

# EMORY | Medicine

SPRING 2017

## DOCTOR ON THE FIELD

SUPERBOWL SAFETY 14

DAY AT THE RACES 20

SELF HELP 24

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## THE BIG PICTURE

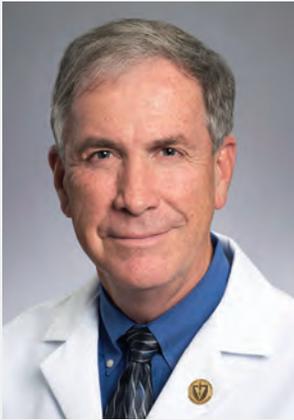
**STREAMLINED** Madeline Locus, an Emory graduate student in mathematics, competed in the Olympic trials in 2012 and 2016.

“I love pushing myself to my limits at every practice because I feel like I’m becoming a better athlete and a better person every day,” she says. Young athletes who specialize in highly competitive sports need to also schedule time for rest and restoration, say sports medicine physicians.

SEE RELATED ARTICLE, P. 22



# Endorphins



**DAVID STEPHENS**  
Interim Dean, Emory School of Medicine

**I enjoy running, both on the roads and trails around my home and on unfamiliar paths while traveling.**

It's a great way to experience new places and to connect with the outdoors. I ran track and cross-country in high school and was a hurdler during college, and I've run in the Peachtree as well as Atlanta and Chicago marathons.

Studies indicate that moderate amounts of running can significantly extend your life expectancy, but that has not been my motivation.

Quite simply: Running never fails to energize me.

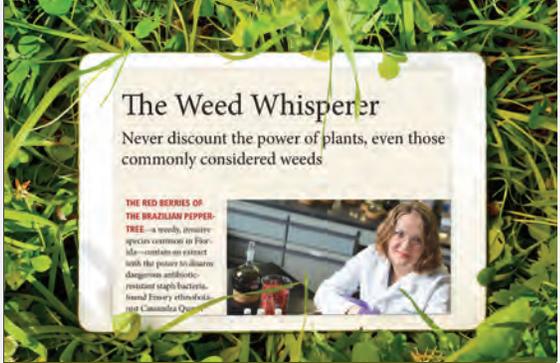
We now know a lot more about the benefits of sports and staying active. At Emory, our faculty doctors care for athletes of all levels, from hobbyists like myself to the pros. Our sports medicine physicians, cardiologists, and others partner with Atlanta's sports teams to provide high-level care, and we recently started construction on a sports medicine center and training facility with the Atlanta Hawks.

"Emory is not just somewhere to go for cancer or heart disease—we also have a world-class musculoskeletal center and sports medicine program," says Scott Boden, director of Emory's Orthopaedics and Spine Center and professor of orthopaedic surgery. "Caring for the most elite and professional athletes in Georgia allows our sports medicine physicians to treat everyone with the highest level of care and expertise, whether a professional athlete, an Olympian, a collegiate or high school star, or a weekend warrior."

Several of our School of Medicine researchers have also pioneered ways to keep athletes safer, from portable devices that instantly diagnose concussions to methods of reducing cardiovascular risk.

We encourage wellness in our own community through events like fitness challenges in the workplace and the annual Winship 5K that raises funds for cancer research.

As I watched my grandson last week on the pitcher's mound, I was reminded of the benefits that sports confer on us, body and mind—but also of the need for new and better programs to keep athletes safe. Here's to being active and healthy and getting those endorphins going.



Download our iPad app (search under **Emory Health magazines.**) Bonus features are online at [emorymedicinemagazine.emory.edu](http://emorymedicinemagazine.emory.edu).

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Emory Medicine editorial intern and Emory College junior **Melissa Mickiewicz 18C** at the Atlanta Science March on April 22.

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### Cover Shot



**DOCTOR ON THE FIELD:** This shot, taken by Atlanta Falcons photographer Jimmy Cribb, captures Falcons head team physician Spero Karas of Emory sports medicine tending to a Falcons' player at the Georgia Dome.

# INSIDE EMORY MEDICINE



“Mascot going down!  
Pump him full of fluids  
and cool him down.”

—Dr. Ric Martinez, senior medical  
adviser for the Super Bowl



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As senior medical adviser for the Super Bowl, which Atlanta will host in 2019, emergency medicine physician Ric Martinez and his team prepare for catastrophes from heart attacks to earthquakes to terrorism.

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*Schinus  
mollembifolia*

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## Letters

*Recently, my mother had surgery at Emory Midtown,* and I picked up the Winter 2017 issue of your magazine. It took a while for me to get around to reading it, but now that I have, I'm amazed. The content is incredible and every article was intriguing, managing to integrate social effects as well as the medical and science side of the story. The article about the baby who had surgery while still attached to the mother's umbilical cord was truly amazing! I also loved the excerpt from Mike King's book. As a taxpayer, I wonder if spending the money on mental health would prevent the astounding amount we spend to house people in prison.

**Tabetha Duncan**

Atlanta

*"A Future Without Antibiotics?" (Winter 2017) was a great article.*

I'm proud of the Emory initiatives. Now I have a suggestion: Do another article directed at us alumni on the topic of clinical overuse. We should be the leaders.

**Joe Massey 67M**

Atlanta

*Nice article ("A Future Without Antibiotics?" Winter 2017),* but it misses the crux of the problem. It takes hundreds of millions of dollars to bring a drug to market. If a company develops a great new antibiotic, the first thing that will happen is for hospitals to place the drug on the restricted list and only use it in extreme circumstances. The result is that the company is not going to sell enough of the drug to cover the costs of development, so there aren't a lot of new antibiotics being developed.

**Roger Cole, MD**

St. Louis, Mo.

*I read with interest the article about Lt. Col. Hofstetter (You Be the Doctor, "Double Trouble," Winter 2017).* I noticed that there was no mention if he was tested for thrombophilia. There are several not-so-rare disorders that make individuals who inherit them susceptible to deep vein thrombosis and pulmonary embolism. Testing is time sensitive. In an acute event patients often test falsely negative. It is estimated that approximately 5% of the white population is heterozygous for Factor V Leiden. There are major therapeutic and prognostic issues. Women who are Factor V Leiden have very specific guidelines for birth control to avoid a catastrophic event. I also read the blurb about Grady and Emory. My "ancestor" Dr. John Guilford Earnest was one of Atlanta's more colorful physicians, one of the first doctors at Grady, and taught at Emory medical school for decades. He also owned the first automobile in Atlanta. We always joke when someone complains about the traffic in Atlanta to "blame it on Cousin John."

**Robert Rhea Earnest 65C 68M**

Waynesville, N.C.

**We like to hear from you. Send us your comments, questions, suggestions, and castigations. Address correspondence to Emory Medicine magazine, 1762 Clifton Road, Suite 1000, Atlanta, GA 30322; call 404-727-0161; or email [mary.loftus@emory.edu](mailto:mary.loftus@emory.edu).**



Find the Spring 2017 issue and more online [emorymedicinejournal.emory.edu](http://emorymedicinejournal.emory.edu)

## Experts Weigh In

**"All adults should be vaccinated against influenza annually, receive a booster of a tetanus vaccine every 10 years, two different types of pneumococcal vaccine when they turn 65, and a vaccine to prevent shingles when they reach age 60."**



Infectious disease physician **Walter Orenstein**, associate director of the Emory Vaccine Center, calling adult vaccine rates "disappointing," *Reuters Health News*

**"Having this conversation is a wonderful opportunity for parents to remind children that everyone has various challenges and strengths."**



Psychologist **Matt Segall**, encouraging parents to talk with children about their autism, *U.S. News and World Report*

**"Hypertension is a modifiable risk factor for Alzheimer's disease, in contrast to other known risk factors such as advanced age, female gender, and family history. Therefore, there is the ability to make lifestyle changes."**



**Felicia Goldstein**, Emory professor of neurology, *Reuters Health News*

# And Your Brain Says...

**Is therapy or medication the best way to treat your depression? A brain scan might be the most efficient way to decide.**

Specific patterns of activity on brain scans may help clinicians identify whether psychotherapy or antidepressant medication is more likely to help individual patients recover from depression, a recent study has found.

The study, called PReDICT, randomly assigned patients to 12 weeks of treatment with one of two antidepressant medications or with cognitive behavioral therapy. At the start of the study, patients underwent a functional MRI brain scan, which was then analyzed to see whether the outcome of therapy or medication depended on the state of the brain prior to treatment.

