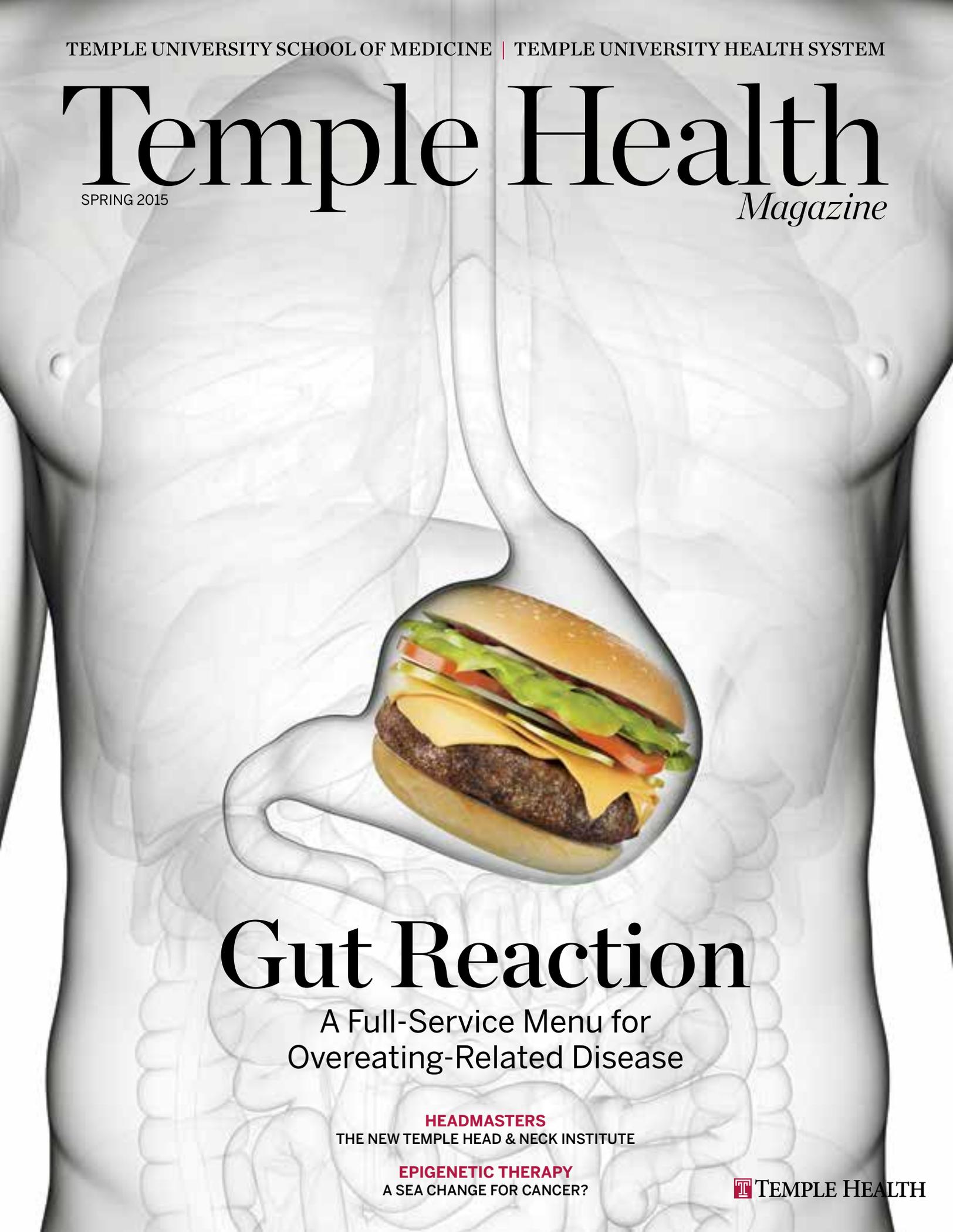


# Temple Health

SPRING 2015

*Magazine*

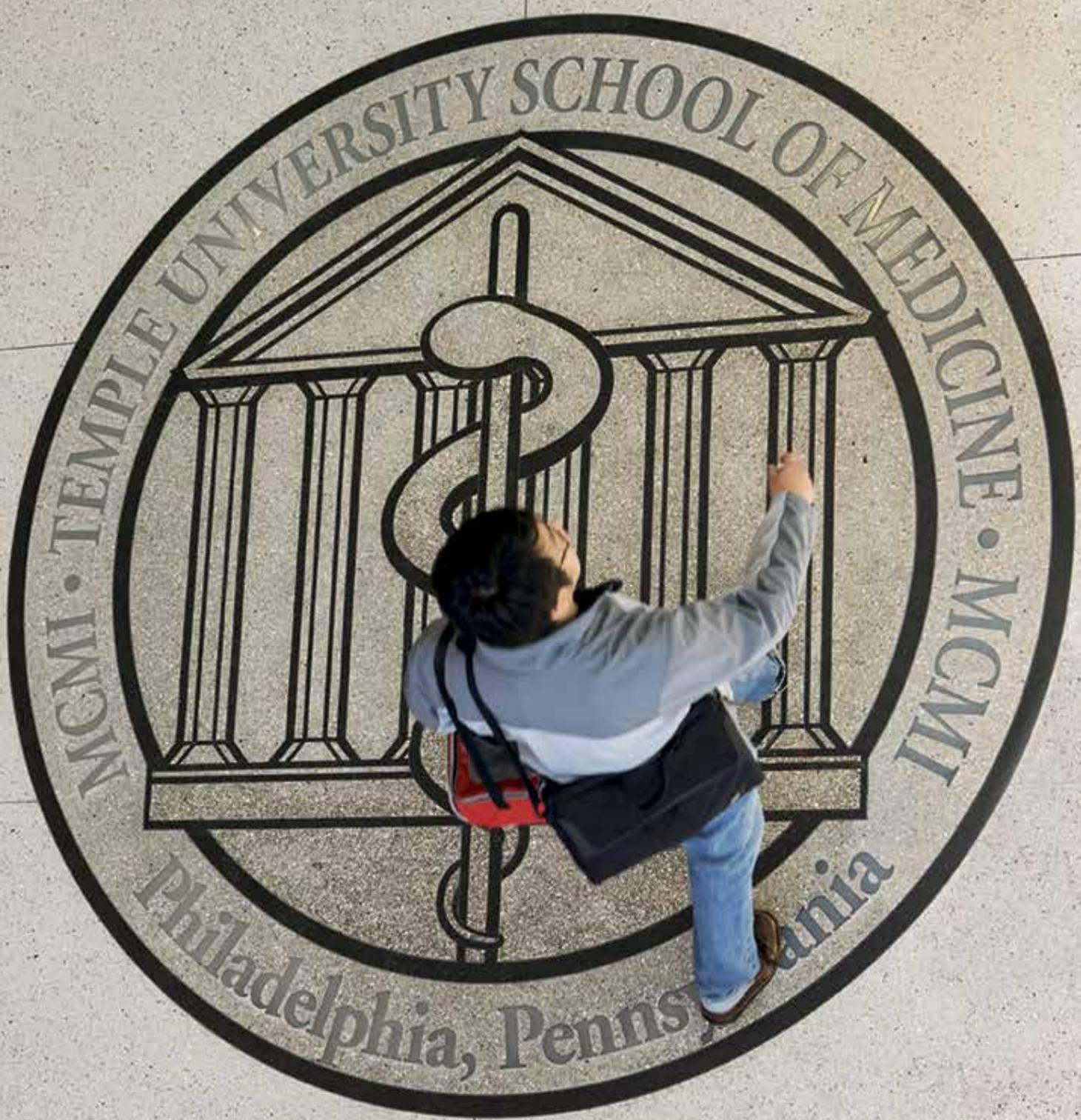


## Gut Reaction

A Full-Service Menu for  
Overeating-Related Disease

**HEADMASTERS**  
THE NEW TEMPLE HEAD & NECK INSTITUTE

**EPIGENETIC THERAPY**  
A SEA CHANGE FOR CANCER?



**AGENDA**

**Temple Health**  
*Magazine*

**EDITOR**  
Giselle Zayon  
giselle.zayon@tuhs.temple.edu

**DESIGN & ART DIRECTION**  
B&G Design Studios

**WRITERS & CONTRIBUTORS**  
Christopher Guadagnino  
Rebecca Harmon  
Eliza Ludwig  
Meredith Mann  
Bradley Porter  
Kara Rogers  
Ilene Raymond Rush  
Younndia Rush  
Jeremy Walter

**ADMINISTRATION**  
Alan N. Rosenberg, Esq.  
Senior Vice President/  
Chief Administrative Officer

Christopher Guadagnino, PhD  
Interim Lead, Communications

**CONTACT US**  
Office of Communications  
3509 N. Broad Street  
Philadelphia, PA 19140  
215-707-4839

**TEMPLE HEALTH**  
TempleHealth.org  
1-800-TEMPLEMED

- Temple University School of Medicine
- Temple University Hospital
- Temple University Hospital Episcopal Campus
- Temple University Hospital Northeastern Campus
- Fox Chase Cancer Center
- Fox Chase Cancer Center at Buckingham
- Fox Chase Cancer Center Medical Group
- Jeanes Hospital
- Temple Health Oaks
- Temple Health Center City
- Temple Health Women's Care at Elkins Park
- Temple Health Ft. Washington
- Temple ReadyCare
- Temple Physicians, Inc.
- Temple University Physicians
- Temple Transport Team

Temple Health refers to the health, education, and research activities carried out by the affiliates of Temple University Health System, Inc. (TUHS), and Temple University School of Medicine. 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.

# Doctoring: True to Essence

**I**n May, I will have the privilege of conferring the MD degree on the first group of medical students I welcomed to Temple when I joined the organization four years ago. *I promise you a topnotch medical education, I told them. I promise you the knowledge and skills befitting the title "doctor."*

Over time, I watched this group of students develop into true professionals, absorbing concepts and practicing techniques. I also watched some of them struggle. No matter how hard they worked, their faculty — and especially their patients — seemed to want something more.

In time, those students recognized what was missing — and then realized that it had actually been there all along: the very thing that called them to medicine in the first place, that innate desire to help and heal. And thus young professionals learn medicine's most sacred lesson: patients assume their physicians are competent. But they need to know that we *care*.

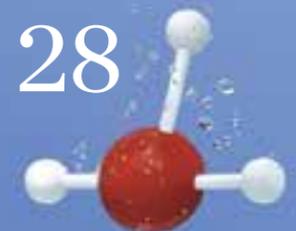
In May, at graduation, I will encourage the Class of 2015 to keep doctoring from this very deep core. It will distinguish every chapter of your career, touch every patient you touch, I will tell them. It's been the essence of doctoring since ancient times — and will remain so, no matter what changes in health care may unfold.

**Larry R. Kaiser, MD, FACS**  
*Senior Executive Vice President for Health Sciences, Temple University  
Dean & Professor of Surgery, Temple University School of Medicine  
President & CEO, Temple University Health System*

LOBBY: JOSEPH V. LABOLITO; KAISER: DOMINIC EPISCOPO



28



FEATURES

**10 Gut Reaction**  
A Full-Service Menu for Overeating-Related Disease  
BY GISELLE ZAYON

**16 Saving Steps**  
On the March to End Amputation  
BY KARA ROGERS

**20 Headmasters**  
The Head & Neck Specialty: A Resident's Story  
BY STEVEN ZUNIGA, MD

**24 Home Delivery**  
Population Health Programs for At-Risk Patients  
BY GISELLE ZAYON

**28 Epigenetic Therapy**  
A Sea Change for Cancer?  
BY KARA ROGERS

DEPARTMENTS

**32 Change Agent**  
Scott Charles: Anti-Gun Violence

**34 Quest**  
Marla Wolfson: Liquid Air

**36 Tools of the Trade**  
Sewing Lesson: Surgical Needles & Suture

**38 Timeline**  
Farewell, "Old Med"

**44 So Noted**  
Quips and Counts

**45 Artful Ending**  
The Ultimate Selfie

IN EVERY ISSUE

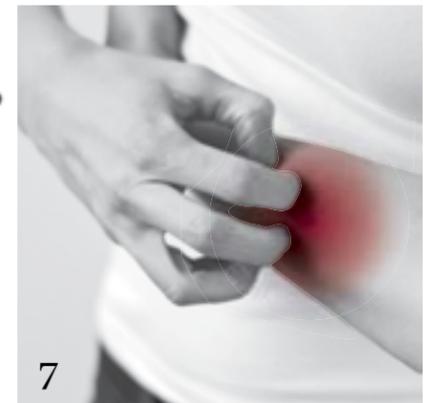
**1 Agenda**  
Larry Kaiser, MD, FACS

**4 Currents**  
News Roundup

**40 Alumni News**

DNA: CLINT BLOWERS; TOP RIGHT: JARED CASTALDI; BOTTOM LEFT: SERGE BLOCH; BOTTOM RIGHT: DREAMSTIME

ON THE COVER: Havoc wrought by chronic overeating, illustrated by SciePro



# CURRENTS

## At Your Service

### CONCIERGE SERVICE HONORED

The concierge service managed by Temple University Physicians is the first Philadelphia health-care organization to be accepted into the National Concierge Association, “a distinction we’re honored to receive,” says Lisa Fino, Chief Operating Officer, Temple University Physicians. Membership, which is reviewed annually, is contingent on maintaining high standards. “In addition to helping make physician appointments for our guests, we assist with hotel and travel plans. We even escort patients to their physicians’ offices,” Fino says.

### RAPID ACCESS AT FOX CHASE

Taking patient-centered responsiveness to the next level, Fox Chase Cancer Center now offers physician appointments to new patients within 24 hours of their first call. “Patients should not have to wait several days to see a cancer specialist,” says Richard Fisher, MD, President and CEO of Fox Chase. Through the Rapid Access Service, new patients are seen within 24 hours of their first call (or on Monday if they call on Friday) — even if they don’t have a definitive diagnosis yet. Since the program was launched in March 2014, Fox Chase has seen a significant increase in new patient appointments.



ANN CUTTING

## Close to the Far East

Expanding its prominence as a collaborative partner for medical education and research in Asia, Temple University School of Medicine has established an affiliation with Fu Jen Catholic University School of Medicine in Taiwan. The five-year agreement reserves four MD-PhD program slots per year at Temple for Fu Jen students (who will earn their MD from Fu Jen and their PhD from Temple), and also features a medical student exchange program for six students at each institution per year.

The new affiliation follows in the footsteps of the partnership forged in 2013 with China’s Jiao Tong University School of Medicine in Shanghai — an alliance that’s seen much growth and activity, including two cross-cultural academic symposia held last fall, one at Hong Kong Adventist Hospital and another in Shanghai at Jiao Tong University’s Renji Hospital. Both showcased next-generation innovations that are changing the way medicine is practiced in the 21st century.

The Shanghai symposium was held in conjunction with the 170th anniversary celebration of China’s second-oldest western-style healthcare facility, Renji Hospital. Hong Kong’s Secretary for Food and Health, Dr. Ko Wing-man, was the guest speaker of honor, and Temple’s Larry Kaiser, MD, FACS, was the only American medical school dean invited to speak at the event, which attracted international dignitaries.

FISHER & HUROWITZ: DAN BURKE



Susan Fisher, PhD

## On Trial

Research is the linchpin to progress in medicine — especially clinical research, which moves innovations from the laboratory into testing with real patients. Two new initiatives continue to intensify the power of Temple’s clinical research engine:

**INSTITUTE ESTABLISHED:** “Each step of the clinical research process — from conceptualization of an objective to dissemination of study results — must be supported by a system that optimizes efficiency, productivity, and quality,” says Susan G. Fisher, PhD, Director of the newly created Temple Clinical Research Institute. Investigators now have ready access to a team focused on accelerating the process, with staff to coordinate projects, foster partnerships

with industry sponsors, manage regulatory compliance processes, and provide services like bioinformatics support.

**BE THE BREAKTHROUGH:** Last summer, Fox Chase launched “Be the Breakthrough,” a patient-focused campaign designed to increase awareness of clinical trials for cancer among patients, caregivers, and families. Since its launch, approximately 60 percent more patients have been enrolled in clinical trials at Fox Chase than during the previous year. “Clinical trials have the potential to result in better treatments and outcomes” says Evelyn Gonzales, Senior Director of Health Communications and Health Disparities. Approximately 325 clinical trials are active at Fox Chase at any given time.



## Dual Roles as CEO

Marc Hurowitz, DO, FAAFP, has been named CEO of Jeanes Hospital. A physician executive with over two decades of leadership experience, Hurowitz joined Temple in 2009 and concurrently serves as CEO of Temple Physicians, Inc., the Health System’s network of community-based physician practices. At Jeanes, he succeeds Linda Benfield Grass, MBA, FACHE, who was CEO for 12 years, and in all devoted three decades of outstanding service to Jeanes in a variety of positions.



