genuine affection for the AHA.

Absolutely. I owe my career as a funded investigator to the AHA. It gave me my very first research grant, \$7,500 to study the heart's electrical system. Most people don't realize how many careers the AHA has launched. Ask almost any



established heart investigator who funded their very first study. To a young researcher, that first grant is everything, because there's no second without it. One of my platforms is to ensure that the AHA develops novel funding mechanisms for the next generation of cardiovascular scientists. Without their talent and initiative, we will not be able to make further progress in cardiovascular disease and stroke.

What kinds of research does the AHA fund?

All types of research: basic, clinical, and population science. Basic science, my passion, is the foundation for clinical and population studies that lead to new therapies or strategies for prevention. AHA science led to lifesaving advances like blood pressure medications and cholesterol-lowering drugs — and so much more is on the horizon today. The AHA maintains 185 volunteer science panels that cover 52 research areas, from public health to fundamental science. Last year the organization awarded about \$163 million to fund 980 projects. The only organization that gives out more money for heart research is the National Institutes of Health.

Is it true that the lower your income, the more likely you are to have heart disease?

For the past 35 years, I've worked in a low-income area of Philadelphia. It's no surprise to me that people in neighborhoods like this face a major challenge building a healthy lifestyle. You find very little fresh food in low-income areas. But fast food is prevalent, contributing to the obesity epidemic.

We must address the problems related to low-income populations if we are going to improve the health of all Americans. We need to better understand the bases of the disproportionately high rates of cardiovascular disease and stroke in racial and ethnic minorities. Cardiovascular death rates are 33 percent higher for Blacks than for the overall population. Blacks are nearly twice as likely to have a stroke. Minority communities confront more barriers to diagnosis, can receive lower-quality treatment, and experience poorer health outcomes than Caucasians.

It's time to bridge the disparity gap and ensure access to quality health care for everyone in the United States. Health care disparities are a major focus of AHA-funded research. We also address disparities through legislative advocacy. We work with local and state government, Congress and the President's office, the National Institutes of Health, and the U.S. Food and Drug Administration to advocate for the health of all Americans.

Are women considered a minority?

Women are not a minority, but are a special focus for the AHA. That's because we do not have adequate knowledge of sex-specific cardiovascular disease mechanisms. We do not have adequate research to know if and how we can best prevent cardiovascular disease and stroke in women or treat their disease once it develops. Women are a focus of AHA public education, too. For years, people have thought of heart disease as a man's disease — unaware that heart



disease claims seven times more women's lives than breast cancer. To address this, in 2004, the AHA launched its Go Red For Women campaign.

Thanks to people like Dr. Deborah Crabbe, a cardiologist and friend of mine at Temple, Go Red For Women is making a difference. For 15 years, Debbie's been lovingly challenging women — especially Hispanics, Latinas, and African-American women — to know their risk for heart disease and to take action. She makes sure women understand the symptoms of heart disease, which often differ from men's. I was thrilled that Philadelphia Go Red selected Debbie as its "Woman of Heart" this year. She deserves it. The AHA has more than 3,000 employees, but volunteers like Dr. Crabbe are really the heart of the organization.

Heart disease surpasses all forms of cancer combined as a cause of death, yet somehow cancer still seems scarier to most people.

People see cancer as a monster that keeps growing. They see the bad side effects of cancer treatment, too — like nausea and hair loss. Uncle Joe, on the other hand, was diagnosed with a narrowed coronary artery, had a stent put in — and now seems good as new. The stent relieved his symptoms, yes, but did not erase the heart disease underlying it. An impression prevails that heart disease is more treatable than cancer, less deadly to begin with. Right now I have a golden opportunity to help inform people that they can reduce their risk for cardiovascular disease and stroke — and live longer, healthier lives.

Tell us something about the heart that most people don't know.

The adult heart cannot replace muscle cells that are killed during a heart attack. The vast majority of our bodies' cells and tissues are self-renewing, replacing themselves with fresh new copies. But the heart and brain have very little of this capacity. At most, about one percent of our heart muscle cells are replaced every year. That means the heart muscle we're born with has to last a lifetime. We need to take better care of ourselves. Once a person has a heart attack, the function of the heart is permanently altered.

You suspect that most people don't really understand what happens in a heart attack. They think that a cardiologist can fix you up, and you'll be okay.

Most heart attacks are the result of coronary artery disease resulting in ischemia, poor blood supply to a portion of the heart. Heart muscle needs a constant supply of blood. But in this disease process, cholesterol, fat, and calcium build up and harden into plaque inside the coronary arteries supplying that blood. Over time, those vessels narrow and stiffen, slowly choking off the blood. A blood clot can form, blocking blood flow. This is a myocardial infarction, a heart attack. The longer heart muscle goes without blood, the more of it dies.

It is essential to get to a hospital quickly, so physicians can reopen that blocked vessel to restore blood flow. Some of that muscle can be saved, but there's always a part of the heart that will die and turn into scar tissue. Scarred muscle cannot contract. Now the heart is less efficient — sometimes performing so poorly that the patient develops heart failure. About six million people are living with heart failure in the U.S.

Growing new heart muscle and blood vessel cells is part of your research, correct?

The holy grail for ischemic heart disease researchers like me is to find a way to replace dead tissue with normal, functioning heart muscle. About 10 years ago I set out to look for a cell that could grow new muscle and blood vessels for the heart. We tested many cell types and found a cortical bone stem cell with properties that appear to enhance the repair of the heart after a heart attack. A real bonus is that these cells are easy to obtain and grow in the lab. We are still in the preclinical testing phase of these studies, but our hope is that someday these cells might be used as standard therapy in hospital emergency rooms for heart attack patients.

What other heart research is Temple doing?

My colleagues and I are trying anything and everything we can to develop therapies to repair the heart safely. Dr. Walter Koch's group is developing gene-therapy techniques. Others are working on drug therapy, novel biomaterials to deliver drugs more effectively, and new technologies and devices to aid the failing heart. Dr. Raj Kishore has found that exosomes, tiny vesicles secreted by stem cells, can act like tiny first-aid kits in the heart. His team also discovered a gene-regulating molecule inside the exosome called miR-294 that induces cardiac repair after injury. All told, more than 30 researchers at Temple are working on ways to prevent, detect, and treat cardiovascular disease.

Do research findings ever surprise you?

All the time. Here's a surprise that came from the research of Dr. Koch, the world's leading expert on GRKs, G-protein-coupled receptor kinases. These molecules become activated in cardiac disease and contribute to disease progression, so Wally is developing strategies to return their activity to normal. Unexpectedly, Wally's group found that the anti-depressant Paxil® (paroxetine) blocks the enzymatic activity of GRK2 and restores heart function in mice with heart failure. A heart benefit from an anti-depressant drug — surprising, right?

Wally's findings build a strong case for a new category of drug, a GRK inhibitor. A single GRK inhibitor might someday replace three drugs currently used in the treatment of heart failure.

What can Temple do for heart patients?

Physicians from all over send their patients to Temple's Heart & Vascular Institute. It's a destination for people with heart disorders both common and rare. We provide lifetime management for patients — starting with a preventive heart health program designed to keep people from developing heart disease, all the way to high-end interventions for people with unusual problems or advanced disease. All options are on the table, from novel drug and device trials to heart transplants. An amazing group of clinicians and heart health professionals make it all happen. Like the American Heart Association, Temple is — if you'll pardon the expression — an organization with a lot of heart. 

For more about the American Heart Association, go to heart.org. For more on heart care at Temple, go to heart.templehealth.org

A NEW SPIN ON LIFE

Helping Patients Regain Their Balance

It's one thing to seek out the temporary topsy-turvy of a tilt-a-whirl. Quite another to unwittingly achieve the effect merely by rolling over in bed.

"At one time or another, nearly everyone experiences a dizzy spell," says Natasha Pollak, MD, Associate Professor of Otolaryngology/Head and Neck Surgery and medical director of the Temple Head and Neck Institute's Hearing and Balance Center.

Provided the sensation is infrequent, there usually is little cause for alarm. But some dizzy spells recur, last longer, become part of daily life. For the severely affected, simple movements or position changes can set the world spinning and tilting out of control. Just walking, lying down, or rolling over in bed can spark disorienting, nauseating vertigo.

By Kara Rogers

Photo illustrations by C.J. Burton



Severe attacks of vertigo can cause falls and make you stumble and zigzag. Episodes can last less than a minute — or persist for hours, days, even weeks — often accompanied by hearing loss or tinnitus, the sensation of ringing or buzzing in the ears.

“Vertigo can be terrifying and disabling,” says Elizabeth Meenen, AuD, a member of the Hearing and Balance team and Instructor of Otolaryngology/Head and Neck Surgery. “Since episodes can occur unpredictably, patients become anxious about when the next attack will happen. To cope with dizziness, the vast majority modify their lives.”

Conditions characterized by unsteadiness and dizziness, known as balance disorders, can indeed push life off balance in more than just the physical sense. Constant or unpredictable episodes of dizziness can profoundly impact psychological and emotional well-being. Patients can become anxious, depressed, confused — even less socially active as a consequence. Some are unable to drive or work. As the psychological toll grows, they may be unable to care for themselves and their families.

While severe attacks of vertigo are rare, more than one-third of Americans age 40 or older have suffered from some form of balance disorder during their lives. “Unfortunately, a significant number of those patients are never properly diagnosed,” says Pollak. “The challenge with diagnosing and treating balance disorders is determining the cause.”

DIAGNOSING DIZZINESS

The main categories of dizziness are otologic (inner ear disorders); medical (low blood sugar, low blood pressure, carotid artery disease); neurologic (Chiari malformation, multiple sclerosis, migraine); and psychiatric (stress, anxiety).

Many balance disorders result from a malfunction in the vestibular system, the part of the inner ear involved in maintaining equilibrium. In addition to regulating balance, the vestibular system is integral to the perception of self-motion, a key part of eye-hand coordination and overall oculo-motor control.

The major components of the vestibular system are the balance organs — the utricle and saccule — which are sensitive to linear acceleration and changes in head position relative to gravity. Fundamental to the perception of spatial orientation, these organs transmit information to the parts of the central

More than one-third of Americans age 40 or older have suffered from some form of balance disorder during their lives. “Unfortunately, a significant number of those patients are never properly diagnosed,” says Pollak.

nervous system that control posture and stabilize the eyes during motion.

A number of factors, from a problem in the inner ear or brain to aging or certain health conditions or medications, can impair the function of this highly specialized system. “Our job is to tease out the details — pin down the specific factors that could be contributing to a hearing or balance problem — and from there develop an appropriate management plan for each patient,” Pollak says.