The imaging study was led by Helen Mayberg, professor of psychiatry, neurology, and radiology, and the Dorothy C. Fuqua Chair in Psychiatric Imaging and Therapeutics at Emory's School of Medicine.

"All depressions are not equal, and like different types of cancer, different types of depression will require specific treatments. Using these scans, we may be able to match a patient to the treatment that is most likely to help them, while avoiding treatments unlikely to provide benefit," Mayberg says.



Mayberg and co-investigators Boadie Dunlop, director of the Emory Mood and Anxiety Disorders program, and W. Edward Craighead, J. Rex Fuqua Professor of Psychiatry and Behavioral Sciences, are hoping to develop methods for a more personalized approach to treating depression.

Current treatment guidelines for major depression recommend that a patient's preference for therapy or medication be considered in selecting the initial treatment approach. The PReDICT study, however, showed that patients' preferences were only weakly associated with outcomes—preferences predicted treatment dropout but not improvement.

These results are consistent with prior studies showing that personalized treatment for depression will likely depend more on identifying specific biological characteristics in patients than relying on their symptoms or treatment preferences. The results from PReDICT suggest that brain scans may offer the best approach for personalizing treatment going forward.

In recruiting 344 patients for the study from across the metro Atlanta area, researchers were able to convene a more diverse group of patients than previous studies, with roughly half of the participants self-identified as African American or Hispanic.—Robin Reese

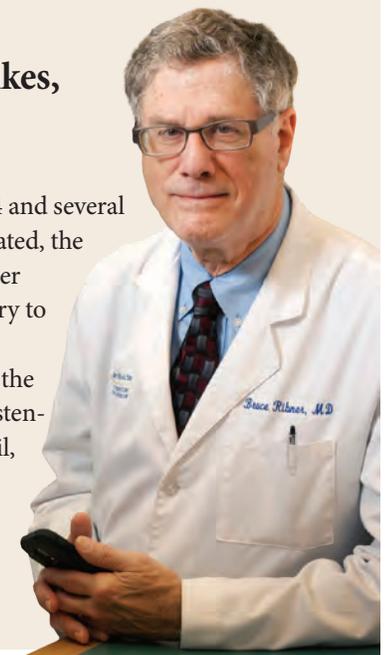
## Ready for an Outbreak?

**It's only a matter of time before another epidemic like Ebola strikes, say infectious disease experts**

To advance preparedness efforts, a \$12 million grant awarded two years ago to establish the National Ebola Training and Education Center (NETEC) has been doubled to \$24 million. The federal grant was awarded to Emory, the University of Nebraska Medical Center, and NYC Health + Hospitals/Bellevue. "This additional money will help us educate and train more health care workers and develop a national research consortium with other centers across the country," says Bruce Ribner, principal investigator of NETEC and medical director of the Serious Communicable Diseases Unit at Emory University Hospital.

When Ebola hit West Africa in 2014 and several patients were flown to the U.S. to be treated, the University of Nebraska, Emory, and other institutions were left to independently try to determine the best drug for treatment.

"It was inefficient. We weren't using the same protocols, and there was no consistency to the research," says Chris Kratochvil, co-principal investigator of NETEC for University of Nebraska Medical Center. "Now we can all collaborate to develop medical countermeasures together." ■



# Detecting Concussions

**At last year's spring Atlanta Science Festival, emergency medicine physician David Wright was asked to speak about the evolving science of sports safety.** "We now know that concussions are not something to just shake off, that there are significant short- and long-term consequences, and that youth athletes are at the highest risk and have the most to lose from repetitive injury," Wright said. "It's time to create a culture of safety by carefully examining activities that put kids at risk, acknowledging when an injury occurs, and improving rules and coaching techniques as well as technologies that makes the game safer. We must also keep kids from returning to the game too early after injuries."

Wright, associate professor of emergency medicine at Emory, and an expert on sports concussions, traumatic brain injury, and stroke, works closely with an elite team of engineers through the Coulter Biomedical Engineering Department at Georgia Tech and Emory.

He co-developed iDETECT, a portable screening system for sideline evaluation of concussion injuries, with Michelle LaPlaca, associate professor of biomedical engineering at Georgia Tech. The technology won the GE NFL's Head Health Challenge II for new innovations in 2014 and is now being used by the military to study concussion in combatants and paratroopers.

"The device is incredibly novel," Wright says, "leveraging an immersive heads-up display with noise reduction headphones and virtual reality to interrogate brain function in real time in austere environments."

The iDETECT technology allows testing of multiple domains known to be impaired after a concussion, such as cognition (memory and executive function), reaction time, balance, and oculomotor function. The test can be completed in about 15 minutes and does not require a trained examiner.

"Mild traumatic brain injuries in youth, college, and professional sports have the potential for life-changing, long-term consequences," says Wright. "The iDETECT system integrates multiple concussion testing capabilities within one platform and allows rapid and reliable assessment at the location where the injury occurred."

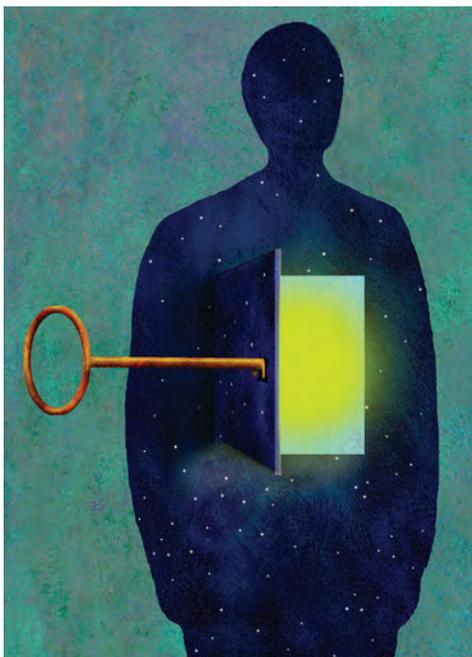
An estimated 1.6 to 3.8 million sports- and recreation-related concussions occur each year in the United States. Repetitive concussions, Wright

says, are suspected to be linked to long-term disorders like depression and early dementia (such as chronic traumatic encephalopathy). In the last decade, emergency department visits for mild traumatic brain injury among vulnerable populations like children and developing youth have increased by more than 60%. ■



Dr. David Wright (right) and biomedical engineer Michelle LaPlaca demonstrate iDETECT, a portable device for diagnosing concussions, on a football player.

Firoh Hamid, Georgia Tech



## Turning the Key

A cancer diagnosis and accompanying explanations about tests and treatments can be overwhelming. Bioethicist Rebecca Pentz, professor of hematology and medical oncology in research ethics at Emory, and colleagues have discovered that simple metaphors are helpful in explaining molecular testing to cancer patients. Pentz's team evaluated 66 conversations between oncologists and patients at Winship Cancer Institute. In 25 of the conversations, patients reported hearing a metaphor. One example: "For this cancer, the food was estrogen and progesterone. So we're going to focus on blocking the hormones because that way we starve the cancer of its food." Other metaphors used by doctors included: bus driver, battery, circuit, broken light switch, gas pedal, key opening a lock, and traffic jam. Of the patients asked about the metaphor, 85% said it was useful and were able to demonstrate better understanding. "Metaphors provide a common language," says Ana Pinheiro, an Emory medical student who worked on the study. "The more grounded and straightforward the metaphor, the more likely patients are to follow along and understand." The study was published in *The Oncologist*. ■



Left: At 20, Sol Kaslow was the youngest of the 13-member crew on his PT boat during WWII.

Far left: Now 92, Kaslow is healing well after his recent TAVR procedure. "He came through with flying colors, and plans to be on the restored PT-305 when it launches," says his daughter. "Our entire family will get to experience this special moment with him."

# The Survivor

**IT TOOK SOL KASLOW FIVE DECADES TO TALK ABOUT BEING PART OF THE INVASION OF NORMANDY AS A YOUNG NAVY SIGNALMAN ON A PATROL TORPEDO (PT) BOAT.** "I couldn't handle talking about it," he says. "You live like it just happened."

Then, for his 80th birthday, he and his wife, Florence, returned with a tour group to Normandy, where Allied Forces landed on the northern coast of occupied France on June 6, 1944, in a well-planned invasion against Germany.

As the tour guide started talking about the assault—which remains the largest amphibious military invasion in history—Kaslow said, "Let me tell it, I was there."