Heart and Vascular Institute Directors, Drs. Eric Choi, T. Sloane Guy, and Daniel Edmundowicz.

## New Home Base for Temple Heart and Vascular Institute

“With the opening of our new facility, we now have *physical* space reflective of our world-class capabilities in heart and vascular care,” says Daniel Edmundowicz, MD, FACP, FACC, Medical Director of the Temple Heart and Vascular Institute. “Centralizing our experts and technologies in one location optimizes care and convenience for our patients — and streamlines our clinicians’ ability to provide prompt diagnoses, timely interventions, and effective treatment and follow-up care.”

One of the most respected heart programs in the Delaware Valley, the Institute offers the full range of treatment options for patients with heart disease. Its innovations include:

- Minimally-invasive, endovascular approaches to the treatment of thoracic aortic aneurysms with devices such as stents with special “anchoring” technology.

- Next-generation cardiac monitoring with the smallest implantable device available — a monitor just one-third the size of an AAA battery.
- The City of Philadelphia’s only program for familial cardiomyopathy, which offers specialized services such as a minimally invasive robotic approach to septal myectomy surgery, which reduces the bulk of hypertrophic muscle and improves the ability of the heart to pump blood.
- The region’s only hybrid operating room dedicated exclusively to cardiac electrophysiology, where patients with heart-rhythm problems are treated with state-of-the-art devices to ablate cells where electrical disturbances originate.
- Total heart transplantation and implantation of devices that serve as a lifeline for patients awaiting a donor heart — including ventricular-assist devices for patients with either left or right ventricle failure — and total artificial hearts for patients with failure of both.

## Lung Update

### FIRST-EVER GUIDELINES

Last fall, the American College of Chest Physicians and the Canadian Thoracic Society released new guidelines for COPD. “Previous guidelines addressed *management* of COPD exacerbations. The new ones aim to *prevent* them,” says Temple Lung Center Director Gerard J. Criner, MD, FACP, FACCP, who chaired the panel that developed the guidelines. COPD is the third-leading cause of death in the U.S. and the fourth in Canada.

### PROMISING NEW DRUGS

Two new investigational drugs that could be game-changers for idiopathic pulmonary fibrosis (IPF) are being offered by Temple in an expanded access program in advance of the drugs’ FDA approval. Both pirfenidone (InterMune) and nintedanib (Boehringer Ingelheim Pharmaceuticals) show promise in slowing the progression of IPF, a debilitating condition that affects about 140,000 Americans. “Previously, there wasn’t effective drug therapy for IPF,” Criner said.

### DRUG FOR EMPHYSEMA

Temple is one of four medical centers in the country to take part in a three-year National Institutes of Health study that is testing whether ibuprofen can reverse the effects of emphysema, which affects about 3.1 million Americans. “If this treatment is successful, it could restore lost lung function and change the course of treatment for millions,” says Criner, the trial’s local principal investigator.

DOCTORS: JOSEPH V. LABOLITO



## Robotic Advances

Last summer, surgeons at Temple University Hospital performed the Philadelphia region’s first surgery using the new da Vinci® Xi™ Surgical System, a successful minimally invasive robotic mitral valve repair. The new robotic technology has broader capabilities and features not previously available, including advanced endoscopic digital architecture; smaller, thinner arms with greater range of motion; and longer instrument shafts for greater operative reach. In another advance in surgical robotics, Temple recently became one of a handful of hospitals in the country using the new da Vinci EndoWrist® Stapler, a high-precision, computer-guided device that helps surgeons improve patient outcomes.

ROBOTIC TOOL: COURTESY INTUITIVE SURGICAL, INC. SKIN: DREAMSTIME

LAST YEAR, ALUMNI, FACULTY & FRIENDS DONATED  
**\$32.6**  
 MILLION TO TEMPLE’S HEALTH ENTERPRISE

## Cancer Notes

### SKIN PAIN & ITCH

Research led by Gil Yosipovitch, MD, Director of the Temple Itch Center, found that itching or pain in a suspicious skin lesion could indicate skin cancer. In his study, published by *JAMA Dermatology*, nearly 37 percent of skin cancer lesions were accompanied by itching, while 28.2 percent involved pain. Basal cell and squamous cell carcinomas are more likely than melanoma to involve itch or pain. Skin cancer is the most common cancer in the United States, with more than 3.5 million non-melanoma lesions diagnosed annually.

### LYMPHEDEMA TREATMENT

Fox Chase is one of only two institutions in the Philadelphia region to offer an innovative surgery called vascularized lymph node transfer, a new treatment for lymphedema, the painful fluid build-up and swelling in soft body tissues common among patients who have had lymph nodes removed during cancer treatment. Sameer Patel, MD, and Eric Chang, MD, who specialize in plastic and reconstructive surgery for cancer patients, transplant

lymph nodes from other parts of a patient’s body to the affected area to help drain excess lymphatic fluid.

### RETAGGING CANCER

The National Comprehensive Cancer Network Soft Tissue Sarcoma Panel, chaired by Margaret von Mehren, MD, Director of Sarcoma Oncology at Fox Chase, issued updates to the soft tissue sarcoma guidelines — specifically with regard to preoperative radiation therapy and genetic testing and counseling. Another Fox Chase expert, Richard Bleicher, MD, Co-Leader of the Breast Cancer Treatment Team, published a study in the *Journal of the American College of Surgeons* recommending that breast cancer staging criteria be changed, too. His study notes that patients whose breast tumors have spread to the skin are automatically diagnosed as stage III (advanced cancer with a relatively poor prognosis), a classification Bleicher finds outdated and unduly grim. “The tumor’s size — and whether it has spread to underarm lymph nodes — are more important predictors of survival than skin involvement,” he says.



# What an Honor

**Tasuku Akiyama, PhD**, is recipient of the 2014 Ronald Dubner Research Prize of the International Association for the Study of Pain — an honor that’s been awarded to only 10 researchers in the world since 1993. Akiyama is Assistant Professor of Dermatology and Anatomy & Cell Biology. His research focuses on the neural mechanisms of itch and pain.

**N. David Charkes, MD**, was honored with the 2014 de Hevesy Nuclear Pioneer Award of the Society of Nuclear Medicine and Molecular Imaging, recognizing his outstanding contributions to the field. Charkes is Emeritus Professor of Radiology and Professor of Medicine.

**John Davidyock, MD, SFHM**, has been honored as the tri-state region’s Top Academic Hospitalist by the Society of Hospital Medicine. Davidyock is Chief of the Section of Hospital Medicine and Vice Chair of Patient Safety and Quality Improvement at Temple University Hospital.

**Hormoz Ehya, MD**, Chief of Cytopathology at Fox Chase Cancer Center, received the 2014 L.C. Tao Educator Award of the American Cytopathology Society. This award recognizes exemplary contributions to cytopathology education.

**Larry R. Kaiser, MD, FACS**, Temple University’s health system CEO and medical school dean, was named one of *Becker’s Hospital Review’s* top 100 “Physician Leaders of Hospitals and Health Systems,” 2014.



**Robert Lux**, Senior Vice President and Health System CFO, was named one of *Becker’s Hospital Review’s* 150 “Hospital and Health System CFOs to Know” for 2014, signifying excellence in financial management.

**Stephen Permut, MD, JD**, has been appointed Chair-Elect of the American Medical Association, the nation’s largest and most influential physician organization. Permut is Chair of Family and Community Medicine and former Senior Associate Dean of Academic Affiliations at Temple.

**Elias Siraj, MD, FACP, FACE**, received the American Association of Clinical Endocrinologists’ Outstanding Service Award for significant contributions to endocrinology education in Ethiopia. Director of the Endocrinology Fellowship Program at Temple, Siraj played a key role in the launch of Ethiopia’s first endocrinology fellowship training program.

**David Wald, DO**, received the 2014 Distinguished Educator Award of the Clerkship Directors in Emergency Medicine, a national organization committed to enhancing medical student education in emergency medicine.

**Robert Uzzo, MD, FACS**, received the 2014 American Urologic Association’s Residents’ Committee Teaching Award, recognizing outstanding urology educators. Uzzo is Chair of the Department of Surgery and the G.W. Pepper Chair in Cancer Research at Fox Chase.

Elias Siraj, MD, FACP, FACE

## New Leaders

**Wafik El-Deiry, MD, PhD, FACP**, an international leader in translational research, has been appointed Deputy Cancer Center Director for Translational Research and Co-Program Leader in Developmental Therapeutics at Fox Chase Cancer Center. Most recently, El-Deiry served as Chief of the Hematology/Oncology Division at Penn State University’s Milton S. Hershey Medical Center. He was also Associate Director for Translational Research at the Penn State Hershey Cancer Institute.

**Herbert Cushing, MD, FACP**, has been appointed Chief Medical Officer of Temple University Hospital. As senior physician executive, he will provide strategic and clinical oversight for functions related to quality, safety, value, population health, and physician engagement. Before coming to Temple, Cushing was Indiana University Hospital’s Chief Medical Officer. He was also Indiana University School of Medicine’s Associate Dean of Student Affairs.

**James Helstrom, MD, MBA**, has been named Chief Medical Officer at Fox Chase Cancer Center. In this role, he will provide leadership, direction, and planning for the Center’s clinical activities and oversee its quality, performance improvement, and patient safety programs. An anesthesiologist with solid healthcare business acumen, Helstrom has been on staff at Fox Chase since 2008.

JOSEPH V. LABOLITO



Glenn Gerhard, MD

## Genomics Jumpstart

**Glenn Gerhard, MD**, a translational genomics expert, has joined Temple as the Joseph and Rebecca Goodfriend Endowed Chair in Genetics. His recruitment — and the establishment of a new Department of Medical Genetics and Molecular Biochemistry, was supported by a \$6.9 million bequest from Vera Goodfriend, a 1940 graduate of Temple’s College of Education. From risk assessment in healthy individuals to genome-guided treatment for patients with complex diseases, the exploding field of genomics is opening new territory in nearly every aspect of medicine. Gerhard comes to Temple from Penn State College of Medicine where he was Co-Director of the Penn State College of Medicine Institute for Personalized Medicine.

TEMPLE UNIVERSITY HEALTH SYSTEM IS A **\$1.8** BILLION ACADEMIC HEALTH SYSTEM

RYAN BRANDENBERG

# Hot Numbers

## Top 100:

*Discover Magazine* listed the news of Temple’s HIV-eradication research among its “100 Top Stories of 2014.”

## Top 5%:

Temple University Hospital-Episcopal Campus earned the 2014 Press Ganey Guardian of Excellence Award — sustaining scores in the top five percent of all inpatient behavioral health hospitals in the nation.

## No. 1:

Temple University Hospital was named Pennsylvania’s top-ranked hospital in the 2014 Pennsylvania Donate Life Hospital Challenge, for its success in increasing organ

donor awareness and designations among patients and their families.

## 2 of 40:

Only 40 American Cancer Society Research Professorships exist in the nation at any one time. Two of them are currently held by Temple faculty: Wafik El-Deiry, MD, PhD, and Jean-Pierre Issa, MD.

## 1 of 7:

Seneca Harberger, a fourth-year medical student at Temple University School of Medicine, has been named a Pisacano Scholar by the American Board of Family Medicine. He is one of just seven medical students in the nation to be selected last year.

## 1 of 44:

For the second consecutive year, the Joint Commission named Temple University Hospital among the nation’s Top Performers on Key Quality Measures. It is one of just 44 hospitals in the nation — and one of four in Pennsylvania — to not only meet, but exceed, the rigorous thresholds required.

## Top 100:

Fox Chase Cancer Center is one of *Becker’s Hospital Review’s* “100 Hospitals and Health Systems with Great Oncology Programs,” 2014. In addition, last year *U.S. News & World Report* named Fox Chase Cancer Center one of the top 20 cancer hospitals in the United States.

## Guiding National Research

Seasoned experts, such as the Temple faculty listed below, are invited to serve on panels of the Center for Scientific Review, the gateway for peer-review of research grant applications submitted to the National Institutes of Health and other federal agencies:

Joseph Cheung, MD, PhD	Electrical Signaling, Ion Transport & Arrhythmias Study Section
Edna Cukierman, PhD	Tumor Progression & Metastasis Study Section
Doina Ganea, PhD	Cellular & Molecular Biology of Glia Study Section
Thomas Gould, PhD	Neurobiology of Motivated Behavior Study Section (Chair)
Jean-Pierre Issa, MD	Molecular & Cellular Hematology Study Section
Suzanne M. Miller, PhD	Behavioral Medicine, Interventions & Outcomes Study Section
Deborah B. Nelson, PhD	Infectious Diseases, Reproductive Health, Asthma & Pulmonary Conditions Study Sections
Michael Ruggieri, PhD	Urologic & Genitourinary Physiology & Pathology Study Section
Rosaria Scalia, MD, PhD	Integrative Physiology of Obesity & Diabetes Study Section
Tomasz Skorski, MD, PhD	Tumor Cell Biology Study Section
Xiao-Feng Yang, MD, PhD	Atherosclerosis & Inflammation of the Cardiovascular System Study Section

# GU T REACTION

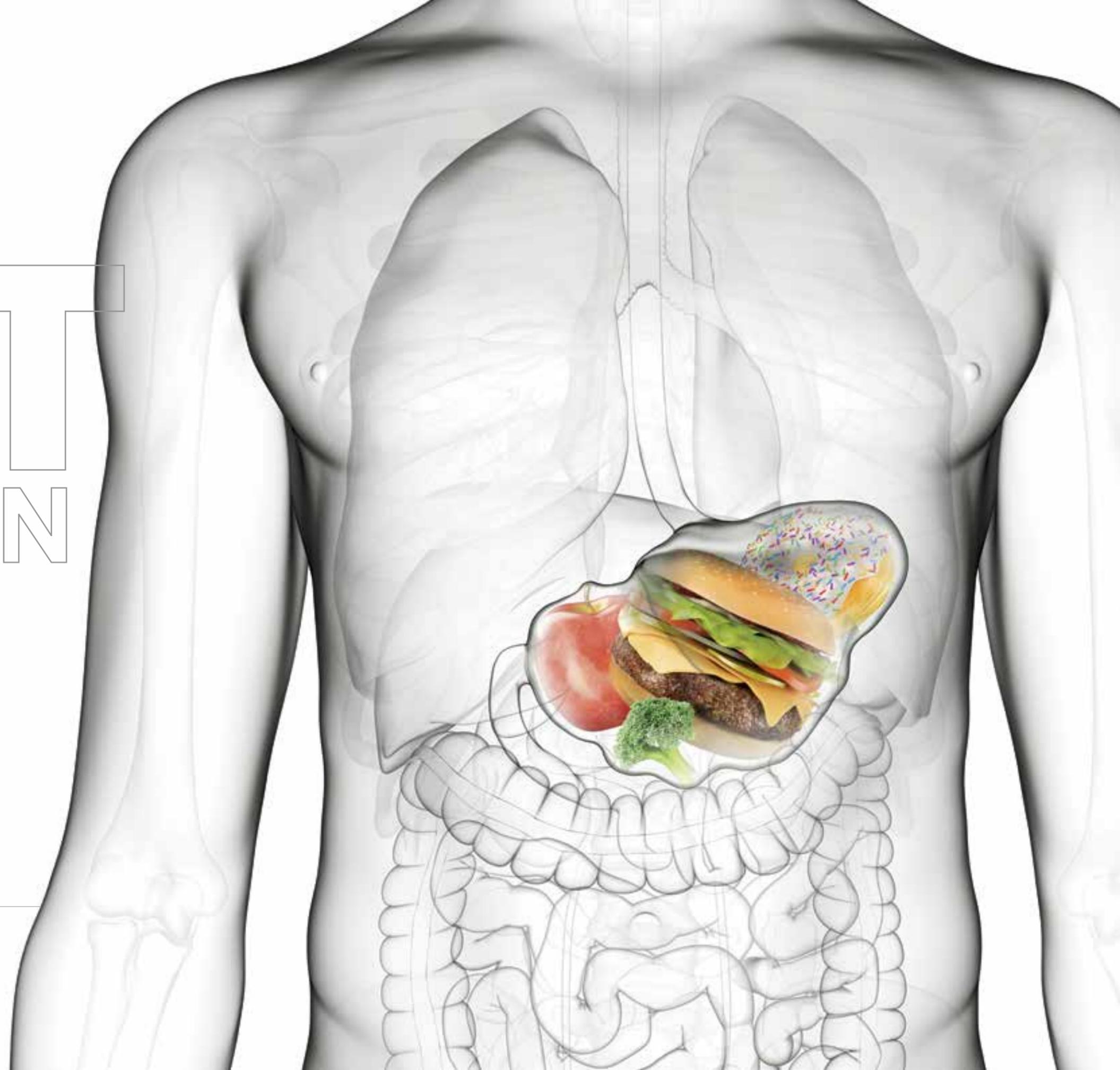
A FULL-SERVICE MENU FOR  
OVEREATING-RELATED DISEASE

Everyone knows that Americans like to eat. According to the *Journal of the American Medical Association*, more than 78.6 million American adults are obese. Likewise, most of us know that obesity translates into higher rates of type 2 diabetes, high blood pressure, and a host of other problems.