Specializing in the diagnosis and treatment of hearing and balance disorders, Temple’s Head and Neck Institute is uniquely equipped to help patients whose conditions have thus far eluded diagnosis.

The majority of patients who come to the Institute suffer from hearing loss or dizziness — symptoms associated with a variety of different vestibular disorders, as well as with other medical conditions. In fact, dizziness and vertigo are among the most common symptoms that prompt patients to visit a physician — accounting for more than four million hospital emergency department visits per year in the U.S.

“We see patients of all ages and with symptoms that often overlap with those of other diseases,” explains Paige Pastalove, AuD, Director of Audiology at the Head and Neck Institute and Assistant Professor of Clinical Otolaryngology. Low blood sugar is a frequent cause of dizziness, especially in persons with diabetes.

The most common type of balance disorders are peripheral balance disorders. Originating with a problem in the inner ear, they include benign paroxysmal positional vertigo, vestibular neuritis, and Ménière’s disease. Another category of balance disorders, central balance disorders, are generally associated with head trauma, stroke, multiple sclerosis, or other conditions affecting the brain or spinal cord.

“When we suspect an inner ear problem, we begin the diagnostic process by carrying out vestibular tests,” Pastalove says. Such tests include electronystagmography (ENG) and videonystagmography (VNG), which record eye movements during vestibular stimulation, and vestibular evoked myogenic potentials (VEMP), which evaluates the function of the balance organs. Auditory tests to evaluate hearing may also be performed.

The most common balance disorder is benign paroxysmal positional vertigo (BPPV), which also happens to have the simplest means of diagnosis, the Dix-Hallpike test. In this test, the

Balance disorders can push life off balance in more than just the physical sense. Constant or unpredictable episodes of dizziness can profoundly impact psychological and emotional well-being.



patient's head is moved into a specific position to elicit symptoms of dizziness. Clinicians watch for nystagmus, or jerky eye movements, which are characteristic of a loss of balance control in the inner ear.

In BPPV, brief episodes of vertigo are triggered by certain head motions, such as those that occur when lying down or walking. The condition develops when calcium carbonate crystals known as otoliths, which normally are contained within the utricle, become displaced, usually in an adjacent inner ear canal. Abnormally positioned otoliths can displace fluid in the inner ear and transmit incorrect information to the brain about head position. Often, the condition is successfully treated by

moving the head through a specific sequence of positions that helps guide the otoliths back into place.

The diagnosis of Ménière's disease, on the other hand, may require extensive testing with VNG, VEMP, auditory tests, and electrocochleography (a test to evaluate inner ear pressure). In especially difficult cases, magnetic resonance imaging (MRI) and computed tomography (CT) scanning may be needed to confidently rule out other disorders.

The cause of Ménière's disease is unknown. The disease is characterized by fluctuating hearing loss and sudden attacks of vertigo, which result from a buildup of pressure in the inner ear. "Ménière's disease often is disabling," Pastalove says. "Patients



 Natasha Pollak, MD

JOSEPH V. LABOLITO

sometimes experience dizziness for days at a time, and may need help with daily activities. Even walking down a grocery store aisle can be challenging.”

“But with proper diagnosis and treatment — and sometimes the aid of a cochlear implant to improve patients’ hearing after surgery — we are able to get most patients back on their feet, resuming normal activities,” Meenan notes.

In contemporary treatment of Ménière’s disease, simple outpatient injections of steroids or antibiotics have supplanted invasive surgery. Such injections are routinely offered by Pollak at the Temple Healing and Balance Center.

Sometimes what causes dizziness is rare. For example, a condition called superior semicircular canal dehiscence syndrome can make patients dizzy, nauseous, and overamplify their hearing. These symptoms are caused by a hole or fracture in the thin plate of bone that sits on top of the vestibular system, the fluid-filled canals that control balance — making the sensitive organs subject to the constant, shifting pressure of the brain. It’s not an easy condition to diagnose or to treat.

The standard surgery to correct this problem entails cutting out a 4- to 5-centimeter section of skull and actually lifting the brain to access the inner-ear anatomy. But at the Temple Head and Neck Institute, experts can offer a minimally invasive approach. It’s called keyhole middle fossa craniotomy with an endoscopically visualized repair. Surgeons make a 1-centimeter hole in the patient’s skull; insert a thin, flexible endoscope that illuminates the anatomy; then plug the hole with a bone graft. Almost immediately after surgery, most patients’ symptoms begin to disappear.

Regardless of the condition, once a diagnosis has been made, the Head and Neck team will devise a customized treatment plan that might include medications to reduce motion sickness or nausea, and balance therapy, an exercise-based program to help the central nervous system adjust to inner-ear problems and compensate for a lack of balance. Surgery to repair or stabilize the function of the inner ear, or to block unwanted sensory information traveling from the inner ear to the brain, may be considered when medications and balance therapy are unable to control the symptoms of a vestibular disorder.

CANCER PATIENTS’ UNIQUE NEEDS

A significant cause of hearing and balance disorders are medications, especially those used in cancer treatment. Radiation therapy, chemotherapy, and certain other drugs used to treat cancer can be ototoxic, causing damage to the inner ear that results in hearing loss and balance disruptions. Sometimes the conditions correct themselves after treatment is stopped, but in other cases, the losses are permanent.

According to Pollak, “Since Fox Chase Cancer Center joined the Temple University Health System (in 2012), there has been an extensive effort to address hearing and balance disorders in cancer patients as a way of improving their quality of life.” Because of that effort, Temple’s Head and Neck Institute is now a national leader in the care of cancer patients who suffer treatment-related losses in hearing and balance.

“Patients with balance disorders — any disorders affecting the head and neck — know they can count on us,” says Pollak. “Temple offers rock-steady expertise.”

Working with clinicians at Fox Chase, Pollak and colleagues at the Head and Neck Institute developed a screening program to get baseline information on hearing and balance in cancer patients before they start therapy. “We then monitor patients’ hearing and balance during treatment in order to catch conditions and intervene early on,” Pollak says. “This enables us to conserve inner-ear function to the greatest extent possible.”

Pollak also has been working to identify novel interventions for hearing and balance conservation that enable cancer patients to continue their necessary treatment regimens.

A key breakthrough came in her work with an advanced melanoma patient who had developed autoimmune hearing loss following treatment with a new anticancer drug. Pollak considered the idea of a steroid treatment to address the patient’s inner-ear disease. Injections of the steroid drug dexamethasone directly into the patient’s ears successfully reversed the hearing deficit.

“We’re constantly expanding our therapeutic and diagnostic capabilities — for cancer patients, for all patients,” Pastalove explains. “As a result, we have tests and treatments that not every hearing and balance clinic can offer.”

One tool in Temple’s repertoire is minimally invasive endoscopic ear surgery, to treat hearing loss and chronic ear disease. Pollak developed the new surgical technique, and published the first book on the subject, *Endoscopic Ear Surgery*, Plural Publishing, 2014. “The goal of the surgery is to treat inner-ear disease while preserving as much normal tissue as possible,” Pollak says. “Because it is minimally invasive, there is less pain and faster recovery time compared with other types of inner-ear surgeries.”

The ongoing expansion of protocols, tests, and tools uniquely positions Temple among other hearing and balance disorder teams. Underdiagnosis of hearing and balance conditions is a significant problem, one that Pollak and her team are helping overcome with comprehensive evaluation and patient care. “Dizziness and hearing loss are quality-of-life issues,” Pastalove says. “We do everything we can to help the patients who come to us. By staying on top of the latest advances and developing new approaches, we are able to make a difference.”

“Patients with balance disorders — any disorders affecting the head and neck — know they can count on us,” says Pollak. “Temple offers rock-steady expertise.”

As anyone who has experienced debilitating dizziness can attest, having a reliable sense of balance definitely puts a better spin on life. 📖

Kara Rogers specializes in health and science writing.

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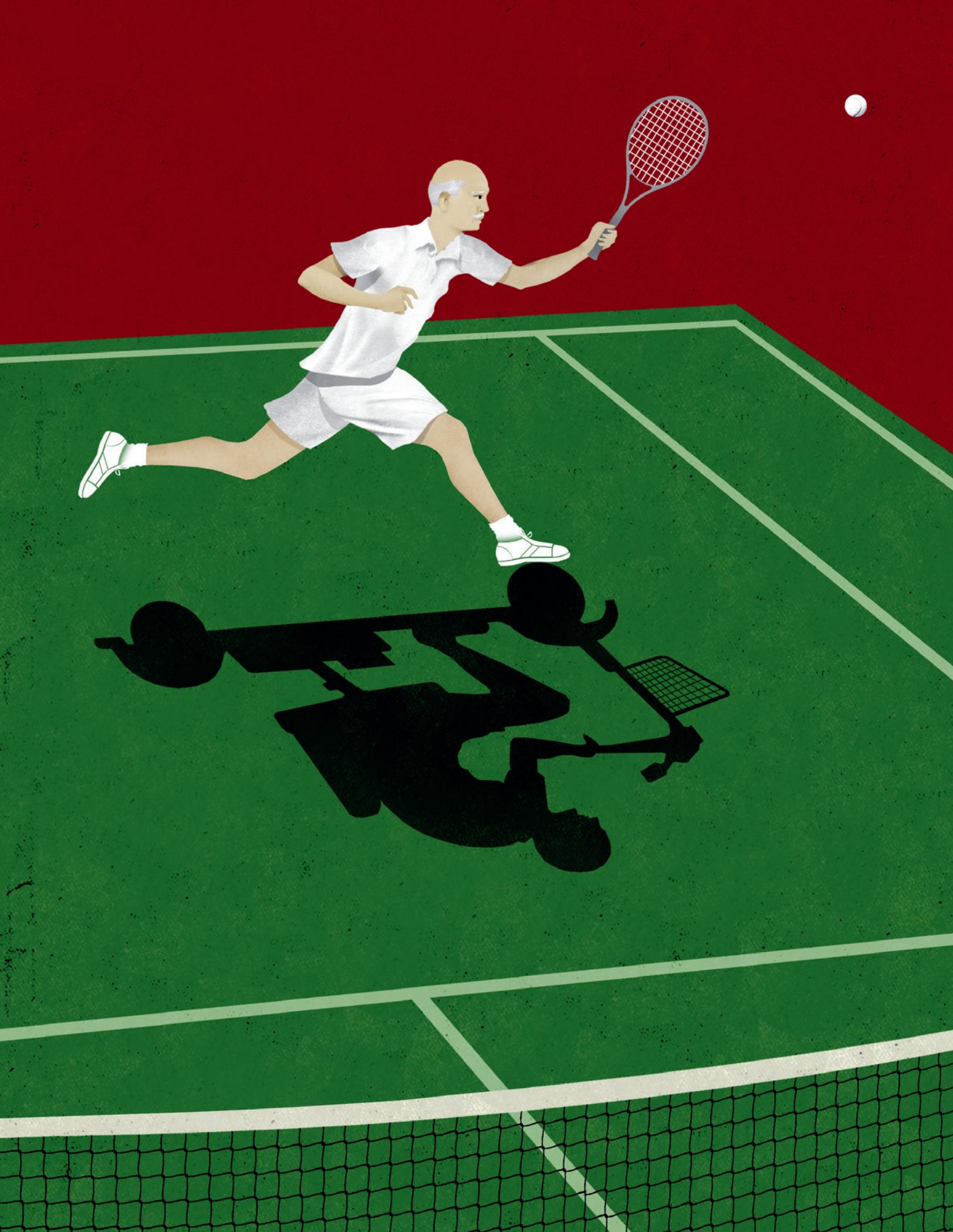
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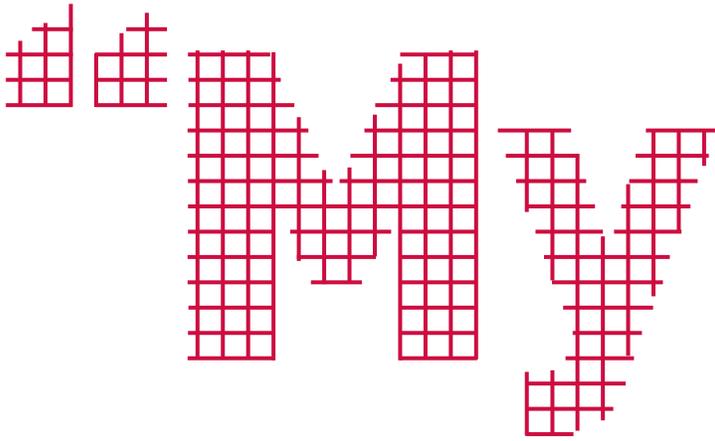
AGING