Now 92, Kaslow, the only living member of his PT crew that was in the Normandy invasion, plans to be on the world's only restored PT-305 when it launches in New Orleans this spring.

It's a chance he wouldn't have had without the TAVR heart procedure to address a severe narrowing of his aortic valve.

"My cardiologist said I didn't have long to go, because there wasn't enough blood circulating," says Kaslow, of Palm Beach Gardens, Florida, who had been feeling more tired than normal. "I had no pain, so I wasn't aware of how serious it was. He said I might have a few more years, or I could go at any minute if I didn't have it."

After consulting with cardiologist Vasilis Babaliarios at Emory, Kaslow and his family decided he would undergo a transcatheter aortic valve replacement (TAVR), which is less invasive than open heart surgery. "Aortic stenosis is progressive and relentless," says Babaliarios. "Once you develop symptoms, you are at high risk for sudden death or chronic heart failure, which is often fatal

within three years. In the past, the only alternatives for these patients were hospice and palliative care."

"I've had a good life and wanted a few more years if possible," Kaslow says.

"We all recognized that the decision for someone at my dad's age to undergo such a procedure is a complex one. We had a lot of questions about the risks and the benefits," says his daughter, Nadine Kaslow, chief psychologist at Grady Hospital and a professor and vice chair of psychiatry and behavioral sciences at Emory. She knew her dad wouldn't be happy with a sedentary life. "He played tennis until he was 90," she says, "and exercised five times a week, right up until the surgery."

With TAVR, patients do not have to have their chest opened, their heart stopped, or go on a cardiopulmonary bypass machine. Instead, during the procedure a team of cardiologists and cardiac surgeons thread a replacement valve up through an artery in the patient's groin and into place in his heart. The technique allows patients to recover more quickly with less complications.

Originally used to treat only those patients deemed high risk, TAVR has proven to be an effective treatment for intermediate-risk patients and is in clinical trials with low-risk patients. Emory has performed 2,000 TAVR procedures, more than anywhere else in the Southeast. Babaliarios trained in France with Alain Cribier, the founder of TAVR, and is a protégé of Emory cardiologist Peter Block, a pioneer in structural intervention.

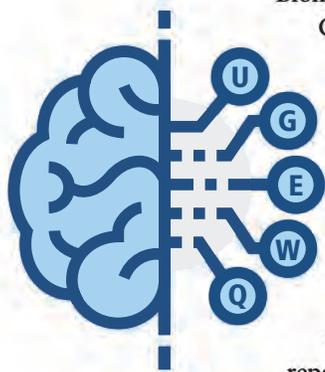
"We continue to push the boundaries, finding ways to help those who have been turned away elsewhere," Babaliarios says.—*Mary Loftus*



Sol and Florence Kaslow tour the restored PT-305 boat, scheduled to launch this spring in New Orleans.

# Computer, What Letter Am I Thinking Of?

**Imagine a high-performance computer-brain interface that allows people with paralysis to type just by thinking about typing.**



Biomedical engineer Chethan Pandarinath's work enables people with arm and hand paralysis to type via direct brain control at the highest speeds and accuracy levels reported to date.

Now an assistant professor in the Coulter Department of Biomedical Engineering, Pandarinath worked on this technology at Stanford University before coming

to Emory and Georgia Tech.

Study volunteers included two people with amyotrophic lateral sclerosis (ALS) and one person with a spinal cord injury. They each had small electrodes implanted in their brains, allowing researchers to track electrical activity as the person thought about moving.

Researchers then decoded this brain activity and converted it into actions, allowing the participants to control an on-screen cursor simply by imagining their own hand movements. "We're achieving communication rates that many people with arm and hand paralysis would find useful," Pandarinath says. "That's a critical step for making devices that could be suitable for real-world use."

The technology could be adapted to smartphones and tablets, researchers say, without substantial modifications.

With colleagues in neurosurgery and neurology at Emory and engineering at Georgia Tech, Pandarinath is extending the research, hoping to one day allow people with paralysis to reach out and grasp objects with a robotic arm while receiving sensory feedback—"feeling"—what the artificial hand is touching.

This would involve creating two-way communication between the patient and the technology.

"Ultimately we want brain-machine interfaces that restore more natural control of external devices," Pandarinath says. ■

## PARTICIPATE IN A TRIAL

# Dying of Embarrassment

**Anal cancer is less common than many other cancers, but only about half of anal cancers are detected early, when they are most treatable.**

Why? Because people don't talk to their doctors about it.

Partly for this reason, only about 67% of people diagnosed with anal cancer survive five or more years. Unlike cervical cancer, which has dropped dramatically since the advent of the Pap smear, anal cancer is on the rise. Incidence rates over the past three decades have jumped by 78% in women and 160% in men. Being HIV positive, as well as having unprotected sex, raises one's risk. Also, men or women can be at risk for anal cancer even if they've never had anal sex.

Like cervical cancer, anal cancer is predominantly caused by the sexually transmitted human papillomavirus (HPV). Lisa Flowers, professor of gynecology and obstetrics, is Emory's principal investigator (PI) for ANCHORstudy, a clinical trial to help determine whether screening and treatment of precancerous areas of the anus can prevent cancer.

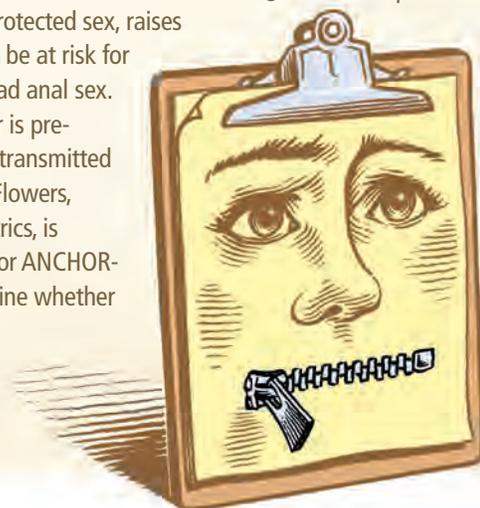
"The lesions that can cause anal cancer are found in at least half of HIV infected men and 20% of HIV infected women. These lesions have no symptoms," she says. "We know that for women, treating lesions on the cervix can prevent cancer, so we're hopeful that treating these lesions in the anus will also prevent cancer. But this hasn't been proven yet, so most doctors in the U.S. don't screen for it or treat it."

Emory hopes to enlist 340 participants out of the 5,058 HIV-positive men and women 35 years and older being recruited at multiple sites for the study.

"No one knew that cervical cancer was preventable before screening and treatment of precancerous cells became widespread in the 1960s and cut the incidence of the disease by 75%," says Joel Palefsky, clinical trial PI at University of California, San Francisco.

Perhaps the same can be done for anal cancer. The first step, say researchers, is being able to talk about it.

For more information, go to [ANCHORstudy.org/emory](http://ANCHORstudy.org/emory) or call 404-251-8931. ■



## Pushing for **Routine HIV Testing**



**When Bijal Shah was in medical school at Emory, she took a year off to work in India with a doctor who had been taking care of HIV patients for two decades. She saw the impact a devoted physician could have.**

So when Shah had the chance to make a difference, she took it.

Following a recommendation from the CDC that all patients in acute care settings ages 13 to 64 should be tested for HIV, regardless of their chief complaint or risk profile, she decided to make HIV testing routine at Grady. “One of the reasons this is so important is that it destigmatizes the idea of an HIV test,” says Shah, assistant professor of emergency medicine at Emory.

Shah is on a team that works at 13 sites in the Grady Health System, including the emergency department, the walk-in clinic, and six neighborhood clinics.

Since the routine testing program began, more than 80,000 patients have been tested, resulting in about 500 new HIV diagnoses.

“It’s just really a matter of treating patients as if they’re your family,” she says.

*To see emergency physician Bijal Shah tell her story, go to [emory.link/RZS4Lb](http://emory.link/RZS4Lb)*

## THE BIG IDEA

# First HIV-Positive Kidney Transplant in Georgia



**Transplanting an organ from a donor with HIV—even if the recipient was HIV-positive—used to be illegal. But no longer.**

The Emory Transplant Center recently performed a kidney transplant from a deceased HIV-positive donor to an HIV-positive recipient—the first such procedure to occur in the state, made possible by the HIV Organ Policy Equity (HOPE) Act.