But less well-publicized are the effects of overeating on the engine of digestion itself — the stretch of the body that includes the esophagus, stomach, pancreas, liver, gallbladder, biliary tract, small intestine, and colon.

“A properly functioning gastrointestinal tract is the keystone of good health,” says Oleh Haluszka, MD, Chief of Gastroenterology and Professor of Medicine at Temple.

BY GISELLE ZAYON  
ILLUSTRATIONS BY SCIEPRO



Continual overeating, Haluszka says, stresses the entire gastrointestinal (GI) tract, overworking and damaging its organs. “The body was not made to handle large quantities of food,” he says. “Moreover, eating too much ‘healthy’ food is just as bad as too much ‘junk.’”

When we eat too much, food can stretch the stomach. Fatty foods slow down the stomach’s ability to empty, making us feel bloated and nauseated. Over time, overeating, (particularly overindulgence in things high in fructose and sucrose) leads to far-ranging consequences for the entire GI tract, not to mention excess body fat.

Overeating, especially when it comes to too much meat, is particularly hard on the liver, the organ that digests fat, stabilizes blood sugar and cholesterol levels, and detoxifies the blood. Over time, the liver itself can become fatty, a condition presaging nonalcoholic steatohepatitis (NASH), which can lead to liver failure or liver cancer.

With millions more Americans diagnosed every year, type 2 diabetes is the probably the most prevalent and alarming consequence of overeating. The risk of diabetes rises as body mass index increases. Diabetes results when the pancreas exhausts itself attempting to keep high blood-glucose levels in check. And diabetes, of course, ushers in a host of serious health problems itself.

Even the most obvious vestige of overeating, accumulated body fat, imperils the digestive system, Haluszka says. Abdominal fat increases the probability of gastroesophageal reflux disease (GERD), which in turn can lead to a precancerous condition called Barrett’s esophagus. Excess body fat can also be a factor in gastroparesis, delayed emptying of the stomach. “Eventually, overeating can cause every organ in the body to malfunction,” Haluszka notes.

GI disease affects one out of every three Americans, claiming more than 200,000 lives each year. Combatting these complicated conditions is the job of the nationally known Digestive Disease Center at Temple. “Patients come to us with a wide range of issues, both common and rare,” says Haluszka. “To diagnose and treat them, we perform approximately 10,000 endoscopic procedures per year.”

Recognized by *U.S. News & World Report* as among the best in the region in this specialty, Temple has earned a reputation for excellent, innovative care for all types of gastroenterological disorders — including those related to overeating itself.

### FIRST STOP, ESOPHAGUS

A common and distressing condition linked to overeating and obesity is GERD, in which refluxed stomach content causes the lining of the esophagus to “burn.” The resultant damage sometimes leads to Barrett’s esophagus, a precancerous condition in which the cells lining the esophagus actually change in character. About five to ten percent of people with GERD develop Barrett’s esophagus, which places them at risk of developing esophageal cancer.

“The more reflux, the more risk of developing Barrett’s esophagus, and the more risk of developing esophageal cancer,” says Michael S. Smith, MD, MBA, Medical Director of Temple’s Esophageal Program and Associate Professor of Medicine.

Smith uses cutting-edge techniques to detect and remove precancerous cells from the esophagus. So, in addition to employing traditional endoscopic forceps biopsies to look for Barrett’s cells that may be undergoing dysplasia, or advanced precancerous changes, Smith employs a high-tech method called WATS<sup>3D</sup>, wide-area transepithelial sampling with computer-assisted three-dimensional analysis. After a special stiff-bristled brush removes hundreds of thousands of esophageal cells for testing, advanced computer technology is used to identify the 200 most abnormal-appearing cells to determine whether dysplasia or cancer is present. “The WATS<sup>3D</sup> brush improves our ability to detect cancer or dysplasia up to 65% when it is added to standard forceps biopsies,” Smith says.

Smith also utilizes volumetric laser endomicroscopy, in which a special laser device scans the walls of the esophagus for microscopic signs of precancerous change. “In a short period of time, we can see where dysplasia or cancer might be hiding, and target those locations for testing and treatment,” Smith says, adding that Temple is the only institution in Philadelphia equipped with the technology.

To eradicate Barrett’s and help reduce the risk of esophageal cancer, Smith draws on a number of high-tech treatment options. These include radio frequency ablation, which utilizes microwave energy, and liquid nitrogen spray cryotherapy — both of which kill off abnormal cells during outpatient endoscopic procedures. “In fact, Temple was the first institution in the world to use the latest liquid nitrogen cryotherapy system to treat Barrett’s esophagus,” Smith says. Following use of both techniques, normal esophageal cells replace the precancerous or tumor cells as the tissue regenerates.

Another outpatient endoscopic technique, endoscopic mucosal resection, is often used to remove larger lesions from the esophagus, including early tumors — sometimes used in



channel to speed emptying — or performs surgery to adjust the overly constricted muscle. Frequently, the condition improves with the installation of a gastric pacemaker that stimulates the stomach to empty.

One of the largest centers for gastric motility in the country, Temple’s gastric pacemaker program is among the busiest the nation.

“Patients are referred to us because we have access to investigational medicines that are not available at most hospitals,” Parkman says. One such drug is domperidone, which speeds up stomach emptying. Another, apretitant, is currently approved for chemotherapy-induced nausea. Parkman is determining its efficacy for nausea related to

combination with radiofrequency ablation or cryotherapy for patients with more advanced disease. “These less-invasive options have largely replaced surgical removal of the esophagus as the preferred method for dealing with precancers or early cancers,” Smith says.

gastroparesis. Another, metoclopramide, can be delivered by nasal spray to help with nausea, heartburn, and vomiting. “Since patients with gastroparesis have trouble digesting medications in pill form, a spray that absorbs through the nasal membranes might work better,” Parkman explains.

### NEXT STOP, STOMACH

Another ailment made more prevalent by overeating and obesity is gastroparesis, delayed emptying of the stomach. The condition, which causes nausea and vomiting, leads to what Henry Parkman, MD, Professor of Medicine and Director of Temple’s GI Motility Program, calls an ironic situation: overweight people who have trouble eating.

Parkman employs novel techniques to diagnose and treat gastroparesis. One diagnostic tool is called Endoflip™, a device that measures the stomach’s internal pressure, diameter, and distensibility. These factors help clinicians decide what treatment might be best. To treat gastroparesis, Parkman sometimes injects Botox to relax the band of muscles at the end of the pyloric

### LIVER & GALLBLADDER WOES

“Overeating and obesity have definitely increased the number of people with fatty liver disease,” says Abdullah Al-Osaimi, MD, FACP, FACG, AGAF, Temple’s Chief of Hepatology.

A common, often “silent” liver disease, nonalcoholic steatohepatitis (NASH) resembles alcoholic liver disease, yet occurs in people who drink little or no alcohol. The major feature in NASH is fat in the liver, along with inflammation and damage that can lead to cirrhosis, permanent damage and scarring that may result in the need for liver transplantation. Incidence of fatty liver disease has doubled in adults and tripled in children over the past 10 years. In 2013, *Nature* magazine predicted that it will be the next global epidemic.

“THE BODY WAS NOT MADE TO HANDLE LARGE QUANTITIES OF FOOD. MOREOVER, EATING TOO MUCH ‘HEALTHY’ FOOD IS JUST AS BAD AS TOO MUCH ‘JUNK.’”

“OPTIMAL PATIENT CARE. THIS IS WHAT IT’S ALL ABOUT,” SAYS HALUSZKA. “GIVING PATIENTS COMFORT, ANSWERS, OPTIONS, AND RESULTS.”

“We are seeing NASH in patients in their 20s, 30s, and 40s. The majority have diabetes, obesity, and hyperlipidemia,” Al-Osaimi says.

Since there are no drugs to treat fatty livers, patients are asked to lose weight and increase their exercise to prevent future damage. “A five- to ten-percent weight loss will make a dent, and maintain a healthier liver,” says Al-Osaimi, noting that patients benefit from Temple’s comprehensive, multidisciplinary approach, which connects them with weight-loss counselors and clinicians in hepatology, endocrinology, and bariatric surgery. “If caught early, liver fibrosis can sometimes regress,” he says.

“We’ve got to get the message out on fatty liver disease,” warns Al-Osaimi. “We must acknowledge the problem and move forward with weight loss, diabetes control, and cholesterol reduction before fatty liver turns into liver cirrhosis and/or liver cancer.”



Oleh Haluszka MD, Chief of the Digestive Disease Center

Haluszka says the gallbladder, part of the biliary tract, is a common target of trouble as well. Here, the primary disorder associated with overeating and excess weight is the development of gallstones, in part because cholesterol production is closely tied to body fat.

When a high concentration of cholesterol is secreted into the bile (the fluid stored in the gallbladder that aids digestion), “sludge” and gallstones can form. These conditions can lead to pain, infections, and even life-threatening attacks of pancreatitis. “It is important to note that rapid weight loss can alter concentrations of cholesterol as well — sometimes precipitating gallstone formation,” Haluszka says.

Gallstones and their complications have been the driving force behind many of today’s endoscopic advances. With tools such as endoscopic ultrasound and endoscopic retrograde cholangiography (ERCP), endoscopy combines diagnostic and therapeutic modalities that enable experts like Haluszka to access the biliary tree and pancreatic ducts.

“Temple’s success rate — even when treating patients with surgically altered anatomy — ranks among the highest in the nation,” Haluszka says.

Under the direction of Michael Edwards, MD, FACS, Temple’s Bariatric Surgery Program, has also had great results. “It’s not just about weight-loss surgery,” says Edwards. “It’s a full menu of services to help patients achieve better health.”

### THE BOWEL & BEYOND

Although inflammatory bowel disease (IBD) is not linked directly to obesity, recent studies suggest its possible link to overconsumption of processed foods — which make up most of the typical American diet.

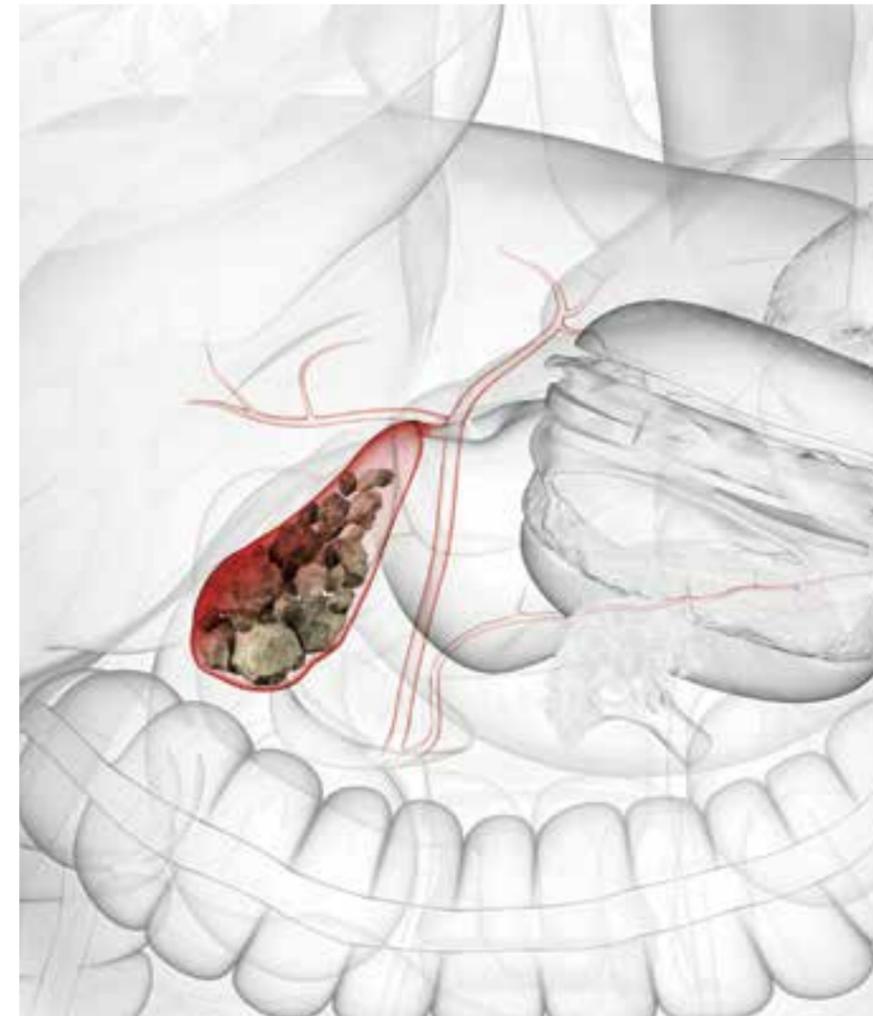
IBD includes two chronic inflammatory conditions: ulcerative colitis, which affects the colon, and Crohn’s disease, which can affect any portion of the intestinal tract.

Characterized by changes in the intestine, IBD brings on pain, diarrhea, and fatigue. The condition often strikes young people and it is difficult to treat.

“Our IBD patients get a multifaceted approach — surgeons, radiologists, and GI clinicians all ready to help,” says Robin D. Rothstein, MD, Medical Director of the Inflammatory Bowel Disease Program.

At present there is no medication that cures IBD, but Rothstein and colleagues are looking at new medicines and using new techniques to biopsy the intestinal lining to help detect precancerous change. This is important because people who have the disease for eight to ten years are at greater risk for developing cancer of the lining of the colon.

Temple also offers IBD patients complementary techniques like



biofeedback, stress management, diet therapy, and acupuncture — which make some patients feel more comfortable and help with symptom control. “The better able we are to control the disease, the better we can help people feel,” Rothstein says.

Increasingly, gastroenterologists can cure existing early-stage GI cancer using endoscopic mucosal resection and other tissue-ablation techniques, which often limit the need for radiation, surgery, or chemotherapy treatments. If, however, cancer has already progressed to a later stage, care of the highest order is provided by GI cancer experts at Temple and Fox Chase Cancer Center.

### THE BIG PICTURE

Advanced expertise and advanced technology go hand in hand. Temple works closely with industry partners to offer the most advanced endoscopic services in the region, and in 2014 added a multi-million-dollar therapeutic endoscopy room to its suite of procedure rooms, a cutting-edge facility that’s just one step short of an operating room. In addition, the team just opened another high-tech suite at Temple’s ambulatory patient care center in the Port Richmond section of Philadelphia.

People with digestive disorders need every advantage they can get. For some it’s next-generation devices. For others, clinical research trials offer hope for improved health. Multiple investigations of new drugs and devices are underway at Temple, some sponsored by government and others by industry. Research is central to the Digestive Disease Center mission. Teaching is, too.

“Developing new treatments and training new specialists are building blocks of superior patient care,” Haluszka says.

Temple is one of just 173 hospitals in the U.S. certified to educate GI specialists. The advanced, three-year training programs are called fellowships. Their rigorous, comprehensive curricula are designed to produce GI specialists who meet the highest standards.

“We limit enrollment to just 12 fellows at a time, which means we accept only four new candidates per year. We are highly selective,” says Paul J. Bandini, MD, fellowship program director.

The goal in fellowship training, Bandini explains, is to produce superior diagnosticians, technically accurate and expert clinicians, who are great with patients — and in command of new procedures and technology.

Under the direct supervision of full-time faculty, fellows assume increasingly larger roles in the initial workup, evaluation, and management of patients. They are involved in making therapeutic recommendations. They learn to perform routine and complex diagnostic and therapeutic procedures using state-of-the-art equipment.

Another aim is to ground fellows in scholarly research. It is essential that they are not only familiar with developments on the horizon, but personally contributing to them through their own research. “Our fellows have won many awards in regional and national research competitions,” Bandini says.

“At the end of the day, it all adds up to one thing: optimal patient care,” says Haluszka. “Giving patients comfort, answers, options — and results.”

To make an appointment with a GI specialist at Temple, call 1-800-TEMPLEMED.