ATHLETE

SPORTS MEDICINE FOR THE SEASONED COMPETITOR

By Meredith Mann
Illustration by Brian Stauffer





shoulder pain is becoming a big problem, but I love tennis and don't want to be told to give it up." "The more I run, the more my knee hurts. But the doctor will probably tell me to have surgery."

Older adults who exercise and play sports proffer no shortage of excuses to avoid seeking help for injuries. But Temple University Hospital's Director of Sports Medicine Outreach, Cory J. Keller, DO, knows just how to respond: "My goal is to keep you doing your activity for as long as you can."

It's a refreshing change in approach. According to Keller, "the conversation is very different than in years past, when orthopedic doctors tended to say, 'Stop what you're doing.' But I say, 'Unless there's a risk of a life-altering injury, go ahead and wear that body out!'"

Adult athletes, whether pursuing the athletic interests of their youth or trying out a new sport or activity for fitness or fun, are glad to take Keller up on his offer. And with the population of middle-aged and older adults in the United States set to surge, there's mounting need for Temple's kind of sports medicine help.

Soon there will be 70 million people age 65 and up, with an even faster increase among the 85-and-up set. With popular culture declaring "60 as the new 40," many older adults feel perfectly capable of enjoying the activities they did in youth. Moreover, many adults who never really exercised before decide that now is the right time to start.

"Our bodies change with age in many ways, but one thing that doesn't change is the need for activity," reports Michelle Noreski, DO, Assistant Professor of Orthopaedic Surgery and Sports Medicine. "Exercise provides many health benefits — helping us to improve health and maintain independence as we age."

MATURE MUSCLES, SENIOR SINEWS

Scientists have found that staying physically active can help prevent, delay, or minimize the symptoms of diseases and disabilities such as heart disease and diabetes. Regular physical activity also benefits cognitive function and provides a sense of greater overall well-being.

That said, older exercisers face certain challenges their younger counterparts may not. With every added candle on the birthday cake, aches and pains increasingly take their toll. Tendons and ligaments lose elasticity, which can lead to sprains and strains. Muscle mass begins to decrease after age 40 — often resulting in physical performance difficulties. Almost one-third of middle-aged and older adults have osteoarthritis, often accompanied by pain as well as reduced range of motion.

According to J. Milo Sowards, MD, orthopedic surgeon and Director of Temple's Orthopaedic Residency Program, older patients are more prone to overuse injuries and exacerbations of existing conditions. "Older athletes tend to have more chronic

conditions that can be aggravated," he says. "For example, a patient may have hip or knee arthritis that is not symptomatic — until a minor injury provokes it."

Aging exacts a number of physiological changes which, when combined with repetitive motions, can cause damage. Stiffer ligaments and tendons are less forgiving to the demands placed on them. Cartilage gets worn away with repeated use, losing its ability to absorb stress. Bone and muscle structure degenerates, affecting performance and increasing the possibility of impairment from an activity that once caused no problem. In other words, one wrong move on the playing field could incite injury for someone whose body has sustained physical wear-and-tear from working in a labor-intensive field for many years.

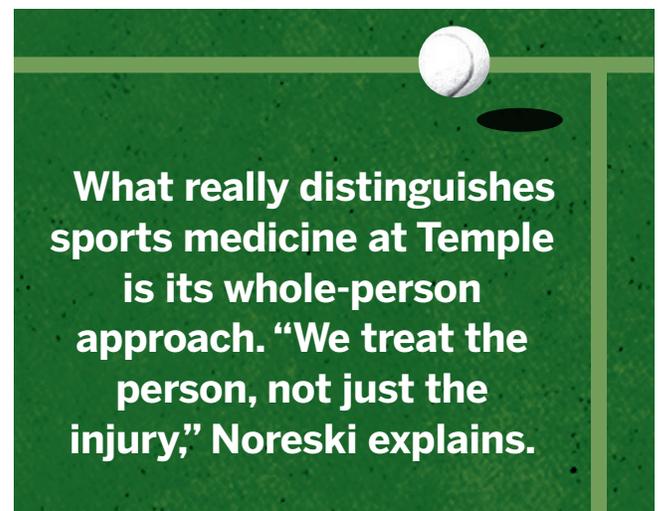
The *Journal of the American Academy of Orthopaedic Surgeons* reports that more than two-thirds of sports injuries among those 60 and older are overuse injuries. In fact, the top five sports injuries in this age group stem from degeneration and repetitive use. Runners can develop tendonitis in a hamstring or bursitis in a hip; swimmers might find themselves with shoulder pain; cyclists sprain an ankle or strain a calf muscle; golfers suffer a debilitating bout of "golfer's elbow."

According to Noreski, other factors can heighten the potential for injury. Conditions such as diabetes, hyperlipidemia, and hypertension can intensify the deterioration of musculoskeletal structures. Women face special challenges, she notes: As estrogen decreases, so do calcium levels — putting women at added risk for osteoporosis and fractures. Many older patients are still smoking, which impairs function and delays healing.

"Older patients don't have the same ability to heal, so recovery takes longer, and that can be frustrating," adds Keller. A fracture that mends in a few weeks in a teenager may take months to mend in a grandparent. Moreover, older patients tend to "give their injuries less attention because their lives are busy and other priorities get in the way, potentially leading to more damage," Keller says.

It's not all gloom and doom, though. In fact, aging exercisers who maintain a consistent level of activity may actually be able to stave off muscle loss and arthritis, which can worsen due to a sedentary lifestyle. Lack of physical activity is more likely to lead to more visits to doctors and hospitals for failing health.

Moreover, in some ways, age is nothing but a number. That's





Michelle Noreski, DO

years, we've served as team physicians for athletes of all ages and levels — professionals included," Kropf says.

According to Noreski, that spirit of service and innovation continues today. Temple's sports medicine team specializes in both the surgical and non-surgical management of sports- and exercise-related injuries. "The majority of patients can be treated without surgery," observes Sowards. But when surgery is needed, top-flight orthopaedic surgeons offer a host of innovative techniques. Kropf, for example, specializes in hip arthroscopy — a minimally invasive approach to repairing labral tears, articular cartilage, and other soft tissues surrounding the hip joint. Most arthroscopic surgeries are same-day procedures that quickly return patients to their previous level of function.

"As part of a leading academic medical center, Temple offers the most current treatments, therapies, and surgical procedures," Kropf notes. "We are also involved in basic science and clinical research that is advancing the sports medicine field."

But what really distinguishes Temple, Noreski says, is its whole-person approach.

"We treat the person, not just the injury," she explains. "We take the whole person into consideration, and work toward preserving overall function — not just restoring a damaged body part to its previous state."

Radiology studies help quantify damage to older bones, tissues, and muscles — and also flag potential future injury. Since scans can reveal biometric flaws and other weaknesses that can predispose patients to problems, the team can develop a preventive strategy to maximize the patient's ability to stay strong and active.

Physicians, licensed physical therapists, and certified athletic trainers all participate, with the patient at the center of the team. "We tailor appropriate goals and work with the patient to achieve them," Noreski says. Moderation is key in charting a pathway to wellness. A weightlifter might need to accept a lighter load or a cyclist, shorter races.

No matter what the patient's injury or age, athletes and non-athletes alike can benefit from Temple's comprehensive know-how. Patients can see the experts in any of five locations in the Philadelphia region (all with onsite radiology services) — often within 24 hours of making that first call.

At the end of the day, the sports medicine team wants patients to return to the sports and activities they enjoy — as fully as they can. "It's rewarding to get someone back to doing what they want to do, whether that's training for a race, or just going on bike rides with their spouse," remarks Keller.

Sports medicine isn't just a quick fix, he says. "It's designed to support patients in staying active, healthy, and fit. These goals are life-long." 

Meredith Mann is a staff writer at Temple Health.

For an appointment with a Temple physician, call 1-800-TEMPLEMED.

certainly true when it comes to stamina, Sowards points out: "Explosive strength may diminish. But endurance doesn't begin to decline until about 35 years old — and it's a slight rate of decline, so it remains relatively modest into the 60s and 70s." Which perhaps explains why runners aged 50 and up represent one of the fastest-growing groups of marathoners.

More good news about older athletes: they are less likely than their younger counterparts to sustain an injury that takes them out of service for an extended period. That's partly because they tend to avoid contact sports and extreme sports where such injuries are common, and partly because they tend to be less aggressive in competition. Older athletes benefit from the wisdom of age. According to Sowards, "They tend to know their limits."