Emory is one of eight centers participating in the HOPE in Action clinical trial. Researchers are evaluating the safety of solid organ transplants from HIV-positive deceased donors to HIV-positive recipients.

After being on the wait list for more than three years, the patient agreed to receive an HIV-positive kidney, was placed on the HOPE Act wait list, and received a kidney earlier this year at Emory.

Stable HIV-infected adults with end-stage kidney disease who meet specific criteria for organ transplantation will be offered enrollment in the study. Emory is currently enrolling participants for HIV-positive to HIV-positive kidney transplants, with a plan to include liver transplant patients in the future.

“With 120,000 people on the wait list for a kidney transplant, and about 10,000 people living with HIV who are on dialysis, the HOPE Act gives us new opportunities to save more lives, rather than turning down organ donations from HIV-positive donors,” says Nicole Turgeon, associate professor of surgery and principal investigator of the study at Emory. “Patients living with HIV are living longer because their disease is now manageable with antiretroviral therapies. This means we are seeing more HIV-positive patients in need of organ transplants.”

In 2016, 20 patients at four centers received new organs in the HOPE in Action trial. HIV-positive recipients have similar survival rates, and kidney and liver graft survival rates, as non-HIV-positive recipients.

“We thank this donor and the donor’s family for giving life to others during their time of sorrow, and the excellent work of LifeLink of Georgia that made this transplant possible,” says Turgeon. “We encourage others, with or without HIV, to register to be organ donors and to tell their families of their decision.”

*To learn more, go to: [donatelifegeorgia.org](http://donatelifegeorgia.org).—Janet Christenbury*

# Face Off: Brain's reaction to fearful faces predicts PTSD

**Reactivity in the amygdala—the area of the brain that processes emotion, aggression, and fear—may help predict who will have PTSD in the year following a trauma.**

The pilot study, published in *Biological Psychiatry*, points to the importance of identifying patients at risk after trauma exposure in order to better assist with recovery.

Using functional magnetic resonance imaging about a month after trauma, a research team led by Jennifer Stevens, a postdoctoral fellow in psychiatry and behavioral sciences, looked at reactivity in the amygdala while patients viewed pictures with either fearful or neutral faces.

The team conducted the neuroimaging study a month after participants were admitted to the emergency department at Grady Hospital, a level I trauma center. Participants were approached within 24 hours of a traumatic experience such as a car accident, work-related injury, or assault.

Each participant's PTSD symptoms were assessed, through self-reporting, at one, three, six, and 12 months after their initial visit. Researchers found that participants with high levels of amygdala reactivity to the fearful faces had more severe PTSD symptoms initially and a greater severity of symptoms 12 months after the trauma.—*Robin Reese*



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# The Weed Whisperer

Never discount the power of plants, even those commonly considered weeds

**THE RED BERRIES OF THE BRAZILIAN PEPPERTREE**—a weedy, invasive species common in Florida—contain an extract with the power to disarm dangerous antibiotic-resistant staph bacteria, found Emory ethnobotanist Cassandra Quave.

“Traditional healers in the Amazon have used the Brazilian peppertree for hundreds of years to treat infections of the skin and soft tissues,” says Quave, an assistant professor in the Department of Dermatology.

“We pulled apart the chemical ingredients of the berries and systematically tested them against disease-causing bacteria to uncover a medicinal mechanism of this plant.”

In an article published in *Scientific Reports* (Nature.com), Quave and her lab team showed that a refined, flavone-rich composition extracted from the berries inhibits formation of skin lesions in mice infected with methicillin-resistant *Staphylococcus aureus* (MRSA).

The compound works not by killing the MRSA bacteria but by repressing a gene that allows the bacteria cells to communicate with one another. Blocking that communication prevents the cells from taking collective action, a mechanism known as quorum quenching.

“It essentially disarms the MRSA bacteria, preventing them from excreting the toxins used as weapons to damage tissues,” Quave says. “The body’s normal immune system then stands a better chance of healing a wound.”

The discovery may hold potential for new ways to treat and prevent antibiotic-resistant infections, a growing international prob-



Ethnobotanist Cassandra Quave uncovered a medicinal mechanism in berries from the Brazilian peppertree. The plant is valued by traditional healers in the Amazon as a treatment for infections. Botanical Illustration by Tharanga Samarakoon, PhD, Emory University Herbarium.

lem. Antibiotic-resistant infections annually cause at least 2 million illnesses and 23,000 deaths in the United States, according to the CDC.

The United Nations last year called antibiotic-resistant infections a “fundamental threat” to global health and safety, citing estimates that they cause at least 700,000 deaths each year worldwide, with the potential to grow to 10 million deaths annually by 2050.

Blasting deadly bacteria with drugs designed to kill them is helping to fuel the problem of antibiotic resistance. Some of the stronger bacteria may survive these drug onslaughts and proliferate, passing on their genes to offspring and leading to the evolution of deadly “super bugs.”

In contrast, the Brazilian peppertree extract works by simply disrupting the signaling of MRSA bacteria without killing them.

The researchers also found that the extract does not harm the skin tissues of mice, or the normal, healthy bacteria found on skin.

“In some cases, you need to go in heavily with antibiotics to treat a patient,” Quave says. “But instead of always setting a bomb off to kill an infection, there are situations where using an anti-virulence method may be just as effective, while also helping to restore balance to the health of a patient. More research is needed

to better understand how we can best leverage anti-virulence therapeutics to improve patient outcomes.”—Carol Clark



YOU BE THE DOCTOR

# The Case of the Decoy Pigeons

**One day in June, a 63-year-old retired telephone lineman developed a fever and cough. He was plagued by the fever for months.** Several hospitalizations, with numerous cultures, labs, CT scans, MRIs, and various endoscopies, had yet to yield a cause.

Of particular interest was the patient's love of passenger pigeons. Each day he looked forward to feeding them in his attic room. Upon his arrival, 30 excited pigeons would fly around, whipping the bird droppings

into a diminutive aerosol tornado. Every few months he would enter the aviary and clean the accumulated guano, never wearing a mask to protect himself.

Desperate for an explanation and some relief, he came to Emory's Special Diagnostic Services clinic in September. "In his book *Infections of Leisure*, editor David Schlossberg mentions 'pigeon breeders disease,' psittacosis, as one of several zoonotic diseases pigeons harbor and transmit to humans," says Clyde Partin, director of the clinic. "But this man had been checked for those dis-

eases. The fevers continued with inordinate tenacity."

Despite his fever and cough, the man appeared tired but not acutely ill. "Back in radiology, I carefully reviewed some lymph nodes that had been seen in his posterior abdomen on a PET scan," says Partin. "We all agreed these nodes were not significant enough to warrant biopsy."

The pigeon enthusiast, however, returned to the clinic several weeks later looking much more ill, with a persistent cough, weight loss, diminishing appetite, an odd sensation with swallowing, and mild anemia.

"During the second visit, right in front of me, he began to shiver and spiked a fever," says Partin.

The nurse checked his temperature—103.6.

"I had carefully reviewed his data and concluded that he had neither malignancy nor underlying infection to account for his fever, so most likely it was an inflammatory process," Partin says. "I needed to be decisive in the face of his deteriorating status. Seeing how miserable that fever made him feel, on top of his general debilitation, convinced me to move forward."

Only one of numerous white counts taken had been slightly elevated. The patient had developed headaches with his coughing fits, but at no other time. His joints were not hurting but his sedimentation rate was up to 119, suggesting that inordinate inflammation was present.

Any thoughts, careful reader, as to what the diagnosis was?

"Taking a deep breath and hoping that he truly had no infection, I made a diagnosis of polymyalgia rheumatica (PMR), a diagnosis I had originally rejected due to how high his fevers were going," says Partin. "But when I researched it, I discovered it was possible to have fevers that high with that diagnosis."

Partin decided to give the patient prednisone—a bit of a risk since, if he was wrong and the patient actually did have an infection, the steroid would suppress his immune system and the infection could get the upper hand quickly and violently.

Two days later Partin called the patient, who reported that the fevers had disappeared and he was feeling much better. The rheumatology consultant who saw him later in the week made a slight adjustment to Partin's diagnosis, believing that temporal arteritis—a cousin to polymyalgia rheumatica—was more likely. "Some of the atypical symptoms of PMR the patient exhibited were due to the inflammatory effects on the arterial supply to his upper airway," Partin says.