# SAVING STEPS

ADVANCES TO END AMPUTATION  
BY KARA ROGERS • PHOTOGRAPHY BY CLINT BLOWERS

**M**ore than 100,000 foot and leg amputations are performed every year in the United States. Most of them should never happen.

“Almost every one of those limbs could be saved,” says Eric T. Choi, MD, Director of Temple’s Limb Salvage Center, the first program in the Philadelphia region dedicated to saving patients’ legs with new vascular-rescue techniques and comprehensive therapies.

Word is getting out that the Limb Salvage team can help patients that most other hospitals cannot.

“It was a miracle to find Dr. Choi,” says Helen Norris, wife of 81-year-old Patrick Norris, who underwent vascular surgery at the Center to save his leg. Mr. Norris had been experiencing extreme pain. A previous doctor attributed the condition to nerve pain and performed a surgery that produced a wound on Norris’s foot that wouldn’t heal.

“My problem was probably more vascular than neurological from the start,” says Norris, whose wound stayed open due to peripheral arterial disease (PAD), a condition that reduces the amount of blood that reaches the feet. “I was close to amputation. But Dr. Choi saved my foot.”

At Temple, amputation is performed as a last resort — only when a foot or leg becomes so infected that leaving it attached does more harm than good. Since founding the Limb Salvage Center in 2011, Choi and team have spared hundreds of patients like Norris from losing a leg or a foot. And, like Norris, most of the Center’s patients have PAD. According to Choi, Chief of Vascular and Endovascular Surgery at Temple, PAD is a highly underdiagnosed, undertreated condition. About 18 million Americans have it, yet at least half have not been diagnosed.

Another 3 million Americans suffer from advanced PAD (or critical limb ischemia), obstruction that significantly decreases blood flow to the feet and legs, leading to amputation if left untreated. Patients first describe a heavy feeling in their legs, with cramping and pain. They have trouble walking. PAD, critical limb ischemia, and other circulatory problems are common complications of diabetes. Diabetes can also reduce sensation in the feet and legs, making it more likely that a small sore or ulcer on a foot can go unnoticed. If that happens, it can quickly turn into a non-healing and/or infected wound, and gangrene (tissue death) can follow — a condition that once presaged amputation.

But thanks to a host of advanced vascular and wound interventions, combined with multiple levels of coordinated care, Choi and team are able to put a stop to the spiral of events that can lead to amputation for the vast majority of patients who seek help at the Center.

## NEW STEPS

In October 2014, Temple University Hospital became the first hospital in the Philadelphia region to use an innovative new device to re-open arteries in the thigh and knee in a patient with PAD. In fact, the device had been approved by the U.S. Food and Drug Administration just days before one of the Center’s experts, Riyaz Bashir, MD, Director of



Vascular and Endovascular Medicine, used it in a procedure to help save a patient’s leg.

The new device marks a major improvement in angioplasty, a technique that involves inflating a tiny balloon inside a narrowed vessel to open it up. With traditional angioplasty, however, scarring can develop in the area where the balloon was opened, causing the vessel to narrow again. The balloon in the new device Bashir used, however, is coated with a low dose of a drug that prevents the vessel from restenosing. “Technological advances have changed the landscape of limb salvage,” Bashir says.

Other devices used at the Center employ drugs or ingenious mechanisms to break up clots, or even remove them wholesale. There are also devices that enable physicians to access lower-limb vessels from the wrist or foot instead of using the groin artery as the point of access. Studies show that the new access points reduce complications and post-operative pain. Other techniques enable surgeons to remove the blockage from the body with lasers or devices that shave the blockage away. Blockages can also be broken up with ultrasound, or be suctioned out. Drug-eluting stents became available for PAD in 2013, and bio-absorbable stents will be available at Temple soon.

Four ultramodern catheterization labs — facilities equipped with technologies designed specifically for the visualization, diagnosis, and treatment of vascular disease — have been built

at Temple in the last two years. “With advanced imaging equipment, we can see blockages better — which means we can do a better job of fixing them,” Bashir says.

Certain cases are performed in Temple’s brand-new hybrid operating rooms, high-tech facilities that combine the imaging and diagnostic functions of a “cath” lab with the surgical functions of a traditional operating room. The blending of technology enables the team to treat multiple issues at the same time — an approach designed to limit extra procedures, shorten hospital stays, and reduce the chances of complications.

## BEYOND THE LIMB

**“S**urgical expertise and next-generation technologies are musts — but the *real* secret to saving a limb goes way beyond toes, feet, and legs. It’s about treating the whole person, about getting a handle on the disease that produced the limb-threatening crisis in the first place,” Choi says.

Therefore, patients at the Limb Salvage Center benefit from the coordinated care of a multidisciplinary team — specialists in foot health, cardiovascular health, diabetes, wound care, and many other fields. In all, nearly two dozen highly trained personnel contribute to the effort: podiatrists like Dr. Andrew Meyer; vascular surgeons like Drs. Ravi Dhanisetty and Paul van Bemmelen; and their colleagues in orthopedic surgery, plastic surgery, endocrinology, cardiology, and physical medicine and rehabilitation.

New patients undergo immediate evaluation, with testing and care centralized in one convenient, comfortable location. Onsite services include one of the largest accredited vascular

Sometimes investigational therapies are part of the picture. In neo-angiogenesis, for example, cells extracted from a patient’s own bone marrow are implanted in the ischemic leg to encourage new blood vessels to grow. These innovative options are especially important for patients who are not good candidates for traditional approaches.

When Shirley Griswold first traveled from Johnson City, NY, to see Dr. Choi, she was close to losing her right foot to amputation. Because the 72-year-old suffers from critical limb ischemia and heart failure, she was not an appropriate candidate for traditional vascular procedures. Therefore Choi performed her angioplasty under local anesthesia. “He opened a blood vessel in my foot and saved my toes,” Griswold says. “It was unbelievable what Dr. Choi did for me.”

## STEPPING UP

**W**hen Eric Choi was recruited to head vascular surgery at Temple in 2010, he was given a list of things to accomplish. Like all new chiefs, he also had goals of his own. Although the Limb Salvage Center was not part of anyone’s list initially, the idea took shape with speed and clarity. It was fueled by Choi’s growing sense of alarm at the large number of patients scheduled for amputation. Seeing so many young patients lose limbs was especially troubling.

Choi knew that limb-saving requires complicated, ongoing care that extends far beyond vascular surgery (patients with limb-threatening diseases often have diabetes, and heart and kidney problems, too). Nevertheless, he was passionate about moving ahead — and delighted to find a groundswell of

support among his colleagues. Today, more than a third of the patients who seek help at the Center come from distant states and cities. Norris drives an hour and half to visit the Limb Salvage Center. Griswold drives three. Choi hopes to see more patients come to Philadelphia — a journey worth every minute, every mile, when limb and life can be saved.

“While major amputations are still essential in certain life-threatening situations, the evidence is clear that most can be prevented,” Choi states. More than two million people in the United States have already had a limb amputated. More than half could lose their remaining leg — or die — within five years if vascular disease proceeds unchecked.

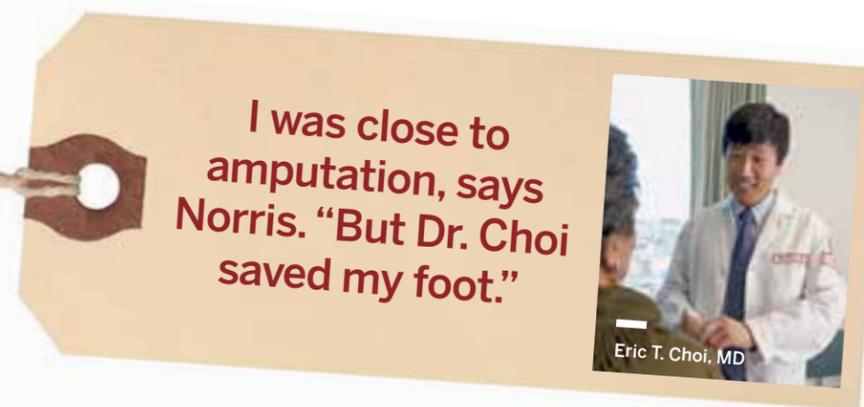
“Any patient with a limb-threatening disorder should be evaluated at a center like ours,” Choi says. “We have helped many patients who believed their limbs could not be saved.”

“Dr. Choi and his staff are phenomenal,” Griswold says. “He let me see a better side to life.”

“These professionals go above and beyond,” Norris adds. “The nurses, the doctors, the entire Limb Salvage team could not be better. We wouldn’t go anywhere else.”

Kara Rogers has written for the *International Journal of Cancer*.

To see a specialist at the Limb Salvage Center, call 1-800-TEMPLEMED.



ED COUNCELLI

laboratories in the Delaware Valley, a radiology suite, blood lab, and physical therapy studios. “We develop a prioritized treatment plan — usually by the end of the patient’s first or second appointment,” Choi says.

Choi says that restoring blood flow is always the priority, but that’s just the start. “We employ a comprehensive strategy that might include medical management, physical therapy, shoe-modification — whatever it takes,” he says.

Nutrition counseling and other forms of patient education are included, too. “Things like quitting smoking and eating a healthy diet can have dramatic impacts on preventing disability,” Bashir adds.

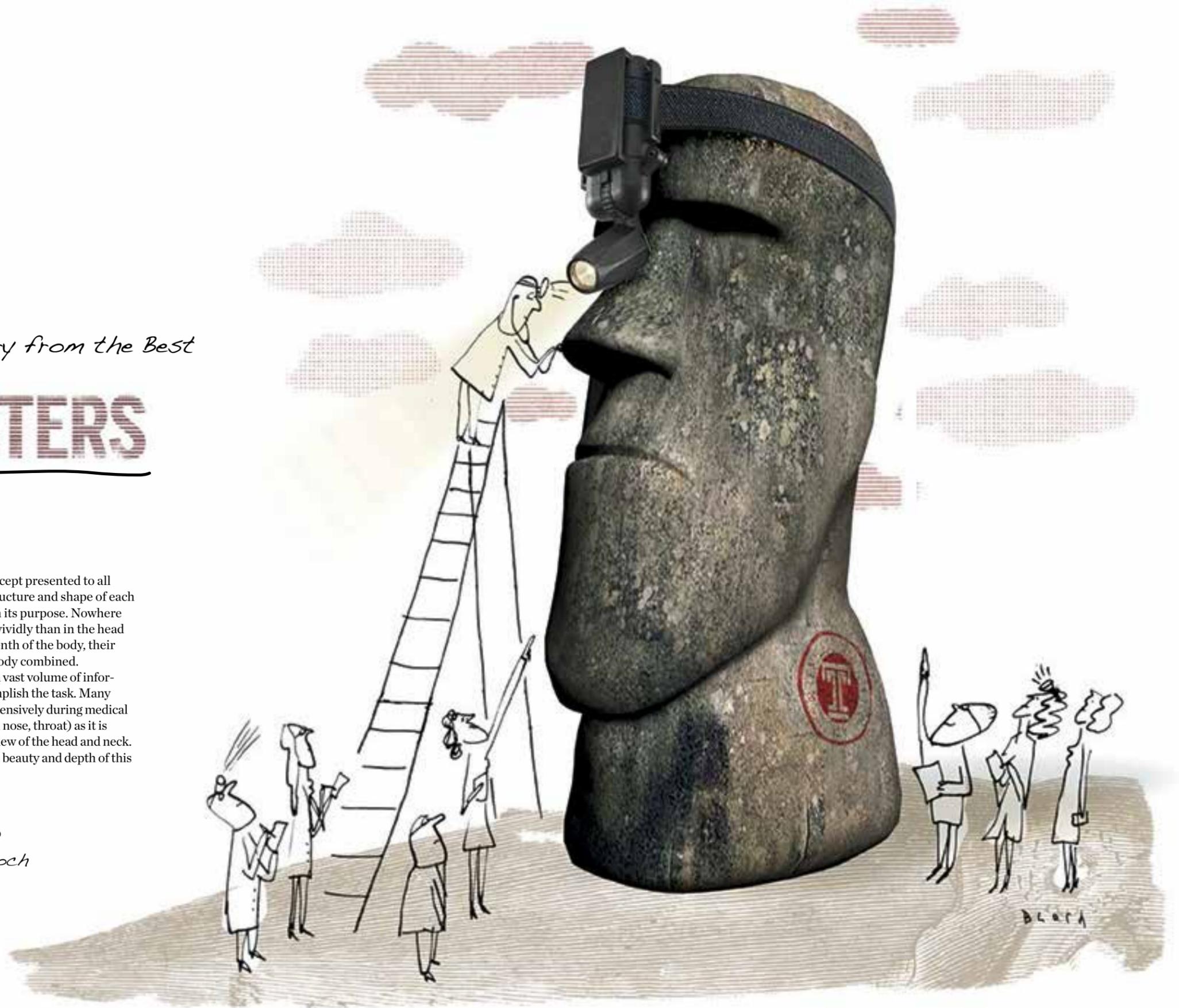
*Learning Head & Neck Surgery from the Best*

# HEADMASTERS

The notion that form follows function is a concept presented to all medical students. This is the idea that the structure and shape of each part of human anatomy is intimately tied with its purpose. Nowhere in the human body is this demonstrated more vividly than in the head and neck. Although they comprise a mere one-tenth of the body, their intricacy and complexity outstrip the rest of the body combined.

Herein lies a great tragedy of medical education: a vast volume of information to master, and only four short years to accomplish the task. Many aspects of medicine cannot be represented comprehensively during medical school. One of them is otolaryngology, or ENT (ears, nose, throat) as it is generally known. Medical students receive an overview of the head and neck. Thus it is left to motivated individuals to explore the beauty and depth of this region of the body on their own.

*By Steven Zuniga, MD  
Illustration by Serge Bloch*



Before discovering the true scope of an otolaryngologist's practice, I shared the common belief that ENT docs simply removed children's tonsils and prescribed Flonase® for stuffy noses. Learning their actual role was a revelatory and career-defining experience for me. Our specialty covers disorders as varied as dizziness, vocal cord nodules, swallowing disorders, and sleep apnea. We address cleft palate, hearing loss, thyroid abnormalities, facial trauma, cancer, and a wide range of other disorders, both common and rare.

The head and neck houses the organs responsible for our ability to experience the world. Enabling someone to hear after a life of deafness, taking away chronic dizzy spells, and curing debilitating cancer are just a few of the motivations that inspired me to select this specialty.

But the path to becoming an otolaryngologist is not an easy one. Each year, more than 700 medical students compete for fewer than 300 open residency positions. Many extremely qualified candidates simply don't get in. I consider myself extremely fortunate to have been accepted — and not only that, but accepted by one of my top-choice programs.

My wife and I both grew up in California, where "winter" means wearing a hoodie to the beach. Hence the prospect of heading east wasn't the easiest of discussions.

My argument for Temple was simple.

Temple's faculty boasts 20 full-time fellowship-trained faculty representing all of the otolaryngologic subspecialties. Fellowship training is the highest order of medical education, establishing expertise above and beyond what's learned in residency.

Having just graduated with a master's degree in child development, my wife soon became excited about moving to Philadelphia too, since the City offers many opportunities to work with pediatric populations. (And although she can't say it, I'm pretty sure Maya, our German Shepherd/Husky mix, doesn't mind the snow.)

I am now nearing completion of my first year at Temple. It's been ideal for me in all the ways I anticipated and more. Had I known, for example, during my application process that Temple was also about to launch a brand-new Head and Neck Institute, it *really* would have sold me. But before elaborating further, I would like to share one of our stories.

## RARE AND DEADLY

In the spring of 2014, after spending 14 months going to several different physicians only to see her condition worsen, a

31-year old patient named Dana Green finally found her way to Ahmed Soliman, MD, Director of Laryngology and Associate Department Chair. Ms. Green, an elementary school teacher and mother of two young boys, was desperate, struggling for air. The source of her trouble had eluded many doctors — but Dr. Soliman pegged it the moment he heard her breathe.

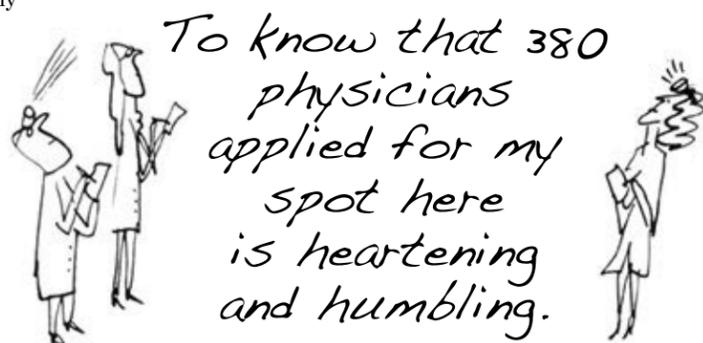
Ms. Green had idiopathic subglottic stenosis (ISS), a rare condition in which the airway becomes inflamed and progressively narrows, making it extremely difficult to breathe. It's a dangerous condition. A simple cold could push an undiagnosed, untreated ISS patient over the edge into respiratory arrest.