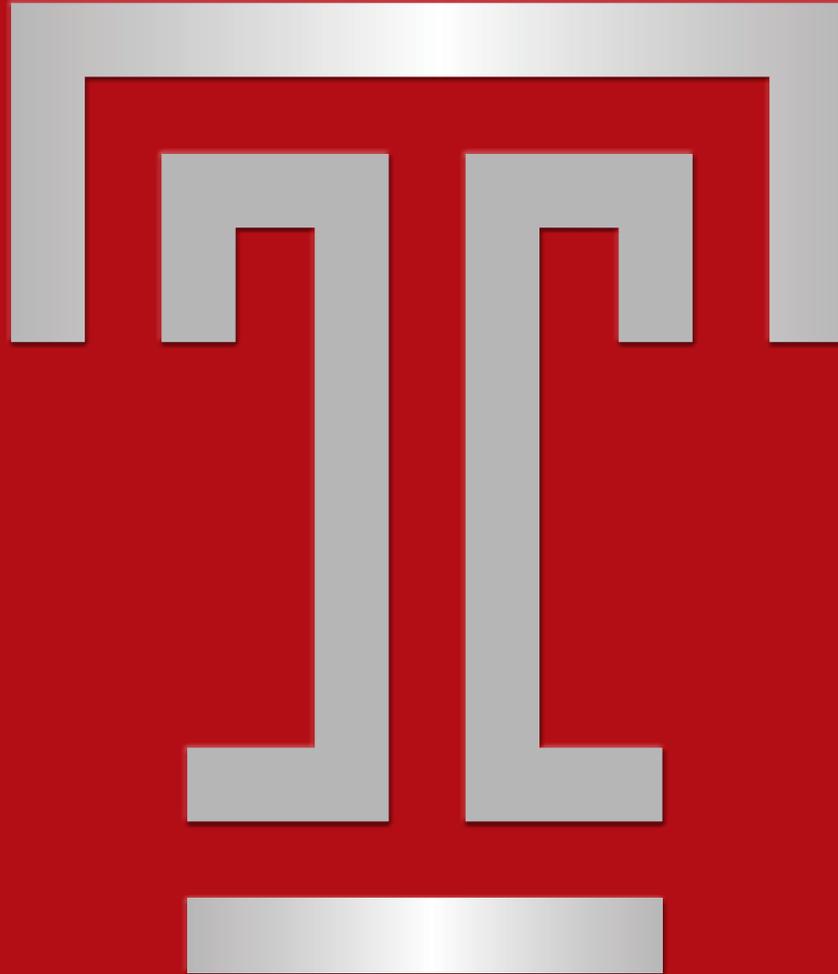
BACK IN THE GAME

When elite competitors, weekend warriors, and casual exercisers of a certain age hit the wall, Temple's sports medicine team is ready to jump in. On any given day, the specialists see plenty of patients in their 50s, 60s, 70s, and 80s with any of the myriad issues that plague older athletes.

"No matter what's ailing the patient, Temple Sports Medicine can help. Few institutions have our experience," says Eric Kropf, MD, Chair of the Department.

As Kropf points out, Temple opened the country's first university-based sports medicine department in 1974. Many of the department's forebears were pioneers in the field (in fact, some, like Joseph Torg, MD, and Ray Moyer, MD, remain active in the department).

Temple's physicians, athletic trainers, exercise physiologists, and rehabilitation specialists helped to develop the sports medicine specialty — training hundreds of sports medicine professionals working all over the country today. "Over the



TEMPLE'S MACGYVERS

Advancing Reconstructive Urology

BY ANDREW SMITH

PHOTO ILLUSTRATION BY CLINT BLOWERS





Michael Metro, MD, and Daniel Eun, MD, have a name for surgery they do together at Temple University Hospital: “MacGyvering.”

If you’re struggling to place this term, it probably means you didn’t watch a lot of television in the mid-1980s. Otherwise you probably remember special agent Angus MacGyver, who each week, came up with clever solutions to seemingly unsolvable problems — often requiring him to improvise using little more than a paper clip, duct tape, and chewing gum.

At Temple, Eun and Metro leave the paper clips and gum at home, but “MacGyver” instead with sound surgical principles, advanced technology, creative thinking, and careful preparation. The result is some of the most unconventional urologic reconstruction performed in the world today.

SAME BUT DIFFERENT

Although they lightheartedly debate about who found whom, Metro says that, in the end, it was “excellence seeking excellence” that brought them together at Temple University Hospital, where Metro is Director of Reconstructive Urology and Eun is Chief of Robotic Surgery and Director of Minimally Invasive Robotic Urologic Oncology and Reconstructive Surgery.

“Philadelphia is a city of four million people, but there are only about 300 urologists in the area, and very few of them do reconstruction,” says Metro, who completed a reconstructive urology fellowship at the University of California, San Francisco. “I was in private practice and Dan was at Temple, and we often referred patients to each other. We were kindred spirits.”

Their cross-city bromance was summated in early 2016 when Metro joined the Temple faculty.

“Mike is a phenomenal surgeon. He’s performed over 650 urethroplasties, implanted over 200 penile prostheses, treated over 250 men with stress urinary incontinence — plus a multitude of other procedures. Patients rave about him,” says Eun, whose patients rave, too. A graduate of Temple’s Lewis Katz School of Medicine, Eun did a robotic oncology fellowship at the Henry Ford Hospital/Vattikuti Urology Institute before returning to Temple to join the faculty in 2012.

“I knew Mike would be a great fit at Temple, because we see a lot of patients who need reconstructive surgery. We’re both experts in this area, but in different ways,” Eun says. Metro does traditional “open” surgery, while Eun operates robotically.

As Eun puts it, “We have overlap in our thinking when it comes to what we need to accomplish structurally with surgery, but our minds travel down two different paths to get there.”

Though the two use different approaches and techniques, their complementary dynamic opens up new worlds of

possibility. Most of all, they share a passion for figuring out complex urologic issues. “Some physicians shy away from difficulty, but we love the challenge,” Metro says.

“Taking yourself out of your comfort zone is what enables surgeons to get better. There are cases I do now that I never would have taken on a few years ago,” admits the 43-year-old Eun. “But over time you gain the experience, the confidence, to tackle those big jobs.”

STARTING A REVOLUTION

Urology has a distinguished history of innovation. Urologists were early adopters of endoscopes and lasers — and are the leading users of surgical robots today. Four urologists have won the Nobel Prize. “We think outside the box,” Metro says.

Continuing urology’s tradition of innovation, Eun and Metro are pushing the boundaries of upper urinary tract reconstruction — redefining what is possible. “Minimally invasive approaches to this area have always been considered a ‘no-go,’” says Eun, “but we’re in the process of creating a new field.”

Eun is an international leader in the use of the surgical robot for complex urologic procedures. He has used the robot to perform over 50 different kinds of procedures. Although the majority of these have been for prostate and kidney cancer, he has helped to pioneer numerous innovative applications in urology and beyond. In 2012, he attracted attention for performing the nation’s first robot-assisted kidney blockage repair (pyeloplasty) through a single incision using a new robotic platform. Eun

reconstructed the junction of the patient’s kidney and ureter on a Thursday and by Monday he was back to work, without so much as needing ibuprofen. Typically surgeons make three to five incisions for this surgery — but Eun did it through a single incision hidden in the patient’s belly button.

Eun frequently speaks at professional conferences around the world. He is regularly invited overseas to teach other surgeons. Likewise, surgeons across the globe fly in to Temple to learn his techniques. Last year he performed a robotic operation on a kidney cancer

patient that was broadcast live via satellite to more than 2,000 surgeons attending the 2015 American Urological Association meeting in New Orleans.

In 2012, Eun started approaching complex ureteral blockages and injuries in a novel way. These cases are traditionally approached through a large open incision. But Eun pioneered a robotic approach employing an “off-label” use of something called the da Vinci® Firefly™ Imaging System.

An internal “lighting” system for surgeons operating robotically, Firefly™ reveals blood-flow in vessels and tissues by fluorescing green when the patient is injected with a dye. This gives surgeons important information on which to base their decisions. The dye, indocyanine green, is normally injected into the patient’s bloodstream. But Eun started injecting it directly into the ureter. This novel technique helps him differentiate healthy tissue from compromised tissue — enabling him to safely make complex, meticulous repairs. He has published multiple papers and taught courses describing his techniques.

“There’s no roadmap for what we’re doing. We’re in the process of creating a new field,” says Eun.



Michael Metro, MD, and Daniel Eun, MD

“This discovery has enabled us to offer increasingly complicated patients a minimally invasive surgical solution,” says Eun. “Robotic procedures entail smaller incisions, fewer incisions, less blood loss, less postoperative pain, and shorter hospital stays — and that’s our goal. Now we are using Firefly™ to improve patient outcomes even more.”

THURSDAYS IN THE OR

Thursdays are “tag team day” in the Temple operating room for Eun and Metro — the day when they take on the most difficult reconstructive cases side-by-side. For surgical residents, this is equivalent to NBC’s old “must-see TV.”

One recent surgery was a ureteral reconstruction on a patient whose ureter had been accidentally injured during a prior surgery on his colon. “We thought this man would need an autotransplant, which involves taking the kidney from where it normally sits up higher in the abdomen and moving it down to the groin area,” Metro recalls. “But using Dan’s innovative approach with Firefly™, this patient ended up with his kidney almost exactly where it was before — and all his problems solved. Traditionally this would have entailed a big open surgery and more risk.”

Both surgeons say the other’s knowledge and skill makes him the perfect partner in difficult cases. “There are procedures I’m performing that I never would have tried without having Mike in the OR with me,” says Eun.

Lawrence Valenzano’s surgery was literally life-changing. For six years, the 42-year-old couldn’t play with his children, ride his bike, even bend down to tie his own shoes, because a stent inside his left ureter brought pain and discomfort with every move. Yet it was the only thing enabling urine to flow from his kidney to his bladder. Scar tissue had formed after

kidney stone surgery he’d undergone six years earlier, compressing his ureter.

Valenzano sought help at two major academic medical centers in two different cities. Their recommended fix entailed major open surgery, with a significant risk of losing his kidney or developing additional complications. A less-risky alternative was to keep returning to the OR at his local hospital every few months to have the stent replaced. This option meant living with pain and discomfort.