Six months later, the patient felt great. After having given away most of his pigeons, he was back to breeding them again. Partin suggested that, from now on, he wear a mask around the pigeons—just to be on the safe side. ■

“In his book *Infections of Leisure*, editor David Schlossberg mentions ‘pigeon breeders disease,’ psittacosis, as one of several zoonotic diseases pigeons harbor and transmit to humans.”

#### DR. CLYDE PARTIN

Director of the Emory Special Diagnostic Services clinic



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# SAFETY at the SUPER BOWL

STORIES BY Marlene Goldman ■ SUPER BOWL ILLUSTRATION BY Nathan Fox

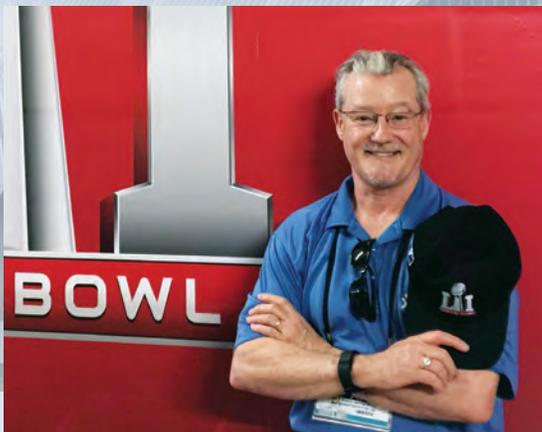
**“Standing on the sidelines, I hear the sounds of Lady Gaga’s version of the national anthem end and the Blue Angels fly overhead as the teams move onto the field. Outside, the stadium footprint has been expanded to include on-site sponsor, corporate, and fan events with temporary structures and fan plazas; large broadcast and entertainment compounds for national and international media, pregame shows, and halftime shows; and compounds for security, medical, and public safety resources.** This is surrounded by a 300-foot buffer zone and enclosed with a hardened secure perimeter with access through high-security entrances with bag checks, security wands, metal detectors, X-ray machines, and sniffing dog teams. Well-armed security teams rove both inside and outside the perimeter. Vehicles that need to enter the perimeter must be sanitized and go through the Vehicle and Cargo Inspection System, which applies imaging and radiation scanning. Air is constantly sampled for nuclear, chemical, biological, and radiation levels. One can’t help but think of the long process of planning, implementation, and problem-solving that brought us to this point, and the game hasn’t even started.”

—**DR. RIC MARTINEZ**, Super Bowl senior medical adviser  
and emergency medicine physician at Emory

(From *ACEP Now*, the magazine of the American College of Emergency Physicians)



As Atlanta prepares to host the 2019 Super Bowl in the new Mercedes-Benz Stadium, here's a behind-the-scenes look at a typical Game Day for NFL medical adviser Dr. Ric Martinez.



## GAME DAY

**05:00 AM** As he's done before more than a score of Super Bowls, Dr. Ric Martinez has already downed his coffee and a hearty breakfast. He and his team—seven professionals with deep experience in emergency management, mass care, and public health and safety—don't know when they'll eat again. As senior medical adviser for the Super Bowl, Martinez helps prepare for everything from heart attacks to broken bones, food poisoning, flu outbreaks, bad weather, and biologic weapons. Every catastrophe is imagined and planned for.

Safety and security-wise, the Super Bowl ranks up there with world leadership summits and presidential nominating conventions, designated by the Department of Homeland Security as a “national special security event” and, in turn, a possible terrorist target. “We live in a world of threats,” says Martinez,

whose long-running stint has positioned him as one of the leading thinkers of mass gathering planning. “Yes, there is always planning for a terrorist attack. But we try to prepare for any eventuality—structural collapse, natural disasters, falls, hazardous waste. You name it, we've got it.”

First stop is the headquarter hotel's convenience care clinic, staffed by local medical professionals. The clinic allows Martinez's team to help oversee the care of the large production staff needed for the game, treating sprained ankles or flu cases and keeping an eye out for illness trends. Next, Martinez, assistant professor of emergency medicine at Emory, is off to the stadium for morning orientation. He pulls into the parking lot, winding his way through plazas brimming with pre-game partyers. He flashes his ID and clears the hardened security perimeter. At the central command post, he's greeted by leaders of security, operations, environmental, transportation,

and other departments with whom he's been meeting for the past year and half in preparation for this day.

**10:15 AM** Martinez's team briefs the ushers, parking attendants, security guards, and vendors about what they can do to keep the expected crowds safe: how to recognize an emergency, whom to call, what to say, what to do until help arrives, and where the first aid stations are positioned throughout the stadium. Next stop is the field to review medical and emergency plans with team physicians, trainers, orthopaedists, and other specialists.

Physicians are on call 24/7 to facilitate care for the NFL “family,” some 3,500 NFL personnel, broadcasters, media executives, and team staffers who arrive days before the game and may also need local health care. Plans are put in place for timely access to urgent and emergent care for ailments that could include flu, gastrointestinal illness, allergic reactions, stroke, or heart attack.

**Noon** The opening kickoff is seven hours away, but fans are already pouring through the just-opened gates. Martinez is in constant contact with the joint command post and his team: five other emergency medicine docs, a paramedic, and a firefighter. He's glued to his iPhone, monitoring text and video updates every few minutes from the command post that's been operating for more than a week: the electricity is out in one section of the stadium, a stalled shuttle bus is blocking one of the drop-off points, someone has slipped on a wet bathroom floor and injured her hip, and a woman is in early labor.

Security and a paramedic are summoned to a crowded area—a fan waiting in line has fainted, others are feeling the effects of the unexpected January heat. Guests are already being treated at first aid stations throughout the stadium.

**07:00 PM** During the pre-game and halftime shows, Martinez and his fellow physicians, along with multiple specialists, patrol the sidelines with oxygen, X-ray units, and ambulances at the ready. He carefully observes the hundreds of entertainers, photographers, and reporters going up and down the field and directs members of the medical team to be vigilant.

Area emergency rooms are busier than normal already from the increased traffic—both car and foot. But mostly, by game time, it's just about staying aware, alert, and responsive.

Martinez is posted near the 30-yard line, an extra set of eyes and ears and hands for the team physicians. Noting his vantage point behind the players, photographers, and referees, he jokes that once again this year, the most he'll see of the game itself is “plenty of people's butts.”

“Mascot going down,” Martinez radios to the command post, as he sprints toward the mascot wobbling near the stands. Martinez peels off the heavy foam costume to reveal a hulking 6-foot-four, 250-pound young man whose face is beet red. He's sweating profusely.

“Pump him full of fluids and cool him down,” he tells the medics who help the mascot off the field.

Later a defensive back goes down. His wrist cracks, bone digging into dirt. The player needs to get into surgery ASAP, Martinez tells central command, and a choreography of movements begins. Within minutes a cart is taking the player off the field and a pre-screened ambulance is waved through by security. It speeds the player to the hospital, where he's in the operating room within 45 minutes of the accident.

**10:30 PM** The game is over, but Martinez and his team are still on duty, helping facilitate after-game physicals and X-rays—it's the last game of the season, so all the injured players must be evaluated before they leave. More trips and falls are inevitable as thousands of fans pour out of the stadium and workers, vendors, and broadcasters close down. By day's end, the medical teams will have dealt with some 300 incidents and at least a dozen transports to area hospitals.

**01:00 am** The early morning hours: Martinez and his medical team, still pumped on adrenaline, head out to a post-game dinner where they'll watch reruns of the game, eat their first meal since yesterday's breakfast, and replay the day's medical highlights. Like a good coach, Martinez is constantly fine-tuning his team's contribution to the host city's preparedness efforts so that everyone from the players to the ticket takers, concessionaires, broadcasters, and fans can safely enjoy this once-a-year clash between football's finest.