Five days after that initial visit, Dr. Soliman performed a minimally invasive endoscopic surgery to correct the problem. He used a laser to make four small cuts in Ms. Green's airway tissue to keep it from tearing, then gently inflated a small balloon inside her airway to open it again. Within days, she was back to working, playing with her sons again — all the normal things.

"I spent more than a year trying to figure this out — and after five minutes in Dr. Soliman's office, I was diagnosed and scheduled for surgery," said Ms. Green.

I, too, was in awe of Dr. Soliman's deft diagnosis. ISS is rare. Only a few dozen cases are diagnosed in the U.S. every year.

As Ms. Green's story proves, it takes rare expertise to diagnose rare conditions — which is precisely why I wanted to train here. To know that 380 physicians applied for my spot here at Temple is both heartening and humbling. There's so much to learn in this complicated field.



## TRUE HEADMASTERS

If you say, "I'm a Triological Society fellow" in a room full of ENT docs, heads will turn. With only about 400 members in the entire United States, gaining entry to this elite medical association is the pinnacle accomplishment in the field.

While the majority of medical centers in this country don't have *any* members, at Temple, I like to remind my wife, we have *three*: Dr. Soliman; Dr. Glenn Isaacson, Director of Pediatric Otolaryngology; and our Department Chair, John Krouse, MD, PhD, MBA.

"Do you know how amazing this is?" I ask her. "What's more," I say, "the Editor-in-Chief of the most important ENT journal, *Otolaryngology — Head and Neck Surgery*, is Dr. Krouse. My teachers are the gurus, the headmasters, of head and neck medicine and surgery," I say. She groans.

With 20 full-time faculty covering every aspect of head and neck medicine, Temple's ENT program has seen tremendous growth since 2009, when Dr. Krouse was recruited as Department Chair. He has expanded the outpatient program to four clinical sites in the Philadelphia region, including a brand-new 4,200 square foot specialty center at Jeanes



Steven Zuniga, MD

Hospital, to help our growing and much-in-demand group keep pace with more than 20,000 patient visits per year.

But the *really* exciting news is that we have taken a major step forward with the establishment of the Temple Head and Neck Institute, integrating both outpatient and hospital care at Temple University Hospital, Jeanes Hospital, and Fox Chase Cancer Center. Head and Neck Institutes are rare. There are only a handful in the country, so it's a pretty big deal.

Institutes use a team approach to provide comprehensive, coordinated care. They bring together all the professionals that any patient might require — even specialists outside the traditional "borders" of ENT, such as audiologists, endocrine surgeons, and speech and language pathologists. Collective expertise is great for patients with unusual or misdiagnosed conditions, like Ms. Green. But you don't have to have a rare condition to benefit from the Institute approach. Whenever multiple physicians and caregivers collaborate, patient outcomes are better.

Interestingly, the team approach can motivate patients to more fully engage in their *own* care. Imagine, for instance, the difference between a doctor telling you to see an audiologist, and actually having that audiologist participate in your appointment in the first place. In addition to bringing healthcare *to* patients, Institutes also coordinate care *for* them, from the first appointment through testing, procedures, and follow-up. Patients appreciate the consistent, reliable human point of contact.

Watching the Institute come to fruition has been a great experience for all the residents here. We look forward to seeing it grow over time. Dr. Krouse plans to augment it with additional initiatives, such as a specialty service for teachers, actors, singers, and other voice professionals, and a comprehensive center for hearing and balance disorders.

One final aspect of ENT training completes the package here: exposure to research. Several of our faculty are funded investigators. For example, Jeffrey Liu, MD, FACS, one of our four fellowship-trained head and neck cancer surgeons, is working on a \$1.7 million American Cancer Society grant to investigate why a disproportionate number of African Americans are affected by head and neck squamous cell cancers.

In a National Cancer Institute-funded project, Oneida Arosarena, MD, a facial plastic and reconstructive surgeon, is mapping out the process by which head and neck cancer invades bone. Fascinatingly, it's different from bone metastasis in other parts of the body — a big reason why the mortality rate for head and neck cancer basically has not improved in 50 years. A Temple University School of Medicine alumnus, a well-known ENT physician named Dr. Eugene Myers, contributed to the funding of her research. Dr. Myers is Emeritus Chair of the Department of Otolaryngology-Head and Neck Surgery at the University of Pittsburgh Medical Center.

Temple alumni tend to stay connected with the program after they graduate. Several came back for a reunion last year. Farrel Buchinsky, MD, a pediatric otolaryngologist in Pittsburgh, a 1999 graduate of my program, was among them.

"An education at Temple stays with you forever," said Farrel. "Dr. Glenn Isaacson was my mentor here, and I still hear his voice in my head when I'm performing certain procedures."

A sentiment like this is music to a resident's ears. I feel very fortunate to be learning from *true* headmasters. 📖

To make an appointment at the Temple Head and Neck Institute, call 844-570-1767.

## HAIL TO THEE, JACKSON



In the early 20th century, America's leading center for esophageal and upper airway disorders was The Jackson Clinic at Temple — headed by Chevalier Jackson, MD (1865-1958). Innovator and inventor, Jackson created "the first tube laryngoscope with its own light," a bronchoscope that could be passed through the larynx to visualize the bronchi. Patients from all over the world traveled to Temple to have foreign bodies removed from their throats and airways. In fact, more than 2,000 objects Jackson extracted are displayed at the Mutter Museum in Philadelphia. Jackson is also credited with leading the crusade behind the Federal Caustic Poison Act of 1927, mandating that poisonous and corrosive substances be labeled. Jackson's son, Chevalier Lawrence Jackson (1900-1961) succeeded his father as chair of the department at Temple University.

# HOME DELIVERY

Personalizing Care in the Community

By GISELLE ZAYON

Photography by DUSTIN FENSTERMACHER

**T**iffanie Mebane has had four heart attacks — and she's only 33. In 2008, cardiologists implanted a defibrillator in her chest to jumpstart her heart, just in case. "It's already saved my life at least once," she says. With congestive heart failure, Mebane must minimize stress, take 22 different medications daily, and see several different physicians monthly to keep flare-ups at bay. During the past nine years, she's been hospitalized 33 times.

Mebane is in a difficult situation, and she's not alone. Across the nation, especially in socioeconomically challenged regions, people suffer from chronic health conditions that, when not well controlled, prompt frequent emergency trips to the hospital. Treating them in this intensive, episodic manner consumes a huge chunk of healthcare spending in the United States. In fact, according to the Agency for Healthcare Research and Quality, 50 times more money is spent on every chronically sick person than every healthy one.

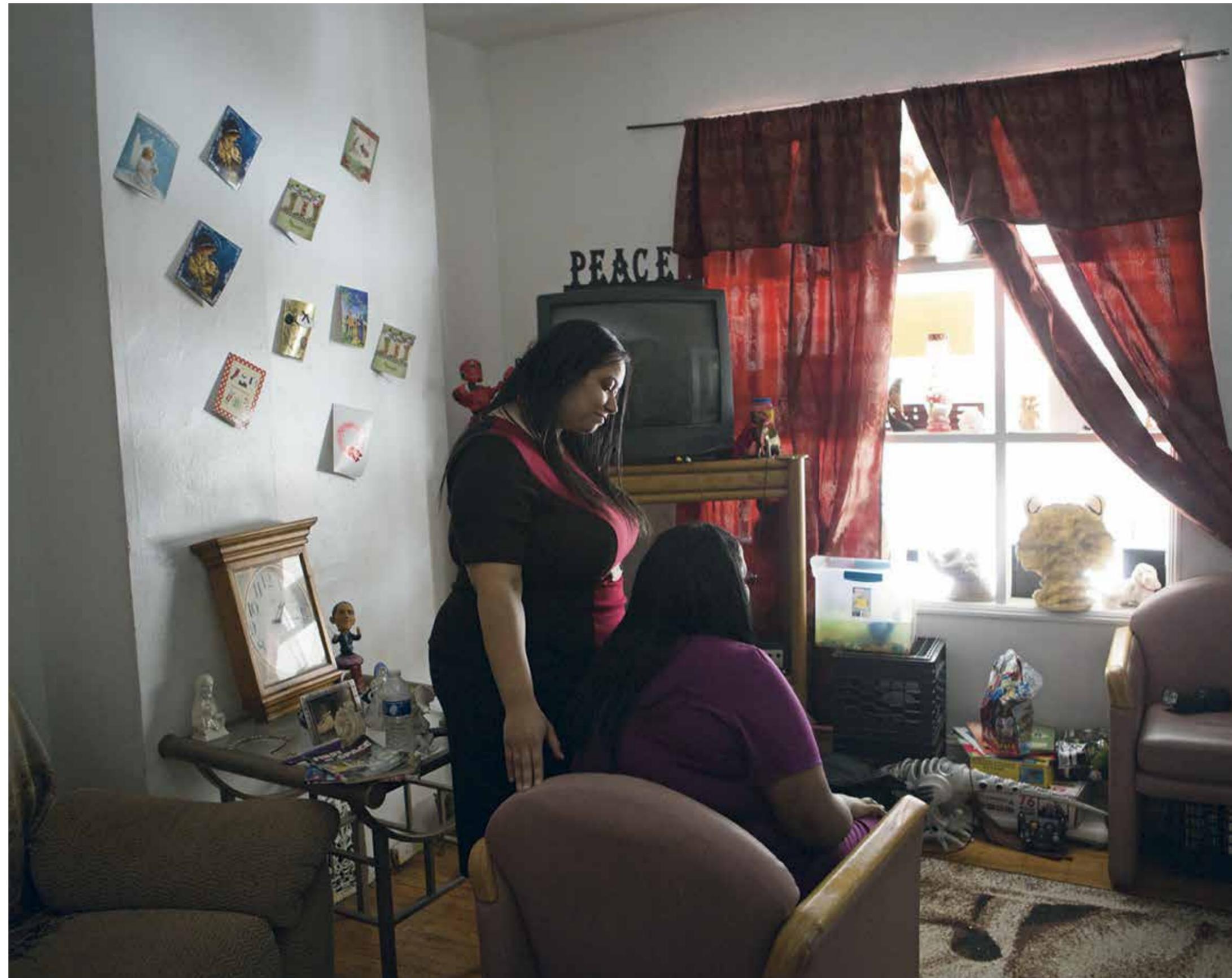
"This pattern cannot be sustained — and has made healthcare delivery and finance reform a national priority," says Susan Freeman, MD, MS, Chief Medical Officer, Temple University Health System, and President and CEO of the Temple Center for Population Health. "We need to shift the focus from a reactive, crisis-oriented approach to a pro-active, ongoing, coordinated, and preventive one. It's the right thing to do for patients. And enables the cost-containment principles inherent in high-value care."

To this end, healthcare insurers, both commercial and government-run, are ramping up incentives for hospitals, physicians, and care providers to work together to deliver high-quality, preventive-oriented care at a lower cost.

"This enhances our ability to stratify patients into low-, medium-, and high-risk populations," Freeman says.

Programs for high-risk patients have top-shelf importance in the health reform tool chest. These programs target patients like Mebane, patients who have histories of frequent, expensive emergency hospitalizations — and provide them with medical and social supports to help minimize exacerbations of their chronic conditions.

Tiffanie Mebane (seated) says the bond she shares with her community health worker, Desiray Savage, does her heart good.



Steven R. Carson, RN, BSN, MHA, Chief of Operations for the Temple Center for Population Health, says that proactive outreach makes population-health programs effective. “We go beyond hospital walls to engage patients. We work with patients, physicians, and community resources to support each patient’s plan of care,” says Carson, who is also VP for Clinical Integration at Temple University Hospital.

Value is what we’re really talking about here. Getting better health outcomes, better value to the patient, for the dollars spent.

## BREAKING BARRIERS

Every week, Mebane opens her door to a community health worker named Desiray Savage, one of eight employed by Temple’s Community Health Worker program to visit chronically ill patients at home. The program’s aim is to keep patients on track with their physicians’ instructions, staying a step ahead of disease.

In between visits, Savage checks on Mebane by phone. At any given time, about 150 patients ranging in age from their 20s to their 90s, are in the program’s care. Some patients, like Mebane, are also visited by a registered nurse.

“Desiray and I hit it off right away,” says Mebane, smiling.

Savage asks Mebane a lot of questions: Do you need refills on any of your medicines? Have you taken all the right doses? When is your next appointment with your primary care doctor and your cardiologist? Is it time to get groceries?

Because the things that influence health go beyond medical care, community health workers address child care, social services, food, and housing difficulties. For example, Savage arranged door-to-door transportation for Mebane’s doctors’ appointments — a service covered by insurance. “I had no idea I could even get that,” says Mebane.

Mebane has missed a lot of appointments over the years simply because she could not get to them. She has no car, and with such a weak heart can barely walk to the nearest bus stop.

“Health can absolutely be swayed by things this ‘simple.’ Identifying and mitigating barriers to wellness: that’s what we’re all about,” says Jeffrey Slocum, RN, MSN, the Community Health Worker program’s director.

Imagine trying to maintain good health if your home lacks a working kitchen, heat, or plumbing. In the most recent census, 24% of all households in Philadelphia reported such conditions. In Philadelphia, 26% percent of residents live at or below the federal poverty line; 23% smoke and 17% drink heavily; and the unemployment rate is above average.

In fact, Philadelphia County ranked last, 67 out of 67, in a recent ranking of health status across all Pennsylvania counties. “This creates an opportunity for improvement that is being addressed by Temple,” Freeman says.

In the United States, there are about 90 community health worker programs like Temple’s — all designed to minimize preventable readmissions among chronically ill patients, thereby decreasing the use of expensive resources like hospital emergency rooms.

“According to Medicare data, in 2011, before we launched our Community Health Worker Program, Temple University Hospital’s 30-day readmission rate was 25.2%,” says Slocum. “Now it’s 16.2% for patients in the program — and the rate at which these patients follow up with their physicians has also improved.”



Population health programs feel right at home. Above and lower right, Juan Franco and patient Leonard Terry. Upper right: Desiray Savage (left) with patient Tiffanie Mebane.

Another population health program underway at Temple and other hospitals demonstrates a 58% reduction in 30-day hospital readmission rates nationally. It’s called the Grand Aide® program.

“The Grand Aide® model was originally developed at the University of Virginia. Dozens of Grand-Aide® programs are operating across the nation, but Temple’s is the first to be implemented in an urban setting for an at-risk population,” says the program’s principal investigator, Kathleen Reeves, MD, Director of Temple’s Center for Bioethics, Urban Health and Policy.

Grand Aide® programs certify specially trained workers like Juan Franco to visit patients at home to teach and reinforce the self-care behaviors recommended by their physicians.

Leonard Terry, a 78-year-old retired Philadelphia dock-worker, recently participated in the program. He, too, has congestive heart failure. With more than 30% percent of the population affected, heart disease takes a big toll in North Philadelphia. For Terry, it’s triggered numerous trips to the emergency department over the years.

During every Grand Aide® home visit, Franco checked Terry’s weight, heart rate, blood pressure — even monitoring Terry’s ankles and feet for edema. Franco then transmitted the data to Temple on a secure wireless network, to be reviewed by a

registered nurse at Temple, who would then use FaceTime to video-chat with Terry on Franco’s large tablet. Being able to see one another, to ask and answer questions, Reeves explains, helps alert the nurse to issues that might require physician intervention or treatment protocol change. In this way, Grand Aide® programs extend professional nursing care at lower cost.

## MANAGING DISEASES AT HOME

The Grand Aide® and Community Health Worker programs are proving successful for many patients with chronic disease. Both Terry and Mebane remain in relatively stable condition, with no recurrences of illness prompting rehospitalization to date. Both are quick to credit Temple for making a real difference in their health.

Franco and Savage are proud of the rigorous training they undertook for their roles — Franco in the Grand Aide® program’s special curriculum, and Savage at Temple’s Center for Social Policy and Community Development. With 104 graduates to date and the only state-certified training program in the tri-state area, Temple University is the regional leader in community health worker education. Savage’s natural compassion suits her well for the role. And like most of the program’s graduates, she is a Philadelphian, born and bred. She understands her patients, relates well to them, and they to her. “I am not an authority figure, giving orders or imposing judgment,” she says.