Valenzano saw multiple specialists before he was referred to Temple, where Eun and Metro offered him an alternative: a novel technique called buccal mucosa graft ureteroplasty. This procedure involved harvesting a piece of tissue from inside Valenzano’s cheek (buccal mucosa) and robotically implanting it in his upper urinary tract to bypass the stricture.

“This technique is well-established in the lower urinary tract, but its application in the ureter is still in its infancy,” says Eun, who is developing the science with Metro — with careful attention to patient selection, surgical technique, outcomes measurement, and guideline development.

The six-hour operation was successful. Today, Valenzano’s left kidney drains easily on its own. For the first time in six years he is stent-free, 100 percent back to a normal life.

“Dan was one of the first to do a case like this,” Metro says, “and I was able to offer suggestions

to improve it. We presented the initial multi-institutional results of this procedure last year at the World Congress of Endourology in London and won a first-place award for excellence in research. It’s exciting, gratifying, to set a new standard.”

As Eun explains, “There’s no roadmap for what we’re doing, so striving to offer better care for our patients requires us to develop novel techniques.”

GOING PRIMETIME

According to Jack Mydlo, MD, Chair of Urology at Temple, it didn’t take long for word to get out — in Philadelphia and beyond — that these surgical MacGyvers can fix what other physicians have deemed unfixable. “They routinely operate on complicated patients who’ve been offered limited options elsewhere, or none,” Mydlo says.

Reconstructive urologists are in short supply in the U.S., but the need for them is growing. Consider the common problem of urinary blockage in older men. By the year 2020, there will be about 14 million men over the age of 60 in America. The vast majority are treated with urethral dilation, a temporary fix at best. What’s really needed is a reconstructive procedure called urethroplasty, but few specialists offer it.

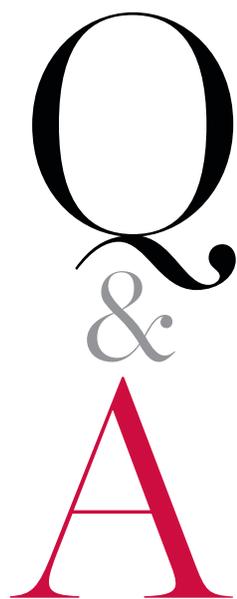
Many conditions, affecting men and women of all ages, require the skills of a reconstructive urologist, including fistulas, incontinence, strictures, and trauma. Television’s MacGyver is making a comeback. And it looks like the need for Temple MacGyvering is hitting primetime, too. 

Andrew Smith writes for a variety of health care and academic organizations.

For an appointment with a Temple physician, call 1-800-TEMPLEMED.

Kathleen Reeves, MD

SENIOR ASSOCIATE DEAN
HEALTH EQUITY, DIVERSITY AND INCLUSION



How has your experience as a pediatrician reinforced your commitment to health equity?

As a pediatrician, I've seen firsthand that health status varies for people based on where they live, what they look like, and the opportunities available to them. I've learned that children's health is often shaped by the access they have to good nutrition, the strength of their educational system, their exposure to violence, and other adverse childhood experiences. These things have long-term implications for individuals and society. Medicine needs to look more closely at how to provide everyone, in a more equitable way, the capacity to be healthy.

Q: *The Institute of Medicine calls health disparities health care's biggest threat. Can medical schools address this?*

A: They can and must. Medical schools educate future health care professionals. It is our compact with society to promote our nation's health through new models of education, care delivery, workforce development, and research. Medical schools are in a unique position to study the factors that contribute to health disparities, propose solutions, and teach future generations how to better serve diverse populations. At Temple, we teach culturally responsive, neighborhood-engaged care. Health care is not one size fits all. To figure out what works best, we collaborate with the communities we hope to serve.

Q: *You are a founding member of Temple's Office of Health Equity, Diversity and Inclusion (OHEDI).*

A: We created OHEDI to develop Temple's commitment to equity, diversity, and inclusion in education and health care. It is extremely important to build a physician workforce more representative of society at large. We embrace all comers with equal respect — applicants, students, faculty, patients, visitors. We are committed to providing an environment that feels welcoming to everyone, free of bias.

Q: *You also direct CBUHP and were one of its founders. What is it?*

A: Temple's Center for Bioethics, Urban Health and Policy (CBUHP) is a focal point for urban health education, community engagement, and research. Its goal is to improve health status for vulnerable populations, a goal we pursue by researching disparity issues to advocate for health policy change; by collaborating with Temple's Center for

Population Health to make health programs sustainable, cost-effective, and replicable; and by partnering with our patients to learn how to give them greater capacity to be healthy. We've been awarded grants for violence prevention, care transitions, and neighborhood education. Notably, CBUHP offers the only Masters of Arts degree in Urban Bioethics in the country — offering specialized training in the ethics, values, and politics of urban health.

Q: *You are concerned about discrimination in health care.*

A: A 2007 study by the Society of General Internal Medicine definitively showed that implicit race bias among physicians can affect the way we treat patients of different ethnic backgrounds. Physicians can hold implicit biases — biases they don't realize they have. Yet when made aware of them, physicians are quick to change. Patients who feel respected by their doctors become better engaged in their own care. This is an important way to create a climate of health equity.

Q: *How can medical education help turn things around?*

A: Health care is based on good communication. These skills can be taught. We can address gaps in knowledge, skills, and attitudes that impede a provider's competence. We can develop strategies to prevent bias from affecting clinical outcomes.

At Temple, we prepare students to meet the medical needs of a diverse population. To graduate, our students must demonstrate understanding of the social determinants of health. They must be able to provide care in a manner that reflects equal respect for all. Our ultimate aim is to help everyone have the capacity to be healthy.



 Kathleen Reeves, MD

Pancreatic Cancer

In 2012, Dr. Elena Gitelson, an oncologist in the prime of her career, got stunningly bad news. Her back pain wasn't simple muscle strain. It was stage IV pancreatic cancer. The diagnosis also devastated her husband, **Igor Astsaturov, MD, PhD** — an oncologist at Fox Chase Cancer Center who specializes in pancreatic cancer.

Late-stage diagnosis like Gitelson's is common in pancreatic cancer. For one thing, it is typically symptomless in its early stages. For another, it's hard to see, even with state-of-the-art imaging. Small tumors hide easily within the dense tissue of the pancreas. Gitelson's cancer had spread to her liver by the time it was diagnosed. But she was ready to fight, with Fox Chase specialists — and her husband at the heart of the team.

Trained both as an MD and a PhD, Astsaturov is a clinician and a researcher. In the hospital, he provides patient care of the highest order. In the lab, he pushes the boundaries of what's possible, advancing the science of personalized cancer care. "This approach entails analyzing the genetic makeup of each patient's cancer in order to determine — or develop — the best drug to combat it," Astsaturov explains.

Gitelson's cancer revealed three mutations: MYC, KRAS, and P53, all associated with cancer that's aggressive and treatment-resistant. "We were up against something tough. But Elena was tough, too," Astsaturov explains.

So, while Gitelson underwent surgery and several types of chemotherapy, the search pressed on in Astsaturov's laboratory for *better* compounds for her and for six other pancreatic cancer patients in his care at the time. After screening about 870

different drugs *in vitro* and then in Elena's personal xenograft (her tumor propagated in mice), the team hit the jackpot with Minnelide, a drug that showed promise. Tragically, though, Minnelide had not yet been approved for clinical trials in the United States. And pancreatic cancer is notoriously harsh. Only six percent of patients survive beyond five years. Gitelson hung on for just one. She died in March of 2013, just a few months before the drug was approved for human testing. "But she drew purpose in being part of a discovery process to benefit other patients someday," Astsaturov says.

The drug, now in clinical trials at the University of Minnesota and the Translational Genomics Research Institute in Arizona, works by targeting the MYC gene mutation, one of three behind Gitelson's form of pancreatic cancer. Astsaturov discovered that the MYC gene is also implicated in certain types of gastrointestinal and ovarian cancers — so, if approved, the new drug could also provide a much-needed new option for those cancers, too.

Another exciting discovery Astsaturov made pertains to something usually mentioned in the context of cardiovascular health: cholesterol.

Cholesterol is like a fertilizer for cancer, spurring its growth. When Astsaturov tried depriving pancreatic cancer cells

of cholesterol, he proved that it slowed tumor growth and made anti-cancer drugs called EGFR inhibitors work better in combination with drugs that target cholesterol metabolism. Astsaturov has been awarded three grants from the National Institutes of Health for this work. It's exciting because EGFR inhibitors could make a difference for a broad range of cancers.

"My first grant for pancreatic cancer research — in fact the grant that enabled me to launch cholesterol research in my lab — came from Mrs. Concetta Greenberg, the widow of a physician who died of pancreatic cancer," Astsaturov recalls. "When we met, it had been 20 years since he had died, yet her memory of losing him was so crisp — like it happened yesterday. Now, I understand," he says.

The fourth-leading cause of cancer death today, pancreatic cancer will be second only to lung cancer by 2020. "The alarm bell has sounded," says Astsaturov, who recently teamed up with the Pancreatic Cancer Action Network for "Together Facing Pancreatic Cancer," an event to trumpet the urgent need for new therapies. "Pancreatic cancer patients are in desperate need for new drugs and bold ideas for clinical trials," he says.

Using patient-derived xenografts, laboratory "avatars" for individual patients, Astsaturov tests therapeutic schemes to target the molecular makeup of each person's cancer, "adding new information to science — to improve patient care," he says.

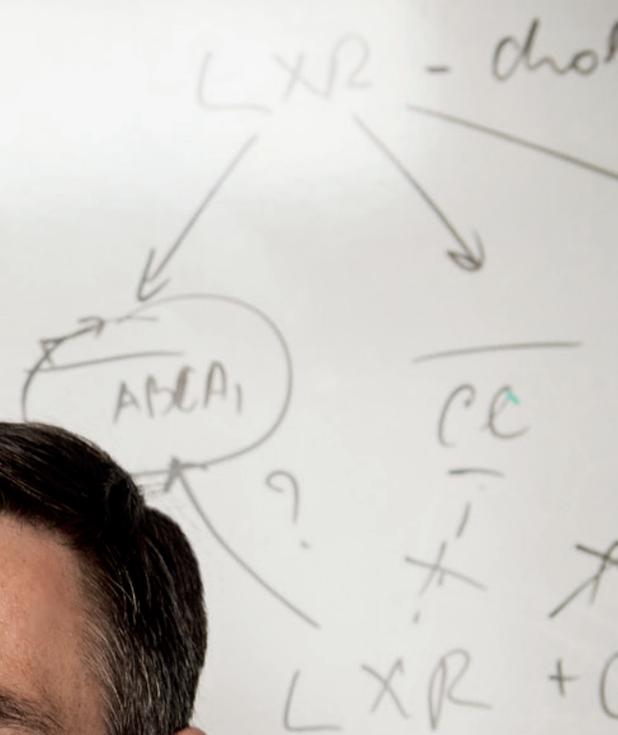
Elena Gitelson died in 2013. She was 55. Yet in a laboratory at Fox Chase Cancer Center, Gitelson's cancer cells live on — aiding her husband's quest to outwit the aggressive, recalcitrant disease that separated them. Astsaturov's sleeves are rolled up. He rallies on.