**Three weeks later:** Martinez and Alex Isakov, his Emory colleague and medical team member, share lessons learned with the next host city. They tell local police, fire, medical, and other emergency services what to expect and what they'll need to do to get ready. “The Super Bowl is iconic, and we're happy to share what we've learned about how to make these large-scale events safe,” Martinez says. “It's a great joy to do this work, both as a physician and as a sports fan.” ■

**And so Super Bowl day goes for Ric Martinez. He's a key part of a complex, carefully orchestrated mass gathering that packs in 100,000 people—the equivalent of a small city, with all the accompanying issues of security, safety, and public health.**



## THE HANDOFF

Emergency medical response teams need to be prepared to provide urgent care while minimizing transports on Game Day, says Alex Isakov (left, with Martinez), director of prehospital and disaster medicine at Emory and of CEPAR (Emory's Center for Critical Event Preparedness and Response). “They need to be ready for the possibility of a mass casualty event, and to apply hemostatic dressings

and tourniquets to control bleeding—interventions that a local responder may not routinely employ,” he says. Martinez and Isakov were involved in Super Bowl LI in Houston and will start planning for Minnesota this coming year. “In every host city, we work with professionals dedicated to serving their community well,” he says. “There is a distinct difference in how a venue plans for a regular season



game and how they plan for the Super Bowl, because it is so complex and high profile.” It's also an opportunity for those on the front lines to have robust dialogue with their counterparts in other cities, he says—to see how they are organized and to share ideas about disaster response. ■

# TALES from the STADIUM

“People don’t think about emergency medical services when they go to the Super Bowl or the Peachtree Race, and we really don’t want them to be worried about what might happen,” says Kate Heilpern, who leads Emory’s Department of Emergency Medicine. “We do the work so people can go to sporting competitions and enjoy themselves.”



## Natural Disasters

When a magnitude 6.9 earthquake hit the San Francisco Bay Area, prompting the city’s 49ers to move games to Stanford Stadium while Candlestick Park was being repaired, the NFL realized it was unprepared for catastrophic events.



“Emergency care was something they didn’t know much about,” Martinez says. “They asked if we would work with them to make sure that they were doing everything they could to ensure that both the players and spectators had access to the best emergency care.”

After a rise in mass event terrorist attacks worldwide, the NFL began to emphasize risk management and safety issues even more.



## Securing a Pop-Up City

Today’s Super Bowls are about more than the game. They are weeklong events, with local festivals, concerts, health screenings, and other activities across the region. Keeping the public safe starts well before the first kick-off and extends far beyond the players and the stadium.

In 2004, 200,000 people took part in festivities surrounding Super Bowl LI in Houston. For the 2017 Bowl, the city was expecting more than 1 million. Many of those visitors attended Super Bowl Live, a multi-day fan festival.



## Please Proceed Calmly to the Nearest Exit

Evacuation videos similar to those on airlines are now the norm in most large stadiums. If you look at major events where people were injured or killed—even during terrorist attacks—the event is further complicated by people panicking and stampeding.

The emergency response team does simulations before the Bowl to make sure that evacuation routes are well designed and people can get out quickly, in an orderly fashion.



## Follow the GPS

In addition to serving as backup for team physicians, the emergency response crew sets up systems of care for the players at their hotels and practice facilities as well as on Game Day, providing pre-loaded GPS units to the teams should they need to travel to clinics, hospitals, or imaging centers. “We work closely with state, local, and federal authorities,” Martinez says. “When we put up a secure perimeter, you can’t just call an ambulance because it won’t be let in if it’s not sanitized and X-rayed and sniffed.”



## Cruise Ship Virus

In the weeks leading up to a Super Bowl in Miami, passengers from a cruise ship stayed in the NFL headquarters hotel. They left in their wake a stomach virus that within 48 hours had infected more than 120 members of the NFL “family.” Emergency public health measures were put into place, including washing sheets every day and wiping down all bannisters and other surfaces several times a day. “We provided hand sanitizers and taught NFL staff to do the flu bump (tapping elbows) instead of shaking hands,” Martinez says.



## Ice, Ice, Baby

Because it’s held in the winter months, fans can face severe weather hazards at wintry Super Bowls. At one game held in below-freezing temperatures, people were slipping and sliding, and a chunk of ice fell and hit a fan on the head. Ambulances couldn’t get over the ice to respond to “terrible injuries like broken hips and elbows,” Martinez says.



## Mystery Meat

Mid-game at another Super Bowl, people started showing up with nausea and vomiting at first aid stations in one section of the stadium. The illness was tracked to tainted meat being sold by one vendor. Public health officials shut the vendor down and sent the meat to be tested.

## DOCTOR ON THE FIELD: Spero Karas

### NO SHORTAGE OF DOCS:

Lots of doctors are on the field, especially for big games—a head team physician and orthopedic surgeon, a second orthopedic surgeon, two medical physicians, and a league-mandated, unaffiliated neuro consultant. The other team has doctors as well.

### LAYERS OF PROTECTION:

An airway doctor is on the sidelines at all times so everyone knows where to find him. And the NFL mandates a spotter in the booth who

has a 360-degree global view and who can review video.

**PHYSICIAN FIRST:** As a physician at the game, you're not a fan or coach, you're there to observe the players for injuries and to provide standard medical care.

**MANTRA:** Stay detached, stay clinical, and stay in the moment.

**PREGAMING:** A typical regimen includes hydration (oral or IV fluids); stretching;

using light weights, bands, and rollers; and then massaging and taping right before the game.

**RECOVERY:** We make sure the guys get hydration, icing, and stretching after exertion. And we stress proper nutrition, rest, and sleep.

**FALCONS FAN?** My family and I love all of our hometown teams. Unfortunately, or fortunately for me, I am always working when the Falcons are on the field.



Spero Karas (above, cover), associate professor of orthopaedics at Emory and head team doctor for the Falcons



"Athletes are simply not the same as the general population from a cardiac perspective. Symptoms

such as chest pain may mean something very different in an athlete. Intense exercise also causes normal changes in the heart and because of this, strategies for treating heart conditions in athletes may be altered."

—Jonathan Kim, head cardiologist for the Atlanta Braves, Hawks, and Falcons



"We provide a single point of priority access through the head team physicians to our Emory Sports Medicine

physicians, our orthopaedics & spine physicians, and doctors from 72 subspecialties. Having a strong medical partner helps a professional team recruit and retain top athletes, who know they are in excellent hands and potentially can extend their playing careers." —Scott Boden, director of Emory Orthopaedics & Spine Center



"I enjoy helping the players stay healthy and get back to the game they love. It's great to build a repar-

tee with them and help them stay focused when there are so many distractions around them. It's a team effort to coordinate the athlete's care with athletic trainers and other health care providers." —Brandon Mines, sports medicine physician, Atlanta Dream and Falcons

## TEAM Docs

**Sports Medicine** **KYLE HAMMOND**, Hawks (head ortho), Braves, Northview High **NEERU JAYANTHI**, Johns Creek High **SPERO KARAS**, Falcons, Braves **LEE KNEER**, Braves, U.S. Soccer, Dunwoody High, North Springs High **SAM LABIB**, Oglethorpe College **AMADEUS MASON**, Tucker High, USA Track & Field (Olympics), Georgia Tech **SCOTT MAUGHON**, Gwinnett Braves **KEN MAUTNER**, Hawks (head), Braves, Pace Academy, Emory University, Agnes Scott **BRANDON MINES**, Falcons (head medical), Atlanta Dream (head), Atlanta Girls School **OLUSEUN OLUFADE**, U.S. Soccer, Northview High, Emory University, Georgia Tech **MAT POMBO**, Berkmar High, Chattahoochee High **JEFF WEBB**, Braves, Falcons, Blessed Trinity High **JOHN XEROGEANES**, Georgia Tech, Atlanta Dream (head ortho), Braves

**Cardiology** **JONATHAN KIM** (head), Braves, Falcons, Hawks, Atlanta Dream, Georgia Tech, Peachtree Road Race.

**Ophthalmology** **ANASTASIOS COSTARIDES** (head), Falcons and Hawks Also, **JEREMY JONES**, **JOHN KIM**, **JOON KIM**, **BRENT HAYEK**, **PURNIMA PATEL**, and **BAKER HUBBARD**.



# DAY at the RACES

**T**he toughest section of the Peachtree Road Race course is known as “Cardiac Hill,” named for the medical emergencies—and near emergencies—that have taken place there.

Mass moving events like the Peachtree Road Race and the Publix Marathon pose different security challenges from large-scale stadium professional sporting events—namely, there are thousands of participants, any of whom could suffer injury or illness at any point along the route.

Shortly after Philip Shayne joined Emory’s Department of Emergency Medicine, he volunteered to help provide medical support at the finish line of the Peachtree Road Race—now the largest 10K running event in the world.

“I was fascinated,” remembers Shayne. “It’s a pretty unique event—60,000 people having a good time, doing something many of them are not in shape to do. It’s really a controlled disaster, but the Atlanta Track Club does a great job.”