For their part, while Grand-Aides® need not be grandparents, they exhibit the kind of attitudes and behaviors a good grandparent would. Their wisdom, experience, and confidence inspire



trust. Franco hopes to go to medical school someday — perhaps at Temple, where he completed an undergraduate degree and is now partway through a master’s in urban bioethics. “He would make an excellent doctor,” Terry says.

Temple has helped millions of vulnerable patients. And now, with population health programs, its commitment and effectiveness are increased. “Temple has always been there for me,” says Tiffanie Mebane, patting the cushion of her sofa. “And now it’s here for me, too. Right here in my home.”

For more information about the Center for Population Health, contact Dr. Susan Freeman at 215-707-0766 or Steven R. Carson at 215-707-2771. To learn more about the Center for Bioethics, Urban Health and Policy, visit [www.temple.edu/centers/cbuhp](http://www.temple.edu/centers/cbuhp).

# Epigenetic Therapy

A Sea Change for Cancer?



By KARA ROGERS  
Photography by CLINT BLOWERS



**I** need two years,” a patient we’ll call Mrs. G recalls telling Patricia L. Kropf, MD, a specialist in hematologic malignancies at Fox Chase Cancer Center.

“Okay,” said Kropf. “I’ll give you two years.” “I didn’t take it as gospel,” Mrs. G recalls. “But since the prognosis for my disease is usually meted out in months, the doctor’s words flung hope and light into the air.”

Mrs. G is participating in a Phase 2 clinical trial at Fox Chase that is designed to test the effectiveness of a drug called SGI-110. In June 2014, she had been diagnosed with acute myelogenous leukemia (AML), a cancer that can steal life away quickly. At age 80, she is especially vulnerable to that rapid advance. Conventional therapies often are too toxic for older patients. But SGI-110 is breaking with convention.

As one of the scientists and clinicians overseeing the SGI-110 trial, Kropf has been keeping tabs on the drug’s effects for Mrs. G and other trial participants. It is too soon for conclusions, but she is hopeful that SGI-110 will prolong and improve patients’ quality of life. “Early results are promising,” says Kropf, who is also assistant Director of the Temple Fox Chase Bone Marrow Transplant Program.

In the world of drug development, SGI-110 is riding a wave of revolutionary change in the way scientists think about cancer and cancer therapeutics. That shift, which has been taking shape for nearly two decades, pertains to the study of chemical modifications to DNA and DNA-associated proteins that dictate gene activity. The field is called epigenetics. And one of the experts at its leading edge is Jean-Pierre Issa, MD, American Cancer Society Professor of Medicine and Director of the Fels Institute for Cancer Research at Temple. As the principal investigator on the SGI-110 trial, Issa has been working to characterize the drug’s clinical activity in collaboration with Astex Pharmaceuticals.

“Epi” means “upon or attached to.” Epigenetics, therefore, focuses on the internal environment surrounding genes, the chemicals that attach to DNA, turning various gene activities on or off. Changes in that environment can activate or inactivate disease processes that are kick-started by genes. Cancer, for example, is not triggered solely by mutations in DNA. The way DNA is affected by its epigenome is just as important. “The epigenome is what tells DNA to turn an undifferentiated cell into a skin, hair, blood, or kidney cell,” Issa explains. “The epigenome is what tells DNA to start or to stop uncontrolled cell replication — a hallmark of cancer.” Epigenetic changes probably trigger many other diseases, too, he adds.

A process called methylation can incite profound changes in gene expression. Methylation entails the attachment of methyl groups — major components of the epigenome — to stretches of DNA that control gene expression. The function of methylation is to silence gene activity. We all have genes that control cell growth, even genes that instruct cells to die. Those jobs need to be carried out faithfully — otherwise cell growth proceeds unchecked. If errors in methylation prevent genes from keeping that process under control, cell growth can turn into cancer.

Issa’s research is paramount to making a difference, epigenetically. In AML patients, in a first-in-human Phase 1 trial, the epigenetic drug SGI-110 sent AML into remission in some patients. It did the same for some patients with bone marrow cancers known as myelodysplastic syndromes (MDS).



“The epigenome is what tells DNA to turn an undifferentiated cell into a skin, hair, blood, or kidney cell,” Issa explains. “The epigenome is what tells DNA to start or to stop uncontrolled cell replication — a hallmark of cancer.”

“Patients showed striking responses,” Issa says of that recently completed study. He is cautiously optimistic that the study that Mrs. G is in, the Phase 2 trial underway at Fox Chase (part of a national multicenter study), will yield similar results.

### Targeting the Epigenetic Code

**I**t is hard *not* to be excited about SGI-110. It is a new frontier in cancer therapy. The goal, Issa explains, is not to wage war against cancer cells, killing them with toxic doses of chemotherapy, but rather to reprogram those cells to make them behave like normal cells — this time utilizing low doses of a very different kind of drug.

In technical terms, SGI-110 is known as a second-generation epigenetic inhibitor. It blocks an enzyme called DNA methyltransferase (DNMT), which attaches methyl groups to DNA. DNMT is constantly at work in cells that are actively dividing. Methyl groups are not permanent fixtures on DNA. In actively dividing cells, they are stripped off the DNA as it replicates, so each time after a cell divides, DNMT has to go in and reattach the methyl groups to genes in the daughter cells. If they are not reset, the genes that are active in the daughter cells will change, which in turn changes the cells’ function — in effect making them a different cell type.

“Ultimately, that is what happens in cancer. DNA methylation patterns are altered (often in conjunction with genetic mutations). Certain genes end up with too many or too few methyl groups, causing otherwise normal cells to behave like cancer cells,” Issa explains. Genes commonly affected by aberrant methylation include tumor-suppressor genes, which, when

silenced, are no longer able to do their job of preventing cancer. But when SGI-110 takes DNMT out of the picture, tumor-suppressor genes that were rendered out-of-service by misplaced methyl groups become active again.

### The Cancer–Epigenetics Crossroads

**T**he idea for a drug like SGI-110 was virtually nonexistent only two decades ago. But then scientists realized that abnormalities in DNA methylation are ubiquitous in cancer.

Issa was behind much of the research that led science to that realization and, in fact, has spent much of his career at the crossroads of cancer and epigenetics. In the early 1990s, he and Stephen Baylin, MD, now Deputy Director of the Johns Hopkins Sidney Kimmel Comprehensive Cancer Center, uncovered some of the first associations between cancer and changes in DNA methylation and DNMT activity. “By 1997 it had become clear that epigenetic abnormalities were a cause of cancer,” Issa said. “So, we asked: can we intervene therapeutically?”

That question led Issa to decitabine, a compound that was shelved in the 1960s. Decitabine is an analog of the chemotherapeutic agent cytarabine, but produces unusual effects, such as an ability to slow tumor growth at concentrations well below those required by other chemotherapeutic drugs. In the early 1980s, the drug was found to inhibit DNA methylation.

Issa and colleagues found that decitabine was effective, particularly in hematologic malignancies. He worked to get the drug into clinical trials for myelodysplastic syndromes (MDS), and in Phase 1 studies he discovered its dual effects. At high doses, decitabine kills cells. At low doses, it allows cells to survive but slows tumor growth. Decitabine was so successful that it not only received approval from the FDA, but became the standard of care in MDS. It also helped spark a big change in the way researchers think about cancer therapy.



ED CUNIGELLI

Jean-Pierre Issa, MD, and Patricia Kropf, MD

“There is a paradox in oncology, that drugs need to be given to patients until toxicity develops,” Issa says. “But with DNA methylation inhibitors, more is worse.” That realization has come to bear on SGI-110.

“SGI-110 is at the forefront of epigenetic drug discovery,” says Magid Abou-Gharbia, PhD, FRSC, Director of Temple’s Moulder Center for Drug Discovery Research, who is collaborating with Issa to develop other drugs like SGI-110. He believes that there are other therapeutically useful epigenetic inhibitors are out there. To find them, the team is testing a screening library with more than 40,000 compounds. “We used an assay developed in Issa’s lab to identify compounds that induce tumor suppressor reactivation,” Abou-Gharbia explains — noting with excitement that several compounds have already shown promise in preclinical studies.

### Fulfilling Dreams

**I**ssa and Kropf are part of the Epigenetics Dream Team, an international group of top epigenetics researchers brought together by funding from the organization Stand Up To Cancer to help bring epigenetic drugs center stage. The Dream Team has facilitated their collaboration with other leaders in cancer epigenetics research. Of course, FDA approval of SGI-110 would mark a major step toward achieving the team’s goal. Issa says that if the current Phase 2 study fulfills expectations, a Phase 3 trial to proceed toward the drug’s approval for AML or MDS could come relatively soon. Eventually, it could also be approved for use in combination therapies with conventional drugs and possibly even for solid tumors. And now a new grant makes the Dream Team’s possibilities all the more exciting — a commitment of \$7.5 million from the Van Andel Research Institute to underwrite more extensive research.

“Although we cannot change our DNA, we may be able to turn on the activities of the genes that promote better health and turn off the ones that trigger disease,” Issa says.

For Mrs. G, despite the struggle of her disease, the trial at Fox Chase has been an uplifting experience. A few months into her therapy she had an opportunity to fulfill her own dream, traveling far away to visit her brother. “Looking out at the ocean, being with my brother — it was the happiest I’ve been,” she says. “I couldn’t be more impressed with Fox Chase, to say nothing of the results,” she says.

Another patient in the trial, Nora George, diagnosed with AML in 2012, said SGI-110 helped put her cancer into remission. In an interview with CBS television in Philadelphia, George said, “It absolutely saved my life. Never stop fighting. Stand up to cancer and say, ‘Hey, you’re not going to beat me. I’m going to beat you.’”

Kara Rogers is a science writer based in Madison, WI.

For more information about clinical trials for cancer, visit [www.fccc.edu/cancer/clinicaltrials](http://www.fccc.edu/cancer/clinicaltrials).

## Scott P. Charles TRAUMA OUTREACH COORDINATOR

Q  
&  
A

More than 4,000 gunshot victims have been treated in Temple University Hospital's trauma center since you started your job in 2006. You've seen so much. Does *anything* shock you?

Every time a gunshot victim is brought to the trauma center, I'm notified. Every page is still a jolt to me. But what *shocks* me is apathy. In Philadelphia we barely bat an eye when "only" 1,128 citizens are shot in a year, when "only" 247 of them die. Apathy is the *real* killer.

**Q:** When trauma surgeons are able to save a patient who is near death, they call it a "good save."

**A:** The ultimate "good save" is when the patient leaves the hospital less likely to be shot again or to shoot someone else. If not, we aren't giving a second chance at life, we're giving a second chance at death. Amy Goldberg, Temple's chief trauma surgeon, brought me here to try to make the good saves even better.

**Q:** You and Dr. Goldberg created *Cradle to Grave*, the violence-prevention program that's illustrated the medical realities of gun violence to more 10,000 teenagers.

**A:** In this program, I take the teens into a trauma bay at the hospital. We surround a gurney, harsh lights blaring overhead. I then "introduce" them to Lamont Adams, a 16-year-old raised by his grandmother just a couple miles from Temple. One September evening during his junior year in high school, a 17-year-old jumped out of a car and shot Lamont more than a dozen times. The motive was

unclear. I tell the group that we are standing in the very kind of room where Lamont had been. I ask one of the participants to lie on the gurney. I place red stickers all over his clothing to show all the places Lamont was shot: arms, hands, chest, thighs, back, and legs. I describe how feverishly the doctors worked — but within 15 minutes, Lamont was dead. The kids stare at the boy covered in red stickers. We then go to a classroom. I show photos depicting gunshot injuries and the methods used to treat them.

Throughout, I ask kids to reflect: Who wanted you to attend this program? What do you mean to them? Are you willing to spare their suffering? I take them to the morgue where Lamont's body had been. Ultimately, they listen to a recording of Lamont's grandmother talking about the child she raised, the man she will never know. I want the young people to see themselves, to see the truth. Are they worried about paralysis, losing a kidney,

a limb? Hell no. Can you think of a movie or hip-hop song about the long-term consequences of being shot? Dying, I tell them, that's easy. You only have to die once, but the people you leave behind will die a little bit every day for the rest of their lives.

**Q:** You had a challenging childhood. Did you ever imagine your work would be on *The Today Show* or that you would receive a Robert Wood Johnson Foundation Community Health Leader Award?

**A:** When I was nine, my father died. A year later, my sister shot herself to death. Several years later, my oldest brother died of AIDS, and another brother of a drug overdose. My remaining brother, as was once the case for me, is working to overcome a drug addiction. My mom fought hard for me, but I was gone. I was in my early 20s when an aunt and uncle helped me turn it around. I'm here today because they offered me unconditional love and tangible opportunities. This is the work I need to do.

**Q:** You also counsel gunshot patients in the hospital.

**A:** No one wants to be seen as a victim or take a hit to his reputation. So they harden themselves, determined not to be a victim again. I do my best to speak with every gun victim — to help them imagine possibilities other than retaliation.

In 2012, we developed Turning Point, an intervention that attempts to formalize the kind of unconditional love and opportunities that helped save me. We connect victims of gun violence with resources like psychiatry, education, employment, and housing that can change their circumstances. I've given my cell number to hundreds of gunshot victims. I want them to feel that they have a lifeline.



Scott P. Charles

# Liquid Air

In the 1989 James Cameron film *The Abyss*, Ed Harris plays a scuba diver who breathes a space-age liquid that permits him to plumb astounding depths without worrying about compression sickness. Cameron said the concept was inspired by a science lecture he had seen in which an animal breathed a liquid. Ed Harris did not really breathe liquid in the film, but it absolutely is possible. This synthetic liquid is called perfluorocarbon (PFC). It belongs to the Teflon® family and has a range of unique properties.

One of the world's leading experts on PFC is Marla R. Wolfson, PhD. The pulmonary physiologist has been studying the biomedical applications of PFC at Temple for 30 years.

"PFC is a core technology with a variety of uses: respiratory care, brain injury treatment, diagnostic imaging, drug administration, and other applications," says Wolfson, who holds professorships at the School of Medicine in physiology, pediatrics, and medicine.

Neonate lung support is the focus of Wolfson's longest-running PFC research. With their delicate, underdeveloped lungs, preterm infants aren't ready to breathe. In fact, 85% of infants with birth weights of 3.3 pounds or below develop chronic lung disease. "They are an underserved population," says Wolfson, determined to break the cycle of iatrogenic lung disease.

Iatrogenic disease is disease caused by medical intervention. While mechanical ventilation helps neonates breathe, it can also harm their fragile lungs. The pressure of forced air causes trauma to tissue. Even the oxygen itself can be perceived as "toxic" by the

underdeveloped lungs, triggering an inflammatory response. Often, infants develop bronchopulmonary dysplasia, a condition in which the lungs fail to mature normally, compromising overall health. "PFC can break the cycle," Wolfson says.

Odorless, colorless, and chemically inert, PFC is twice as dense as water, but can hold three times more oxygen than air. Therefore, it enables the exchange of oxygen and CO<sub>2</sub> at much lower pressure than ventilator-supplied air. What's more, PFC bathes every nook and cranny of the lung, opening up more alveoli for more efficient gas exchange. In addition, PFC directly reduces pulmonary inflammation, and provides a novel route for the administration of drugs.

And it isn't just for kids. Over the years, Wolfson has received more than \$25 million in grants from industry, the National Institutes of Health, and the Office of Naval Research to study PFC.

Her recent studies aim to benefit military personnel who sustain blast-related injuries of the brain and lung. To help reduce injury to the brain following a

blast, Wolfson developed a novel technique to administer aerosolized PFC through the nose, cooling the brain.

Such cooling is neuroprotective. It helps to reduce swelling, which is particularly dangerous for the skull-encased brain. She has also tested PFC's ability to protect lungs from the effects of high altitude — a common problem for soldiers swiftly deployed to high-altitude areas, where the atmosphere's oxygen content is low and the body has not had time to acclimate. Again, Wolfson found that PFC delivered by aerosol spray promotes more efficient distribution of low-level oxygen in the lung, improving ventilation. What's more, drugs can be added to the formulation to reduce the blood-vessel narrowing and fluid buildup associated with high-altitude stress.

"We need better approaches for troops injured in combat. This technology is easy to use in the field. The ability to treat a problem immediately can make all the difference," says Wolfson. With 1.4 million Americans sustaining brain injury every year from strokes, accidents, and cardiac arrest, which interrupts blood flow to the brain, the technology has great potential to aid civilians, too.

Wolfson's contributions to science are substantial. She has 14 patents to her credit, including several related to lung support with alternative respiratory media. Nevertheless, she won't rest until the Food and Drug Administration approves PFC for neonatal respiration.

In small-scale clinical trials, PFC has shown immediate, positive impact on infant health, which is critical for the prevention of long-term negative consequences on child development. "That's why I'm still at it," Wolfson says. "I'm in it for the long run."