Rescue of proliferation in LXRo^{nu} MEFs
Nodhl/LXR
IHC suppl.

Abstract

Δ Nodhl
cholesterol in LXR KO
 Δ Nodhl Δ N / Δ LXR
CDLR \downarrow \uparrow
Ki67 \downarrow \uparrow
LXR activation/effec



FBS
LDs + LDL
 \uparrow LDS
GW3965
RT-PCR: Condition
ABCA1 p27 ABCA1
LW
CC

FOX CHASE
CANCER CENTER
TEMPLE UNIVERSITY

Igor Astsaturov, MD, PhD

Igor Astsaturov, MD, PhD

Hi-Tech Heart Parts

“**N**ew-generation implantable devices are revolutionizing our ability to make a real difference for many patients with heart failure, heart valve disease, and heart rhythm disorders,” says Brian O’Neill, MD, an interventional cardiologist at Temple Heart and Vascular Institute and Assistant Professor of Medicine at the Lewis Katz School of Medicine.

Today’s artificial aortic heart valves, for example, are sleek, sophisticated, and designed for minimally invasive implantation. “In the past, valves could only be replaced during open-heart surgery. But now we use a procedure called transcatheter aortic valve replacement (TAVR), which entails less risk — which means we can help more patients,” says O’Neill.

“Reducing risk and improving outcomes for patients — that’s the goal of technology,” says Brian O’Neill, MD.

Transcatheter means via catheter. In other words, the valve is delivered to the heart through a catheter inserted in a large blood vessel (accessed in the groin or under the collar bone). It is steered into place with a special tool that compresses it for easy navigation inside the blood vessel. When it reaches the proper position in the heart, a tiny balloon on the delivery tool is inflated to expand the valve, securing it in place.

“TAVR is a great option for patients with aortic stenosis,” says O’Neill. In this condition, the leaflets of the aortic valve stiffen and narrow, making the heart work harder to supply blood to the body. Chest pain, shortness of breath, and fatigue can result. While medication can ease the symptoms, it

cannot correct the problem. The only way to do that is to replace the valve.

In addition to replacing aortic valves for patients, Temple also offers the procedure for patients who have had previous aortic valve replacement surgery — using a non-surgical alternative to traditional surgery with a “valve in valve” procedure. The CoreValve® is anchored inside the old, failing artificial valve. The old valve does not need to come out.

Another new device, the MitraClip®, addresses mitral valve regurgitation — a condition in which the failing mitral valve causes backflow of blood, leading to swelling in the legs, abdomen, and kidneys. “The clip holds two of the three mitral valve leaflets together to reduce the backflow of blood,” explains O’Neill.

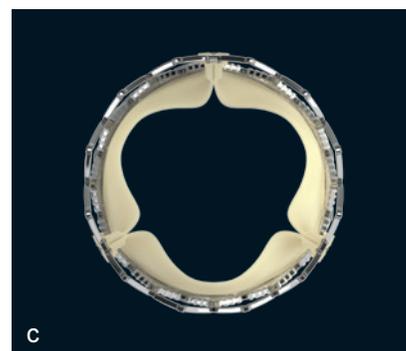
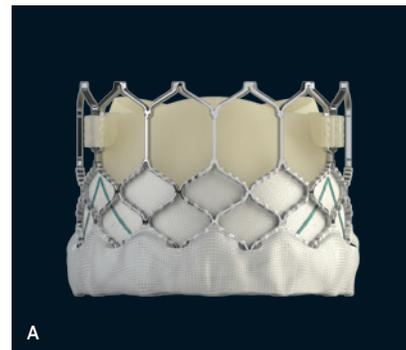
The CardioMEMS™ Heart Failure System, a wireless monitoring device, now benefits patients with heart fail-

ure. A sensor about the size of a paper clip is implanted in the pulmonary artery, where it takes — and automatically transmits — blood pressure readings

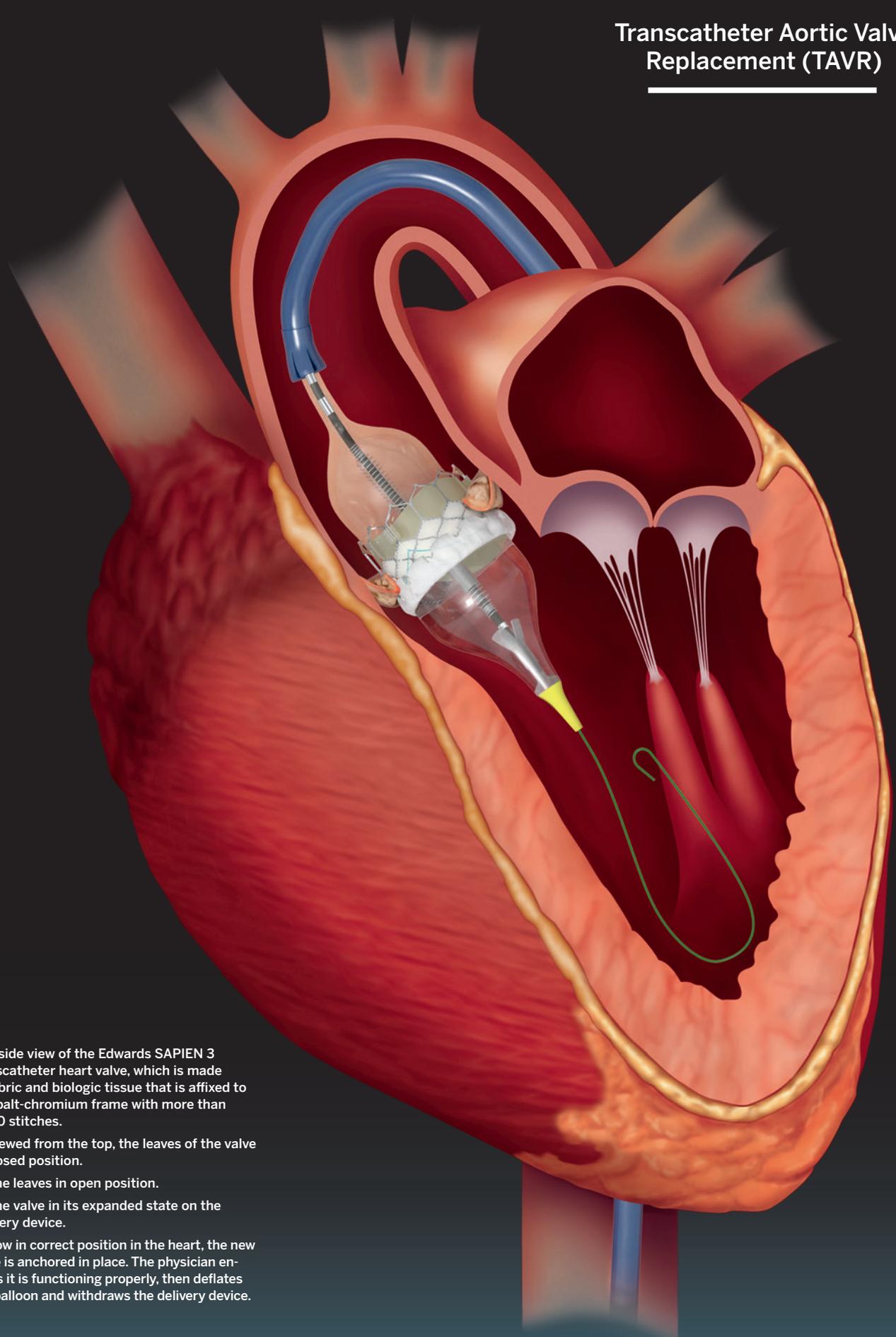
to the patient’s clinical heart team. “Increased pulmonary artery pressure is an early warning signal for worsening heart failure — giving clinicians an early opportunity to intervene,” O’Neill explains.

An altogether different device benefits patients with atrial fibrillation, a heart rhythm disorder that increases the incidence of blood clots that can cause a stroke. The WatchMan™ LAAC device closes off the portion of the heart where most clots originate. Once it is implanted, patients no longer need to take blood-thinning drugs.

“Our mission at the Temple Heart and Vascular Institute is to offer technology that enables us to provide our patients with the best possible care,” says O’Neill.



Transcatheter Aortic Valve Replacement (TAVR)



- A:** A side view of the Edwards SAPIEN 3 transcatheter heart valve, which is made of fabric and biologic tissue that is affixed to a cobalt-chromium frame with more than 1,000 stitches.
- B:** Viewed from the top, the leaves of the valve in closed position.
- C:** The leaves in open position.
- D:** The valve in its expanded state on the delivery device.
- E:** Now in correct position in the heart, the new valve is anchored in place. The physician ensures it is functioning properly, then deflates the balloon and withdraws the delivery device.

THE NO-PAIN GAIN

Advancing Anesthesiology

A slug of whiskey and a couple of strong guys to hold you down. Not so terribly long ago, *that* was anesthesia.

“Fortunately, when Temple’s hospitals opened in the late 19th century, inhaled-gas anesthetics were standard practice for patients undergoing surgery. The 20th century brought amazing new options for

sedation and pain control, with Temple faculty contributing to the advancement of the field,” says Gordon Morewood, MD, MBA, FASE, Temple Health’s Anesthesiologist-in-Chief.

In 1904, W. Wayne Babcock, MD, Temple’s Chair of Surgery, pioneered the use of spinal anesthesia in the U.S. To recognize this (and his many other contributions), the American Medical

Association later awarded him the Distinguished Service Medal, one of medicine’s highest honors.

In 1942, a year after Anesthesiology was officially recognized as a distinct specialty, Philip Woodbridge, MD, became Temple’s first Chief of Anesthesiology. A driving force in anesthesia safety, Woodbridge invented the non-interchangeable “pin index system” (which



W. Wayne Babcock, MD (1872-1963) pioneers the use of spinal anesthesia in the United States at Temple — earning worldwide acclaim. In 1914 he designs a special needle for spinal anesthesia.