**Philip Shayne** manages Peachtree safety in “thoughtful, low-tech ways.”

Running on July 4 in Atlanta is not a great idea, he says, and people running once a year is not optimal. “So we approach the Peachtree with a thoughtful, low-tech way to mitigate injury and rapidly take care of people aggressively right where they fall so we don’t end up with scores of people in the hospital.”

The strategy for responding to runners who become ill or injured must be dynamic and able to change moment to moment, says Arthur Yancey, associate professor at Emory and medical director of Grady EMS.

Thirteen pairs of highly trained paramedics on bikes as well as ambulances are stationed along the 6.2-mile course. During the race, these medical resources either peel off and return to the 911 services of the City of Atlanta or follow the last of the runners and eventually concentrate at Piedmont Park, where the race ends.

Since the Peachtree began in 1970, the bike teams have dealt with a total of 12 cardiac arrests in registered runners. Many credit the survival of nine of these runners to the bike team’s quick response. Yancey and two Emory EMS fellows are usually based at Piedmont Park, while a recently graduated senior emergency medicine services fellow is posted in a satellite center where resources are dispatched to the site of anyone who has gone down along the course.

Shayne oversees activities in one of the three medical tents at the finish line and, with two attendings, supervises the interns (first-year residents) who help take care of patients. Before the race begins, he walks the interns through their responsibilities, reminding

## PEACHTREE ROAD RACE BY THE NUMBERS

**47** Peachtree races so far

**60,000** participants

world’s largest  
**10k**

**36** million calories burned

**12** cardiac arrests in registered runners

them about the trio of conditions—heat exhaustion, heat stroke, and dehydration—that most often bring runners and spectators into the medical tents. “Working a mass gathering like the Peachtree is a formative experience for them,” he says. “They become a piece of a well-organized response to a well-recognized disease—heat illness. It introduces the interns to Atlanta, provides value to the community, and gives them an opportunity to give back. So it’s a win, win, win.”

The patients come in surges. First through the finish line are the wheelchair racers, then the nationally ranked athletes and the fit runners who want an elite time. They are followed by the “not-so-great athletes who are pushing themselves more than they should on an often hot, muggy morning, up and down the hilly course,” says Shayne.

“This past year was the worst by far in my 20 years of doing this,” he says. “It was so hot and so humid that people couldn’t sweat and cool effectively.”

The number of patients transported to Grady Hospital in 2016 bears that out. In a typical year, Grady EMS transports about a dozen patients from the tents to the emergency department. Last year, 28 patients ended up in the Grady ED and other area hospitals.

Preparations for events like the Peachtree and the Publix Marathon have intensified and become more formalized since the Boston Marathon bombings, with the federal government and public safety agencies taking a larger role in the planning.

In the event of a terrorist attack, law enforcement would become the lead agency, while EMS would handle triage and transport patients.

“Security is of the highest priority,” says Yancey, who co-chaired the EMS subcommittee for the 1996 Olympic Games in Atlanta. “We have contingency plans so we can do our work

effectively without becoming victims ourselves.”

While the Peachtree poses many of its emergency care challenges at the finish line, the much longer Publix Georgia Marathon is not quite as predictable. Medical director Lekshmi Kumar, assistant professor of emergency medicine at Emory, checks weather reports almost compulsively in the days leading up to the March marathon, worrying if her team has stocked enough blankets to keep people warm and enough water to cool them off. “We’ve had super cold and hot years, so we have to be prepared for everything from hypothermia to dehydration,” says Kumar.

Weather and distance—in this case, 26 miles over hill and dale through Fulton and DeKalb counties—can be hard on inexperienced runners. “If they actually finish, they’re often not hydrated enough and fall out because of that,” she says.

And the possibility of terrorism and other mass casualty incidents brings a host of concerns: “We set up evacuation points along the course and make sure that everybody knows where the closest point is,” she says. “It’s not a question of moving three or four people, it’s about moving 16,000 people or more if (the event is) at the finish line where there are a lot of spectators and volunteers.”

Each November before the marathon, representatives from all 911 response services throughout Fulton and DeKalb counties hash out the details of the race from a medical perspective. They ask each other, “If this happens, what are we going to do and how are we going to do it?”

Then recruitment starts for some 75 Emory personnel—medical students, nurses, physicians, residents, sports medicine physicians, emergency medicine techs, and scribes—who will staff the race on the course, in the tents, and at the all-important finish line. ■



Spotters—usually medical students and EMTs—are stationed at checkpoints

along the Publix Georgia Marathon route to update Lekshmi Kumar (above, right) about runners in trouble. She leads operations from the medical tent at Centennial Olympic Park.



Tony Benner

# TOO MUCH TOO SOON?

BY Melissa Mickiewicz

“Physically, skating—like any sport—is hard and comes with injury and physical setbacks. I suffered more sprains,



Photo provided by Aspen Ono

fractures, and concussions that I care to admit, and recovering from those injuries or having to be off the ice due to those injuries was always hard.”—Aspen Ono

## Decades of training, intense competition, and focusing on one sport can create health problems for young athletes. What can be done to reduce the risks?

**F**igure skater Aspen Ono has been training hard on the ice since the tender age of 4 and worked tirelessly at her sport until 18, when she stopped competitive training to concentrate on her college studies.

Most mornings, Ono was at the rink by 5 a.m., warming up for a two-hour practice. She completed a full day of school and was back at the rink again for two more hours of training. Aspen routinely combined a 20-hour-a-week figure-skating training schedule, cross training, ballet for skaters, and Pilates.

Although an introvert off the ice, Ono—an Emory

College junior—loved the spotlight, the magic of a perfect performance, the adrenaline of competition.

“I like to win,” she says. “Gosh, I sound like Donald Trump, but it’s true.”

The glory of competing with the best comes at a price, though, in the form of physical ailments young athletes may carry with them for the rest of their lives.

“I was diagnosed with arthritis in my back by the time I was 15. Years of jumping and smashing my spinal vertebrae together has left me with minimal padding between them,” says Ono who still teaches younger skaters. “I now see physical therapists, massage therapists, physicians, and

chiropractors routinely.”

“I’ve noticed a paradigm shift in youth sports—early specialization in younger and younger children,” says Neeru Jayanthi, a sports medicine physician at Emory who is an expert on youth sports, injuries, and training patterns. “This poses a risk for kids not seen in previous generations—young, developing bodies are put under the stress of executing maneuvers and skills designed for adult bodies.”

Even for young athletes in low-impact sports, the grueling practice schedule can wear them down, cutting into their sleep and self-care time. Madeline Locus, a PhD student in mathematics and an Olympic trial-qualifying swimmer who has been pursuing the sport since age 4, was swimming more than 20 hours a week at her peak. While she rarely got injured, Locus says, “I was seeing physicians often for illnesses, almost every couple of weeks.”

College swimmers and Olympic hopefuls Christian Baker and Oliver Smith are often in Emory’s Woodruff Physical Education Center pool before the sun rises. After classes, they are back in the water from 3:15 to 5 p.m., averaging 20 hours of training a week, including weight lifting. “The team has a whole ritual devoted to recovery after training,” says Smith, “Every two weeks, we get massages. Icing is also very important.” Baker, who once had a shoulder injury in high school that kept him out of the water for six weeks, says good coaches help: “They know the sport inside and out and what a swimmer needs to recover and be ready for the next event.”

Emory sports medicine physician Spero Karas sees young athletes pushing themselves to their limits every year—especially as students get ready to impress college and pro scouts in the “Combine,” a showcase of the area’s best young hopefuls. Participants are judged based on their abilities to perform tests such as high jumps, timed 40-yard dashes, shuttle runs,



**Olympic hopefuls in swimming, like Emory’s Oliver Smith (above), can average 20 hours of training a week, including weight lifting.**

bench presses, and other measures.

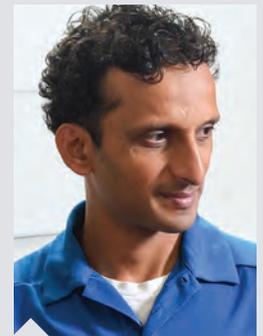
“Athletes who prepare for the Combine are really pushing themselves to their limits,” Karas says. “I see a lot of overuse, over-exertion type injuries—strained pecs, hamstrings, quads.”

Injuries that affect the joints, like tearing the ACL or shoulder dislocation, are the most critical because they render the area highly unstable. “They require surgery, putting the athlete out of training for weeks at a time, as well as leaving the affected region nonfunctioning for the time it takes to heal,” he says. “Arthritis is yet another possible effect of long-term joint trauma.”