Marla R. Wolfson, PhD

# SEWING LESSON

## Sutures & Needles

**R**eady to close that surgical incision or create vascular hookups for that transplanted organ? There are many types of suture material and needles out there. You want the best.

“The best depends on many factors,” says James Bradley, MD, Chief of Plastic & Reconstructive Surgery at Temple University Hospital. “The composition of the tissue in question, the health of the patient, the goals of the surgery — many factors. There’s no single best.”

Bradley has his own favorites. Antonio Di Carlo, MD, Chief of Abdominal Organ Transplant Surgery, has go-to’s of his own. A completely different set. The two surgeons do very different kinds of surgery.

Yet regardless of choice of material, suturing has one goal: to serve a place-holding step in the body’s healing process. “The goal is to keep tissues in proximity until they adhere on their own,” Di Carlo explains. The goals of suturing (known as Halsted’s principles) are to obliterate space between tissues, achieve proper alignment of the planes to be joined, distribute tension evenly along suture lines, minimize trauma to the tissue and maintain blood flow, and minimize risk of infection and scarring.

### SELECTING SUTURE

“Several factors influence suture choice,” notes Di Carlo. The first choice is between absorbable and non-absorbable suture. Absorbable suture, which gradually disappears, is used for tissues that heal rapidly, like mucosa. Non-absorbable suture is for tissues that heal slowly, like blood vessels. It will remain permanent unless removed. Both types are made in many different sizes — some much thinner than human hair, some surprisingly thick. Surgeons generally choose the thinnest suture that will hold in a “tension-free” manner.

The next choice is format. Suture comes in three basic types: monofilament (single strand), multifilament (strands twisted or braided together, sometimes coated with beeswax or silicone to ease passage), and barbed (self-anchoring, no knot-tying required).

Now you have to think about suture composition. There are many choices here, including collagen (bovine intestine); synthetic collagen (polymer); surgical silk; surgical cotton; synthetic

fibers (such as polypropylene); or surgical steel, a monofilament alloy.

“The unique properties of each material suit it for some surgeries, yet not others,” Bradley says. Memory, for instance, is the suture’s tendency to return to its original shape. The more memory, the less pliable. You want a low-memory suture for closing an inflamed wound, because it will gradually “shrink” in tandem with tissue as the swelling goes down. Although more difficult to handle than “cloth-type” suture, steel suture is strong, flexible, and pathogen-repellent, ideal for joining tissues that undergo the stress of movement (hence a good choice for closure of the sternum and tendon repair). Both cloth and steel suture come in a range of sizes.

### PICKING THE NEEDLE

Now you must select the right needle. The length, diameter, curvature, and point-type of a needle can make or break a surgical repair. “The ideal needle is the one that will cause minimal trauma.” Bradley notes.

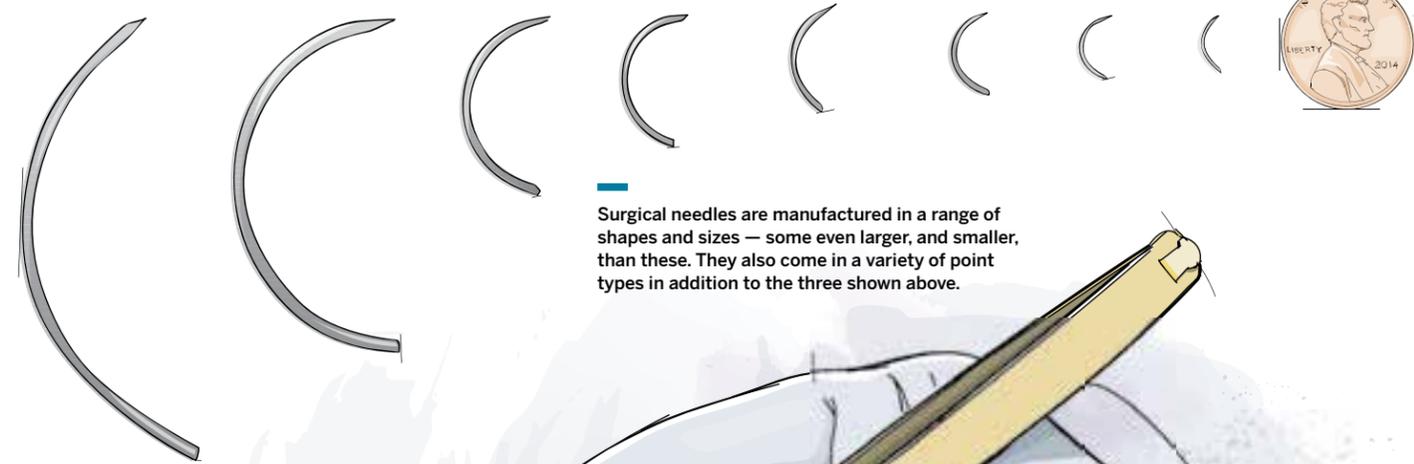
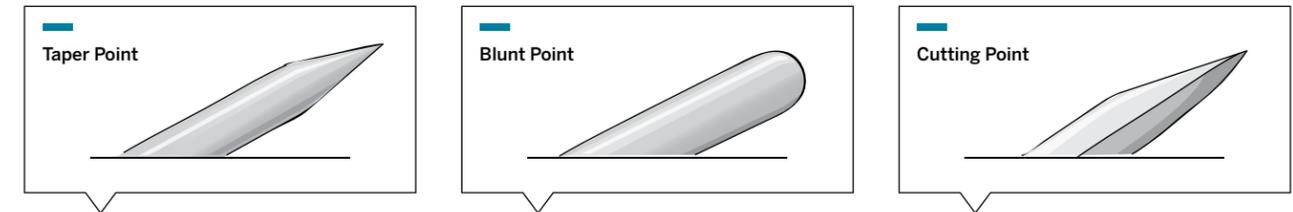
Here again, there are many factors to consider, including the location of the anatomy. The needle must fit the “working space” available — even the extremely tight space inside a portal or catheter for laparoscopic and robotic surgery.

Made of strong, corrosion-resistant stainless steel, surgical needles come in various shapes and sizes (one-quarter inch, three-eighths inch, half-inch, five-eighths inch). There are two basic needle body types: Straight-body needles, used for tissue that can be manipulated directly by hand, and curved-body needles, used for “tight spaces.” There are three types of curved body shapes: the half-curved ski, the curved body, and the compound curved body (whose tight curvature at the tip gradually widens).

Needles also come in a variety of point types. *Standard* cutting needles have three cutting edges. *Side-cutting needles* were designed initially for ophthalmologic procedures but are now used in many types of surgeries. With sharp points that gradually widen, *taper-point (round) needles* “spread” tissue without actually cutting it. *Blunt-point needles* have points that are rounded and blunt, ideal for suturing delicate tissue.

Now, for surgical sites that are impossible to reach by hand (and/or that require incredibly tiny sutures), you’re going to need a needle holder, which enables suturing of far greater precision, in far tighter spaces, than can be managed by the unaided hand. You’ll want to wear loupes, too, to magnify the target anatomy.

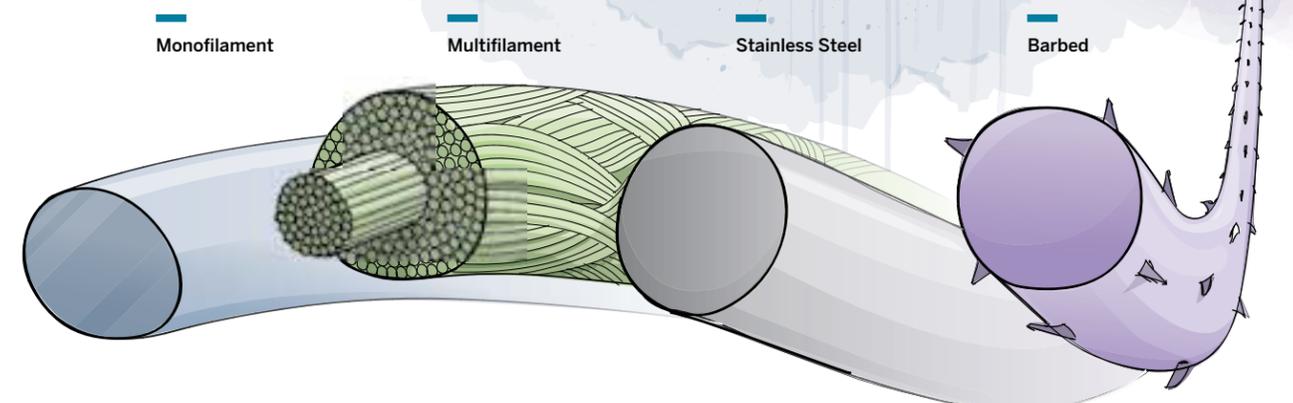
All this, and we have not yet begun to think about what stitch and knot patterns to use: running, locking, interrupted, vertical, mattress, and other types of closures; surgeon’s knot, square knot, granny knot, Aberdeen knot, etc. Perhaps a future lesson.



Surgical needles are manufactured in a range of shapes and sizes — some even larger, and smaller, than these. They also come in a variety of point types in addition to the three shown above.



Fine needle holders, used in conjunction with high-magnification loupes, enable surgeons to manipulate tiny needles that pull suture that’s incredibly thin. In addition to the four basic constructions shown below, suture comes in a variety of compositions and sizes.



## TIMELINE

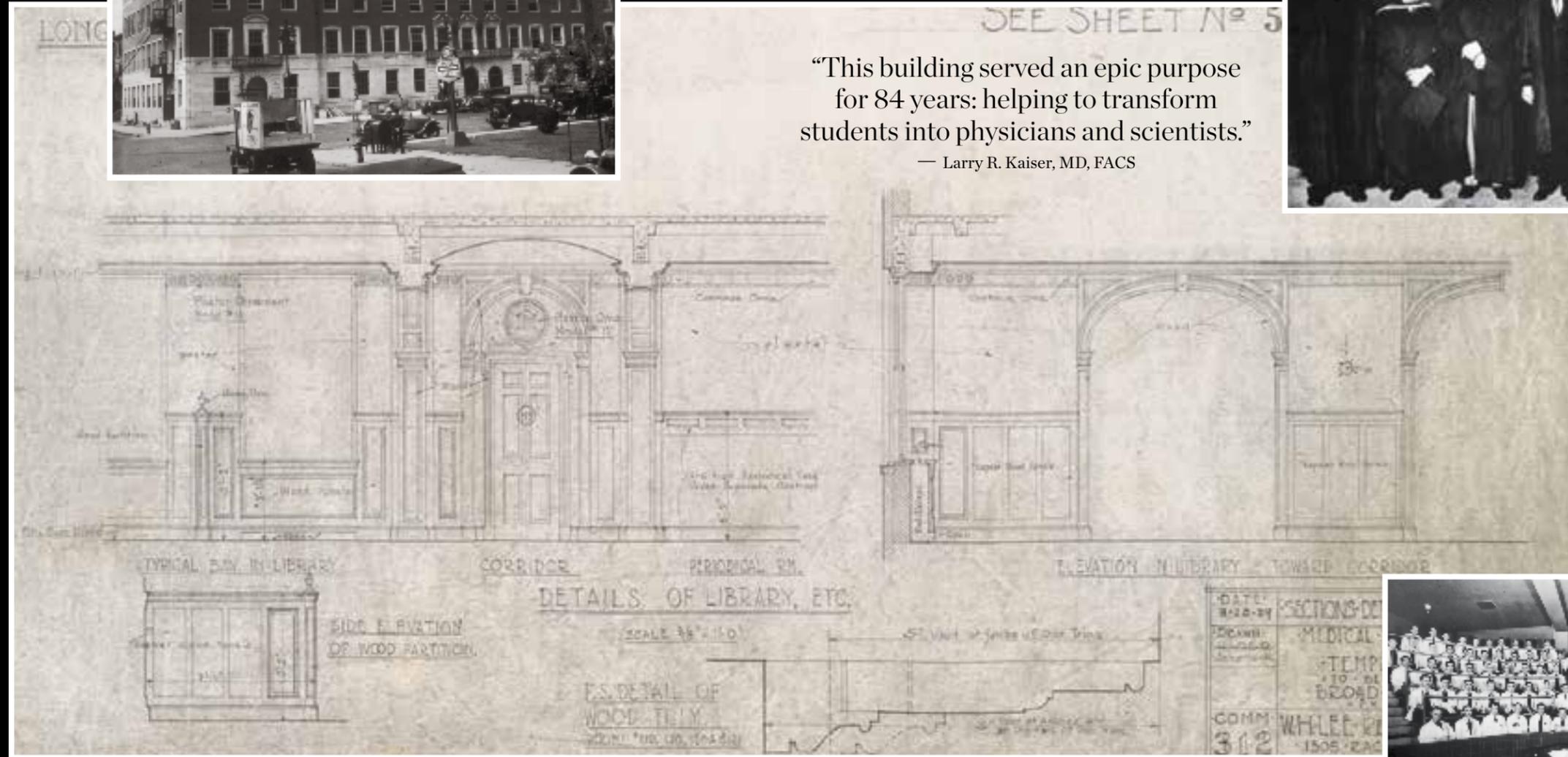
# Farewell, “Old Med”

On October 15, 1930, one year into the Great Depression, Temple University School of Medicine celebrated the opening of a handsome, eight-story, 155,000-square-foot medical education and research building. It was the first brand-new structure ever built exclusively for the school. The Class of 1934 was the first to receive all of its didactic instruction there.

Designed by William H. Lee, a protégé of acclaimed Philadelphia architect Frank Furness, the building cost \$1.5 million to build (approximately \$58 million in today’s dollars). Situated directly across from Temple University Hospital, it contained everything modern medical education required: ample classroom space; an amphitheater where students observed work-ups and surgeries; a special floor for the teaching of human anatomy; multiple research laboratories; a well-appointed library with private enclaves for reading and study; and contemporary “dispensaries” where students learned clinical medicine in a dozen fields — even “new” ones like physical medicine and rehabilitation.

Throughout, oversized windows let in plenty of natural light, and elegant wrought-iron balconies became inviting places to step out for air. With lounges and a fully equipped kitchen reserved strictly for student use, the building became a beautiful and functional second home.

Over the years, to meet demand for additional laboratory and office space, the building underwent multiple renovations. Its natural light and sense of spaciousness gradually diminished, but its Broad-Street façade long remained a thing of beauty, with Temple owls and the names of medical giants rendered in stone and concrete, set into brick.



▲ Details from architect **William H. Lee**'s beautiful hand-drawn plan for the library of the building.

Although originally called the “1930 Building” for its founding year, once other facilities were erected for the school in the 1960s and 1970s, the building became known as “The Old Med School,” or “Old Med.” It remained functional until 2014 when, after much study and discussion, it became clear that the structure must be razed to make way for more modern facilities.

“This building served an epic purpose for 84 years — helping to transform students into physicians and scientists,” reflects Larry R. Kaiser, MD, FACS, medical school dean and health system CEO. “While it’s hard to see it go, the magnificent building we opened in 2009, thanks to the the generosity of the university and scores of donors, is a fantastic recompense.”

▼ The **1930 Building**, shortly after its opening.



◀ In June 1930, the laying of the building’s cornerstone (R-L): **William N. Parkinson, MD**, Dean; Temple University President **Charles Beury, PhD**; and Dr. Beury’s daughter and wife. In October 2014, during demolition, a time capsule was opened that had been hidden by the cornerstone for more than eight decades. The relics it contained are now housed in the University archive.

“This building served an epic purpose for 84 years: helping to transform students into physicians and scientists.”

— Larry R. Kaiser, MD, FACS



▲ The dignitaries who spoke at the new building’s dedication ceremony on October 15, 1930 (L-R): **William N. Parkinson, MD**, Dean; **W. Wayne Babcock, MD**, Chair of Surgery; Philadelphia Mayor **Harry Mackey**; **William Mayo, MD**, of the Mayo Clinic; Temple University President **Charles Beury, PhD**; and Emeritus Dean **Frank Hammond, MD**.



◀ The **pharmacology laboratory** — one of more than a dozen state-of-the-art research facilities in the building.



▲ Great teachers like **John A. Kolmer, MD**, who headed the School’s public health and preventive medicine programs, held court in the building’s amphitheater to teach the art and science of medicine and surgery.

# ALUMNI NEWS

Temple's 12,000+ medical school graduates are advancing health and social welfare across the globe.

## Don't Wait; Create

The Lesson of Opportunity

**M**ost universities and most physicians can only dream of having a friend and mentor like Athole Jacobi, MD. Her support of Temple spans two decades — and her devotion to her protégé, Vincent Cowell, MD, Clinical Associate Professor of Anesthesiology at Temple, spans decades, institutions, and title changes — for both of them.