1904



Curtiss Hickcox, MD (1913-2001) becomes Chair. He later serves as President of the American Board of Anesthesiology.

1946



James Harp, MD (1933-2014) becomes Chair. Harp conducts collaborative research in the United Kingdom, Sweden, and the U.S. on the relationship of anesthesia to the flow of oxygen and blood to the brain.

1975

CONQUERING PAIN OVER TIME

1942

Philip Woodbridge, MD (1895-1978) becomes Temple’s first anesthesiology Chair. He designs anesthesia safety systems, creates the Woodbridge endotracheal tube, and popularizes the therapeutic nerve block — a precursor to the pain management field.



1950

Leroy Krumperman, MD (1920-1976), becomes Chair. He manages training programs for physicians and nurse anesthetists, and uses the epidural block for patients with severe chronic pain — another early step in pain management.



1980

Thomas Deas, MD (1921-1995) leads efforts to standardize terms and techniques in anesthesia with the International Standards Organization and American National Standards Committee.



made it impossible to accidentally give a patient the wrong type of gas) and the Horton Intercoupler (a device to prevent electricity from igniting anesthetic gas), a National Fire Protection Association safety protocol. Woodbridge was a founding member of the American Board of Anesthesiology.

Leroy Krumperman, MD, a Temple alumnus who followed Woodbridge as

Chair, ran two anesthesia training programs simultaneously (for physicians and for nurses), helped advance the science of pain control, and participated in important National Institutes of Health studies. As Chair of the International Standards Organization's anesthesia committee, Thomas Deas, MD, led efforts to standardize terms and techniques in the field.

Today, Temple Health employs 50 anesthesiologists (many fellowship-trained to specialize in highly complex care); 24 residents; and 57 certified registered nurse anesthetists.

"Our past is storied, and we are continuing to advance the field, with research ongoing in orthopaedic surgery, neurosurgery, and other specialties," Morewood says.



Gordon Morewood, MD, MBA, FASE, becomes Chair, bringing impressive clinical skills to Temple as well as expertise in patient safety, quality improvement, and health care business model innovation.

Ether is used for the last time in the U.S. at Temple by **Kenneth Lee, MD,** and **Susanne Cooper, MD.**

Christer Carlsson, MD, PhD, becomes Chair.

Rodger Barnette, MD, becomes Chair, retiring in 2015 to teach anesthesiology in Kenya.

1982

1989

2005

2015

1984

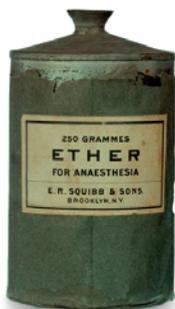
Two-time Superbowl champion-turned-anesthesiologist **Douglas Swift, MD,** then on faculty, administers anesthesia for Temple's first heart transplant surgery.

1998

Lydia Conlay, MD, PhD, MBA, becomes Chair.

2010

Scott Schartel, DO, is elected President of the Society for Education in Anesthesia, a national organization that advances anesthesia education for medical students, residents, and attending physicians.



IMPACT

Citywise for Better Health

The Pincus Family Foundation Urban Health Fellowship

The Lewis Katz School of Medicine is training a new type of health care provider — a physician with a special focus on children — and uniquely rooted in urban health.

A generous grant establishing a brand-new fellowship training program is making this possible — the Pincus Family Fellowship in Urban Health — funded by the Pincus Family Foundation, a Philadelphia-based philanthropic organization dedicated to helping underserved children and families lead healthier lives. According to pediatrician and Fellowship Program Director Kathleen Reeves, MD, this new program will do exactly that.

“The aim of the fellowship is to produce a cohort of health care professionals with the specialized knowledge and skills to create community-engaged health programs that will be effective in North Philadelphia — and in distressed urban communities like it,” says Reeves, who directs Temple’s Center for Bioethics and Urban Health Policy, where the fellowship is based.

In its inaugural year, two carefully selected physicians will have the opportunity to become Pincus Fellows. As such, they will earn a Master’s Degree in Urban Bioethics at the Center and obtain a comprehensive education about the state of pediatric health in urban communities — thus gaining unique opportunities to impact health outcomes in North Philadelphia.

Pincus Fellows will develop a clear understanding of the health disparities that urban children face every day — and see firsthand how the social determinants of health — such as exposure to violence, food insecurity, and poverty — affect children long-term. They will explore the impact these problems have on health care costs — and learn about the successes and failures of health care policies at the local and national level.

To start, the program will focus on a population of approximately 500,000 in four zip codes in North Philadelphia. More than one-third of families with children in this area live well below the federal poverty level. The teenage pregnancy rate is three times the state average, and the infant mortality rate almost double. “These statistics paint a strong picture of social

and economic disparities, yet also represent an opportunity to work with a community toward better health,” says Reeves.

In year two, Fellows will work with their community partners to identify a specific problem affecting children in the neighborhood — and create a program with their faculty mentors, community leaders, and area families to tackle it in an effective and fiscally sustainable way. They might, for example, collaborate with a local community development corporation to address health issues associated with housing insecurity, or work with the public school system to improve immunization rates.

According to Susan L. Freeman, MD, MS, Chief Medical Officer of Temple University Health System, what Temple and the Pincus Family Foundation plan to accomplish through this partnership is to groom a much-needed generation of new leaders in urban and population health.

“Pincus Fellows will understand the complex integration of social and economic elements that create inequities in

Pincus Fellows will see firsthand how the social determinants of health — such as exposure to violence, food insecurity, and poverty — affect children long-term.

health outcomes — and obtain unique skills to address them that will ultimately improve health outcomes in some of the most challenging urban communities in our country,” says Freeman, who is also President and CEO of Temple’s Center for Population Health.

To this end, a key point of the training is to ensure Fellows learn how to design “portable” programs — programs that can be replicated in similar communities.

According to Pincus Family Foundation Trustee Andrew Epstein, MD, the Foundation’s founder, David Pincus, grew up on North Broad Street and was deeply impressed by the mission carried out by Temple in North Philadelphia. “We are pleased to be part of this groundbreaking endeavor, to move forward in this partnership for progress and positive change,” Epstein says.

Baby Box

A Solution for Safer Sleep

Brianna Devero thought she had two more weeks to prepare for the delivery of her baby boy. “But he came when he was ready,” said the first-time mom. “We still had a lot to do, including setting up his crib.”

Being unprepared or underprepared for a new baby is not uncommon. To adapt, many parents use measures like “co-sleeping,” sleeping in the same bed with their babies, at least temporarily. Sometimes, however, co-sleeping is practiced as a cost-savings measure, especially in low-income areas. It does indeed cost less than buying a crib — but can come at a terrible price.

“The practice of co-sleeping has been associated with infant injury — even death — due to suffocation, asphyxia, and entrapment,” says Megan Heere, MD, medical director of Temple University Hospital’s Well-Baby Nursery and Assistant Professor of Pediatrics.

According to the Centers for Disease Control and Prevention, about 3,500 U.S. infants die suddenly and unexpectedly each year. Co-sleeping can be a culprit. Therefore, in addition to recommending that babies sleep on their backs on a firm surface, the American Academy of Pediatrics advises room-sharing yet no bed-sharing.

In an attempt to reduce the practice of co-sleeping — and the incidence of infant injury and death — Temple University Hospital is providing “baby boxes” to all 3,000+ mothers who deliver at the hospital this year.

The boxes, manufactured by The Baby Box Company and decorated with the Temple “T” logo and owl mascot, are functional, sturdy bassinets that come equipped with a mattress and sheet.

The boxes also contain baby wash, diapers, a nasal aspirator, a thermometer, fleece and cotton clothing, a baby book (in English or Spanish), other essential supplies — and a voucher for a free smoke detector to be installed in the home by the Philadelphia Fire Department.

Most important, the box comes with educational materials about safe sleep. The baby boxes are part of a program called Sleep Awareness Family Education at Temple (SAFE-T). The aim of the program is to reduce North Philadelphia’s infant mortality rate — one of the highest in the nation.

“This project is an outgrowth of Temple’s commitment to the health and well-being of women and infants,” says Elizabeth Craig, DNP, CRNP, FACHE, Vice President and Chief Nursing Officer. “We want to give parents the education and resources they need to provide their babies with a safe sleep environment.”

With extensive follow-up, Temple will assess SAFE-T’s effectiveness in reducing high-risk sleep behaviors associated with



Temple issues safe-sleep boxes to help reduce rates of infant mortality. Learn more: medicine.temple.edu/about/giving/where-give/special-campaigns/baby-boxes

sudden unexpected infant death (SUID). “The research has the potential to change how we educate the mothers of newborns,” says Heere.

Gail Herrine, MD, IBCLC, MD, FACOG, FABM, medical director of Temple’s Postpartum Unit, notes that breastfeeding also decreases the risk of SUID. “We hope that providing our moms a safe place for the baby to sleep, close by at all times, will help encourage them to breastfeed for as long as possible,” she says.

Funding for the Baby Box program was provided by the W.K. Kellogg Foundation, Kohl’s Cares for Kids, Temple University Hospital — and hundreds of Temple nurses, staff, alumni, and friends — through what’s been the most successful crowd funding campaign in Temple University’s history.

ALUMNI AWARDEES

Four graduates of the Lewis Katz School of Medicine at Temple University were honored last spring during the 2016 Class Reunion celebration for MD alumni who graduated in years ending in 1 and 6.



The Paige M. and Henry P. Laughlin Alumnus of the Year Award

RECOGNIZING ALUMNI WHOSE CONTRIBUTIONS TO MEDICINE HAVE HAD A LASTING IMPACT

R. Michael Scott, MD '66

R. Michael Scott, MD '66, is one of America's leading pediatric neurosurgeons. It was under Scott's tutelage that Boston Children's Hospital became the largest and most respected pediatric neurosurgery center in the world. Scott is Neurosurgeon-in-Chief-Emeritus and the Christopher K. Fellows Chair in Pediatric Neurosurgery at Boston Children's today. He's also Professor of Neurosurgery at Harvard Medical School. A leader in his field, Scott has been President of the American Society of Pediatric Neurosurgeons, Director of the American Board of Neurological Surgery, and Chair of the American Board of Pediatric Neurosurgery. At Temple, Scott is part of a family legacy that began with his father, Michael Scott, MD, who chaired the Department of Neurosurgery for three decades. Scott's mother, Catherine Scott, was a Temple nurse. His brother, Richard Scott, MD '68, is an internationally recognized orthopedic surgeon who has likewise been recognized by the school. Scott, too, has given generously of his time and largesse — to the benefit of patients, profession, and alma mater.