In the 1980s, Jacobi, an attending physician at the Medical College of Pennsylvania, took a personal interest in Cowell, an anesthesia nurse assistant there at the time. Impressed with his talent, diligence, and intelligence, she encouraged him to enroll in medical school, which he did. It was Jacobi who enabled him to continue working part time at the Medical College of Pennsylvania while he pursued his degree. Throughout his career, it was Jacobi who advised him on matters big and small.

Cowell says it was Jacobi's unflinching belief in his potential that helped him navigate the myriad challenges of a medical career. "She was a backer, an educational resource, a role model, an inspiration — basically everything I needed," says Cowell, a member of the Temple faculty since 2004.

"It's a mutual admiration society," Jacobi says with a smile.

Now 84 and retired, the vivacious Scotswoman enjoys an active life, zipping in her sports car between appointments as vice chair for the Philadelphia Police Athletic League (PAL) and chair of its education committee, secretary of the board of the Methodist Home for Children, and volunteer consultant on medical malpractice cases. And let's not forget, her involvement with Temple athletics. The longtime Owl fanatic is one of the biggest Temple basketball and football fans around. She likes to invite players (and Hooter the Owl) to PAL events, to the awe and delight of the kids there.

"I've always been particularly impressed by how the coaches at Temple are true makers of women and men — not just athletes," she says.

Jacobi herself knows something about being self-made. She first came to the United States in 1961 after completing her medical degree and anesthesia training — less of a rarity in the

United Kingdom at the time than it was in the United States, but still an unusual achievement. At the Medical College of Pennsylvania, Jacobi was the first-ever female chair of an academic anesthesiology department in the United States. She prides herself on never having asked for special treatment. "I've always thought that if you want equality, you need to act equal," she says.

"Her involvement with Temple is consistent with the ideals she holds in high regard: creating opportunities for people who are willing to work hard," Cowell says. "That's Athole. That's Temple."

As evidence, Jacobi has been the principal supporter of the Department of Anesthesiology's Chairperson's Fund at Temple, which gives the chair discretionary funds to support things like resident education, travel, and research. It's her way of contributing to the education of anesthesiology residents at an institution she admires today — and she makes those contributions in honor of Cowell.

**"Her involvement with Temple is consistent with the ideals she holds in high regard: creating opportunities for people who are willing to work hard," Cowell says. "That's Athole. That's Temple."**

During her 20-year association with Temple, Jacobi has supported numerous initiatives — in media and communications, in athletics, and in medicine. It seems completely natural to her, seeing and seizing the chance to make a difference.

Both Cowell and Jacobi have created a home away from home at Temple. "I'm always very impressed with what I see going on here, and I enjoy being a part of it. Temple and I, we've adopted each other," Jacobi says.

It's an important life lesson: Don't wait for opportunity to come along; create it. A little initiative can go a long way toward transforming lives and careers.

Want to consider including Temple Health in your philanthropic plans? Contact the Advancement Office: (215) 707-4868 or [supportmed@temple.edu](mailto:supportmed@temple.edu).



DANIEL BURKE

Athole Jacobi, MD

## A Reunion, Every Day

Walk into the Colon and Rectal Associates surgical practice in Abington, PA, and you might think you'd accidentally wound up 10 miles too far south on Route 611, at Temple, on Broad Street. Regardless of which of the five surgeons you were there to see, you'd find a Temple diploma on the wall. Indeed, with so much common history, familiar stories, and inside jokes, these doctors celebrate something like a mini-reunion every day.

"It wasn't as though we only considered adding fellow alumni to our practice," says D. Mark Zebley, MD '89. In fact, the partners interviewed the graduates of many different medical schools as their practice grew. But at the end of the day, all five surgeons, like Zebley, are Temple graduates: Steven Fassler, MD '95; Steven Harper, MD '83; Joseph A. Nejman, BA '75, MD '79; and Soo Kim, MD '97. Although most did not know each other during their student days, now they share not just an alma mater but a bustling practice as well. "It just sort of happened this way," Zebley says.

Harper sees the somewhat accidental collaboration as a result of the attitude they share about the practice of medicine — an attitude he attributes to Temple. Coming together isn't so much about the shared degree or a sense of boosterism, but about values.

"There's just something about Temple MDs," Harper says. "It's a character you can see in Temple students even now. That down-to-earth, hard-working, everyman attitude. The lack of pretentiousness. The emphasis on always putting the patient first. That's something we all have." It was only natural, then, that as they went looking for other surgeons, they gravitated toward people who shared that philosophy.

Besides working alongside one another, they maintain their ties with Temple in a number of ways, big and small. They all hold, or have held, teaching appointments at Temple. They go to football and basketball games. They reminisce about their favorite professors (the name "Schneck" comes up a lot). They've helped oversee medical student community service projects funded by the Alumni Association. They try to make financial contributions every year (Nejman recently chaired the School's annual giving program, the Conwell Society).

And this year, they have an added reason to reflect fondly on their Temple-ness: three of the five are celebrating their

reunions. Zebley and Nejman are celebrating their 25th and 35th reunions, respectively, and Fassler his 20th, a celebration he happily agreed to chair. Most reunion classes make gifts to support student scholarship in their class's honor, so contributing means grooming the next generation of medical Owls — a central part of their office culture. All these things pay homage to the institution that helped make them the surgeons they are today.

"Temple's in my blood," says Nejman, whose parents worked for Temple and whose daughter is also a School of Medicine grad. "I always felt I should do what I could to support the school."



Alumni in principle and in practice (L-R): Drs. Steven Fassler, Soo Kim, Steven Harper, Joseph Nejman, and Mark Zebley.

"I truly believe in supporting scholarships," says Fassler. "Temple is the reason we get to do what we do. It's the foundation for our careers. My reunion class is looking for 100% participation towards our class gift. And who knows? Maybe a student we help will be the *sixth* member of our practice someday."

For information about class reunion weekend or class giving at Temple, contact the Advancement Office: (215) 707-4868 or supportmed@temple.edu.

ED CUNICELLI

## An Auxiliary? We Think Not.

When most people think of hospital auxiliary groups, things like bake sales come to mind. "But this is not your grandmother's auxiliary," says Mary McNamara, President of the Temple University Hospital Auxiliary. "We are a diverse group of movers and shakers who support Temple's amazing work."

Founded in 1944, the Auxiliary's mission is to assist Temple University Hospital through volunteering, fund raising, and honoring outstanding members of the hospital community and staff. The group has been tenacious in raising funds over the years, producing nearly \$2.5 million over the past decade alone, to support projects such as the new reference section of the Ginsburg Health Science Library and the Mary F. and John M. Daly Ambulatory Surgical Center. "In an age of limited industry support for hospitals, the monies raised by the Auxiliary are no small contribution," McNamara notes.

On May 2, the Auxiliary will host its annual Acres of Diamonds Gala, one of the Health System's premier events and fund raisers. Another premiere fund-raising event, In Vino Vita, planned by, and for the benefit of, Fox Chase Cancer Center, will be celebrated by just a few days prior, on April 30.

"These amazing events and the advocates who plan them are not auxiliary; they're central," says Nina Weisbord, the Health System's chief philanthropy officer.

For more about the Auxiliary, visit [tuhauxiliary.templehealth.org](http://tuhauxiliary.templehealth.org). For more information about In Vino Vita, visit [vinovita.org](http://vinovita.org).

## Temple University School of Medicine Reunion Weekend

April 25, 2015

This year, Temple University School of Medicine Reunion Weekend is scheduled for the spring, rather than the fall, to coincide with Temple University's Alumni Weekend. This change will provide attendees access to a whole host of new activities up and down Broad Street. This also means that the 2014 and 2015 reunions have been combined — doubling the number of classes celebrating this year. If you graduated from Temple University School of Medicine in a year ending in 4, 5, 0 or 9, RSVP early for one of the largest alumni gatherings in School history. Visit [alumni.temple.edu/tusmreunion2015](http://alumni.temple.edu/tusmreunion2015) for more information, and register today!

SAVE THE DATE  
MAY 2, 2015 ♦ THE WESTIN PHILADELPHIA

12<sup>th</sup> Annual  
TEMPLE UNIVERSITY HOSPITAL AUXILIARY  
ACRES OF DIAMONDS  
Gala

DIAMOND AWARD HONOREE  
Temple University Hospital's Department of Emergency Medicine

AWARDEES  
Daniel J. Hilferty, Yoshiya Toyoda, MD, PhD, Fran Dunphy  
Independence Blue Cross Temple University School of Medicine Temple University

PROCEEDS BENEFIT  
Temple University Hospital and the patients it serves

TO LEARN MORE, PLEASE CONTACT:  
TEMPLE UNIVERSITY HOSPITAL AUXILIARY  
(215) 707-4898 OR GALARVP@TEMPLE.EDU

- TUHAUXILIARY.TEMPLEHEALTH.ORG -



## SO NOTED

**“Seeing opportunities where others see obstacles: that’s what fuels healthcare transformation.”**

– LARRY R. KAISER, MD, FACS (DEAN & CEO)

“When you apply scientific discoveries to novel treatments, you generate information from the bedside that drives new clinical trials. This is the essence of translational science: continually revealing new information that helps clinicians work faster and more efficiently to find effective treatments for challenging diseases.”

– GERARD CRINER, MD, FCCP, FACP (DIRECTOR, TEMPLE LUNG CENTER)

Jeanes Hospital  
was founded in

1928

and joined

Temple’s Health  
System in

1996.

TEMPLE’S MD CLASS OF 2018:

11,246

APPLICANTS

234

ENROLLED

3.68

AVERAGE GPA

32

AVERAGE MCAT

22%

NON-SCIENCE MAJORS

23

STATES REPRESENTED

13%

BORN OUTSIDE OF THE U.S.

“At the core of who I am as a physician is what I learned at Temple. It’s a place where you learn humanity and humility, not just medicine.”

– BRIAN MCDONOUGH, MD  
(ALUMNUS AND EMMY-WINNING  
MEDICAL REPORTER)

Last year,  
Temple’s Ginsburg  
Health Sciences Library  
accommodated

314,576

in-person visits.

At least twice that many  
were made online.

**“I consider it an honor and a privilege to accompany my patients on their cancer journey. I am allowed to witness their strength and courage, to be exposed to the devotion of their families and friends, and to become part of their lives in a very special way.”**

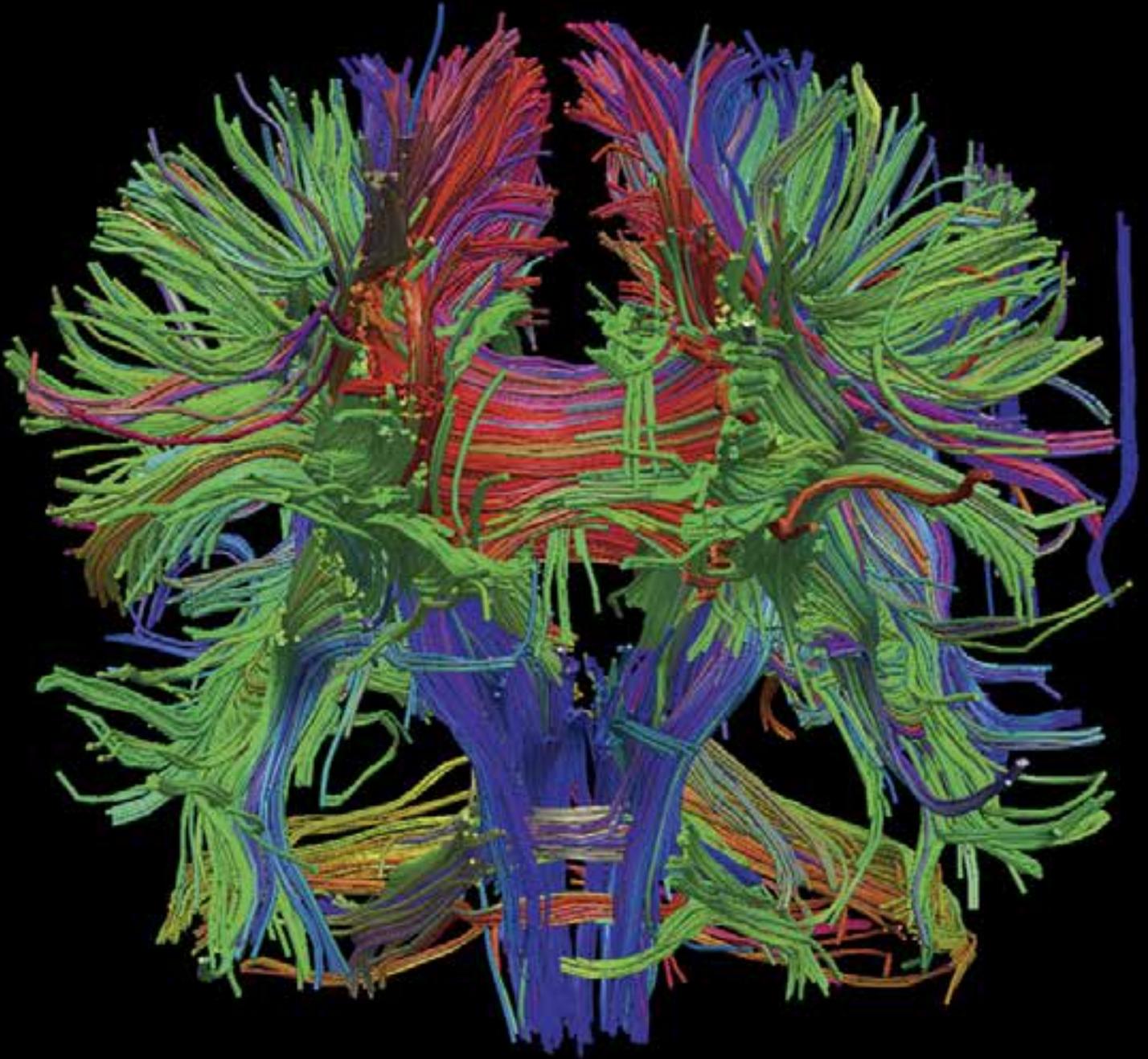
– MARY B. DALY, MD, PHD, FACP, CHAIR, CLINICAL GENETICS, FOX CHASE

“The root of the word doctor comes from the Latin: *docere*, to teach. Good physicians are always teaching. They teach themselves, their colleagues, their patients, and communities.”

– VERDI DISESA, MD, MBA  
(VICE DEAN & CHIEF OPERATING  
OFFICER)

**DURING THE PAST 10 YEARS, MORE THAN 270,000 PATIENT ENCOUNTERS AT TEMPLE UNIVERSITY HOSPITAL HAVE BEEN AIDED BY 327 LANGUAGE-PROFICIENT STAFF.**

**459 RESIDENTS and 92 FELLOWS train in 38 DIFFERENT MEDICAL & SURGICAL SPECIALTIES at Temple University Hospital.**



## The Ultimate Selfie

Have a daughter or son who's snapped thousands of selfies? Bet they don't have a selfie like this. Feroze Mohamed, PhD, created this "selfie" of his own brain with a technology called diffusion tensor imaging. "Combining magnetic resonance imaging with specialized computer modeling, this technique uses color image processing to depict the neural circuitry in the brain," says Mohamed, Professor of Radiology. The colors indicate the orientation of the fibers in three-dimensional space. Red indicates white matter tracts in the X axis (right-left); green, the Y axis (posterior-anterior); and blue, the Z axis: (bottom-top).



6:05 PM

## Translating scientific discoveries into better treatments.

Temple Health researcher Joseph Cheung, MD, PhD, makes key discoveries that shed light on how the body's cells react to traumatic events such as heart attack and kidney failure. His findings may help accelerate the testing of new therapies for preventing permanent organ damage and potentially helping millions of patients live longer, healthier lives.

Hundreds of researchers at Temple Health are pushing the boundaries of science to help reduce the devastating effects of heart and lung disease, cancer, neurological disorders, and other serious conditions.



Tomorrow is Here.

TEMPLEHEALTH.ORG 800-TEMPLE-MED

Temple University Hospital  
Temple University School of Medicine  
Fox Chase Cancer Center  
Jeanes Hospital

Temple Health Oaks  
Temple Health Center City  
Temple Health Ft. Washington  
Temple Health Women's Care at Elkins Park

Temple ReadyCare  
Temple Physicians  
Temple Transport Team

TUH – Episcopal Campus  
TUH – Northeastern Campus

Temple Health refers to the health, education and research activities carried out by the affiliates of Temple University Health System and by Temple University School of Medicine. Temple University Health System (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.