SAMEERA A. KHAN

The Alumni Service Award

HONORING OUTSTANDING ALUMNI WITH EXEMPLARY RECORDS OF SERVICE AND GENEROSITY TO THE SCHOOL



Joseph Torg, MD '61

Often called the “the father of sports medicine,” Joseph Torg, MD '61, is a true institution at Temple and in sports medicine. He first joined Temple’s Orthopaedic Surgery faculty in 1968 — and created the nation’s first university-based sports medicine center at Temple in 1974. Torg’s research has spared untold numbers of athletes from injury. It led to the redesign of cleat-style athletic shoes — and prompted the banning of spear-tackling. Torg is also behind the decision to admit girls into Little League. Throughout, he helped create new models for how teams manage athletic injury. A member of the American Orthopaedic Society for Sports Medicine Hall of Fame, Torg served the Philadelphia 76ers, Philadelphia Flyers, and Philadelphia Eagles as team physician. Moreover, he is a distinguished benefactor of the school — supporting medical student scholarships, resident education, and capital projects. He is also behind the establishment of the John Lachman Society for alumni and faculty of Temple orthopaedics.

The Alumni Achievement Award

RECOGNIZING ALUMNI WHOSE CONTRIBUTIONS TO MEDICINE HAVE HAD A LASTING IMPACT



Randall C. Starling, MPH, MD '81, FAAC

Randall C. Starling, MD, is a top-of-mind name at a top-of-mind institution in cardiology, the Cleveland Clinic. Since 1995, Starling has held numerous roles there, including Vice Chair of Cardiovascular Medicine, Head of the Section of Heart Failure and Cardiac Transplant Medicine, and Medical Director of the Kaufman Center for Heart Failure. Among the thousands of patients he has treated are some 1,500 heart transplant patients alone. A prodigious researcher with more than 400 publications to his credit, Starling speaks at professional conferences the world over. Laser-like in his quest for the best outcomes possible for his patients, Starling is a Fellow of the American College of Cardiology, the European Society of Cardiology, and the Heart Failure Society of America. He’s served on the Board of the International Society of Heart and Lung Transplantation and other boards — and is a long-time Lewis Katz School of Medicine supporter.

The Honored Professor Award

FOR KATZ SCHOOL FACULTY WHO EXEMPLIFY THE KNOWLEDGE AND VALUES THAT THE SCHOOL STRIVES TO INSTILL



Lawrence I. Kaplan, MD '86, FACP

A passionate alumnus and Lewis Katz School of Medicine dean’s staff member, Lawrence Kaplan, MD '86, is a sought-after internist, medical educator, and Temple advocate. He is currently president of the Medical Alumni Association of the Lewis Katz School of Medicine. A faculty member at his alma mater since 2002, Kaplan is Associate Dean for Inter-Professional Education and Professor of Medicine. Also a leader in the broader professional community, he supports medical education through service to the Liaison Committee on Medical Education and the Association of American Medical Colleges. The affection that students have for him is evident in the long list of teaching awards that have been conferred on him, including the school’s Golden Apple Award for Clinical Teaching, the Pearl and Russell Moses Teaching Award, and the Lindback Award for Distinguished Teaching. He is praised for being generous with his time and for making students his priority. He regularly challenges his alumni and faculty colleagues to do as he does: take the school’s educational mission personally.

SO NOTED

“Progress requires the co-adaptation of the innovative with the tried and true, the amalgamation of tradition and innovation.”

— LARRY KAISER, MD, FACS (DEAN & CEO)

The Lewis Katz School of Medicine offers the only Masters of Arts degree in Urban Bioethics in the country.

Last year, the volunteer hours put in by Temple students added up to **86 years** of full-time work.

“IN HEALTH CARE, EFFICIENCY MEANS BETTER SERVICE AND BETTER PRODUCTS AT A LOWER COST — IN OTHER WORDS, VALUE.”

— SUSAN FREEMAN, MS, MD (CHIEF MEDICAL OFFICER)

2,384

CLINICIANS AND SCIENTISTS SERVE ON THE LEWIS KATZ SCHOOL OF MEDICINE FACULTY:

585

FULL-TIME,

42

PART-TIME, AND

1,757

VOLUNTEER.

Celebrating anniversaries in 2017:

Temple University Hospital:

125th

Temple University Rome:

50th

LAST YEAR, TEMPLE UNIVERSITY PROVIDED

\$64 MILLION

IN FINANCIAL AID TO STUDENTS WITH FINANCIAL NEED.

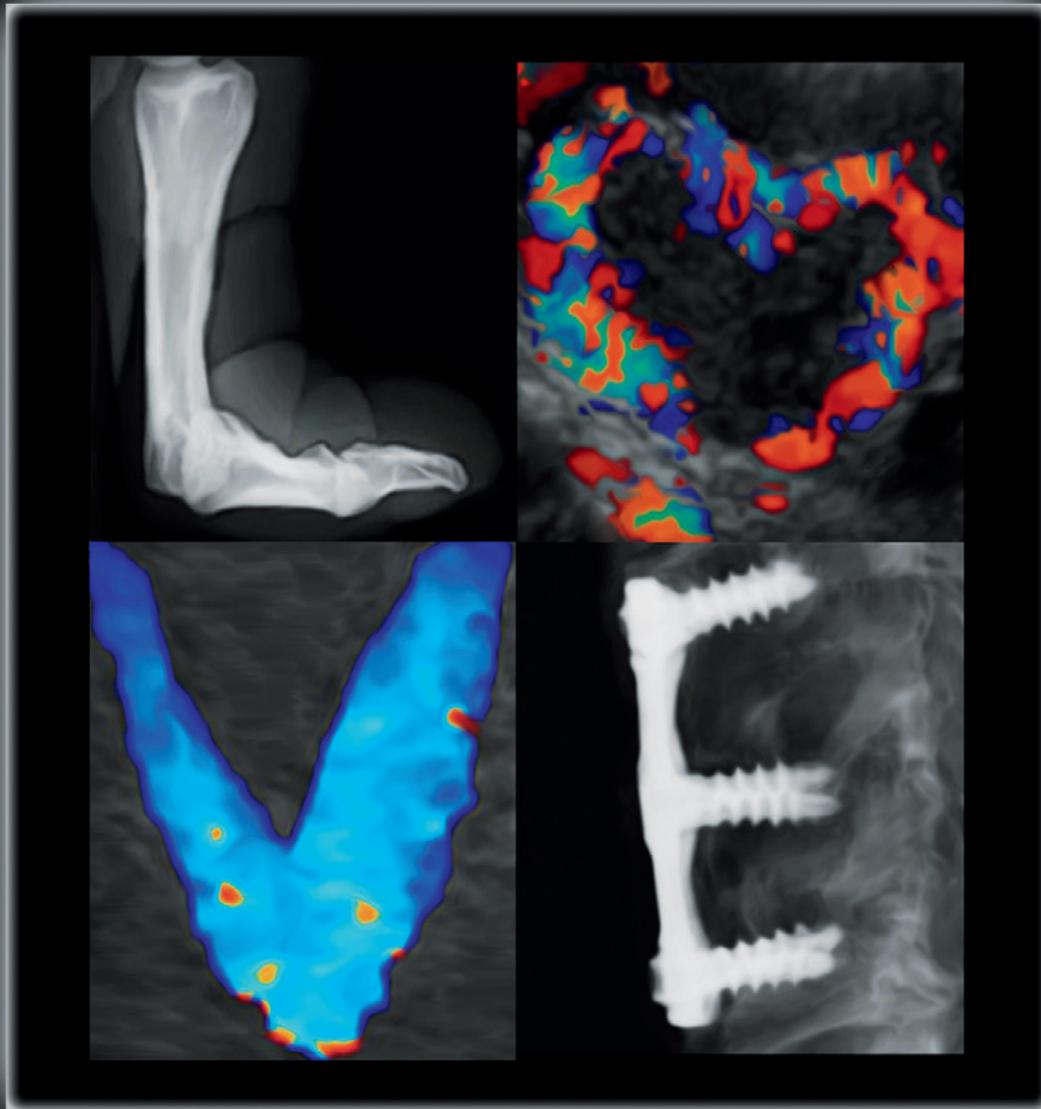
“We teach medical students to judiciously use their knowledge, skills, and sociopolitical awareness to benefit their patients. This is the physicians’ contract with society.”

— LARRY KAISER, MD, FACS (DEAN & CEO)

TO OBTAIN AN MD DEGREE, LEWIS KATZ SCHOOL OF MEDICINE STUDENTS MUST BE COMPETENT IN 54 SPECIFIC SKILLS IN 7 DIFFERENT CATEGORIES.

“To really know and understand the technology and science involved in any one corner of the medical world requires a lifetime of dedication.”

— BLASE CARABELLO, MD, CLASS OF 1973



Love, X-Ray-ted

A gallstone that looks like Marge Simpson. A bladder that's a dead ringer for the Liberty Bell. Susan Summerton, MD, a 1988 graduate of the Lewis Katz School of Medicine, is a Philadelphia-based radiologist who sees all sorts of things in X-rays, CT scans, and ultrasounds of the human body – including all the letters of the alphabet. With graphically rendered versions of these images (to protect patient privacy, no actual images are used), she spells out words and messages – even “paints” whole scenes. So enthusiastic has the reaction been to her body-based art that she’s launched Xray Artistry, LLC.

L	Bent finger on hand X-ray
O	An ovarian cyst surrounded by color Doppler blood flow on an ultrasound
V	Hepatic veins on color Doppler ultrasound of liver
E	Plate and screws transfixing the spine on cervical spine X-ray

Restoring breathing ability once thought to be lost.

After evaluating a 58-year-old COPD patient on full-time oxygen, Gerard Criner, MD, recommends a clinical trial to potentially improve lung function. The investigational procedure is designed to shrink damaged lung tissue, which would allow healthy portions of the lung to expand more fully—and the patient to breathe more easily.

This innovative treatment is possible because the pulmonary specialists at Temple Health are also clinical researchers who can offer access to emerging therapies.



Tomorrow is Here.

TEMPLEHEALTH.ORG 800-TEMPLE-MED

Temple University Hospital
Lewis Katz School of Medicine
at Temple University
Fox Chase Cancer Center
Jeanes Hospital

Temple Health Oaks
Temple Health Center City
Temple Health Ft. Washington
Temple Health Elkins Park

Temple ReadyCare
Temple Physicians
Temple Transport Team

TUH – Episcopal Campus
TUH – Northeastern Campus