Jayanthi works with young tennis players, sometimes conducting on-court evaluations with video analysis to help identify stroke mechanics that may need to change for players to return safely to play. “Taking care of young players includes injury prevention, performance training, nutrition, even mental health counseling,” he says.

In general, Jayanthi says, young athletes should not be training more hours a week than their age, and shouldn’t specialize in a single sport before age 12.

“Young athletes who are already dedicated to one sport should be spending at least a month after the season to rest and recover, and at least three months off per year, total,” he says. “Sports are a great way to exercise, but not respecting the body and its limitations can lead to burnout and injury.” ■



**DR. NEERU JAYANTHI,** Emory sports medicine, national expert in youth sports.

Jayanthi and his team evaluated the risks of sports specialized training patterns in nearly 1,200 young athletes over the course of three years. Investigators found that, on average, injured young athletes played more year-round sports, participated in more weekly hours of organized sports, and maintained a higher degree of specialization. Nearly 40% of the athletes reported an injury during the study period, and nearly two-thirds of those athletes in highly specialized sports experienced a re-injury. ■

# self help

using your own  
stem cells to help  
your body heal



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BY Kimber Williams ■ ILLUSTRATION BY Bryan Christie Design

**The truth came crashing home last year—a perfect storm of faulty genetics, the unrelenting march of age, and every athletic mishap I’ve ever stumbled through.**

After watching two kinds of arthritis stiffen my mother’s joints—leaving her with fingers pinched into what she called her “flippers” and staggering knee pain—I suppose it shouldn’t have been a shock to hear Emory rheumatologist Raluca Cozmata gaze thoughtfully at my own X-rays and say the word I never wanted to hear.

Osteoarthritis.

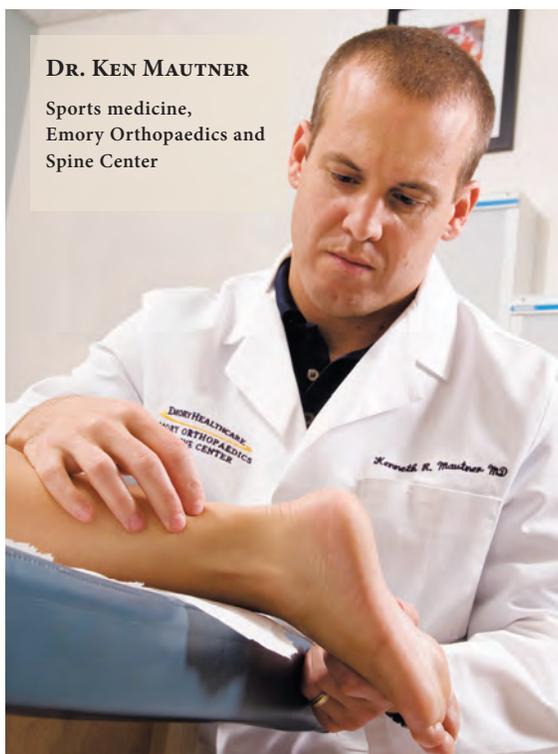
The most common form of degenerative bone disease, affecting millions worldwide, osteoarthritis (OA) is both quite ordinary and, for many of us, somewhat inevitable. The cause is deceptively simple: Over the years, the slick rubbery cartilage that pads and protects the ends of our bones simply wears down, eventually leaving bone rubbing painfully against bone.

Like a brake pad worn thin, this erosion can occur in almost any joint in the body, although it most commonly shows up in knees, hips, hands, and spines. There is no miracle cure; treatments to quell discomfort typically range from anti-inflammatory pain relievers, physical therapy, and cortisone injections to surgery.

But lately, a non-surgical alternative has been gaining attention—a treatment that relies upon the power of the human body to help heal itself.



**RALUCA COZMATA**  
Rheumatologist, Emory Clinic,  
Emory University Hospital



**DR. KEN MAUTNER**  
Sports medicine,  
Emory Orthopaedics and  
Spine Center

About five years ago, physicians at Emory Orthopaedics and Spine Center were among the area's first health care providers to begin offering regenerative stem cell therapy, a treatment for osteoarthritis and related joint issues that harnesses the ability of a patient's own stem cells to repair damaged tissue, reduce pain, and promote healing.

It works like this: Stem cells are extracted from a patient with a needle—usually from abdominal fat (adipose tissue) or bone marrow within the hip—and placed into a centrifuge, where the sample is spun rapidly to isolate the stem cells and create a rich con-

centrate. Within a matter of minutes, those cells are injected back into the patient's damaged joint to help kick-start healing.

All told, the in-office procedure takes about an hour and a half, with little downtime, discomfort, or side effects for most patients. Harvesting the adult stem cells directly from patients reduces the risk of rejection; many report feeling marked improvement in their joint within one to three months.

For Ken Mautner, who practices sports medicine at Emory Orthopaedics and Spine Center, stem cell therapy represents a natural next step in regenerative medicine.

Mautner is a leader in the field of orthobiologics, which uses cell-based therapies and biomaterials to enhance healing, empowering the body to help repair itself. About nine years ago, he began using platelet-rich plasma therapy to help patients with osteoarthritis and joint damage, expanding to stem cell therapy around 2012.

The power of the process lies within the cell. Stem cells are essentially the body's most fundamental raw material—specialized cells with the ability to make copies of themselves and the potential to differentiate into various types of cells for specific functions within the body.

While there are several different types of stem cells, those thought to excel at promoting the healing of tendons, ligaments, and cartilage are mesenchymal stem cells, multipotent stromal cells commonly found in bone marrow and adipose (fat) cells, says Mautner, an associate professor of physical medicine, rehabilitation, and orthopaedics at Emory and director of primary care sports medicine.

The body typically keeps a ready supply of

these powerful mesenchymal cells on hand to help repair injured tissues. And while there is little evidence that introducing a concentration of the cells can actually replace lost cartilage within a joint, they do have the ability to function as “very powerful signaling cells,” encouraging the body to send in proteins such as cytokines—molecular messengers that slow down cartilage degeneration and regulate pain—and interleukins, a type of cytokine that can also dial down inflammation.

**“Put them in a test tube, and you can get stem cells to grow into almost whatever you want,” Mautner says. “Here, the goal is reducing pain and improving function, working to essentially turn off the death of your original cartilage cells.”**

Those cartilage cells could have been damaged from an old athletic injury, the wear-and-tear of everyday life, or by mechanical issues linked to the way you walk, exacerbated by obesity or simple genetics. The result is the same—pain, stiffness, and reduced range of motion.

Through stem cell therapies, Mautner sees an opportunity to fill a critical treatment gap for OA patients, providing an alternative between pain relievers and total joint replacement surgery.

Though some still consider the treatment experimental—the FDA is now considering how to regulate a number of stem cell therapies, which most insurance doesn't yet cover—Mautner and his colleagues are monitoring outcomes for 150-200 patients a year. And they're encouraged by what they've seen.

Mautner's average patient is mid-50s, but he works with patients from their 20s into their 80s. Patients in good overall health with no underlying complicating conditions will see an improvement 75%-80% of the time, he says.

While stem cell therapy may not be for everyone, “we're definitely seeing success with the right people under the right conditions,” he says. “I'm seeing folks who were once candidates for knee replacement now five years out from stem cell treatment and doing very well.”

As physical conditions vary, so do outcomes. **“I've treated folks who went from being very inactive to doing Ironman triathalons and those who are happy to just be able to take a walk again,” he says. “The goal is less pain in their day-to-day lives, the ability to get up and moving.”**

For John Bourke, a former college basketball player who punished his joints on the hardwoods well into his 50s, stem cell therapy has proven to be a game changer.

The 62-year-old Suwanee businessman struggled with OA for years, a veteran of multiple courses of treatment. By the time he began meeting with Oluseun Olufade, a sports medicine physician at the Emory Orthopaedics, Sports & Spine at Johns Creek and assistant professor of orthopaedics, he had undergone two knee replacements and had severe hip pain.

A cortisone shot had brought temporary relief, but the ever-present ache of OA—it felt like being stabbed with a hot knitting needle—returned with a vengeance. In fact, pain was a near-constant companion. “On my worst days, to drive to work, park my car, get out, and walk 30 steps into the building and 15 more to my desk was very, very painful,” he says.

Last year, Olufade raised the possibility of stem cell therapy. “He went to great pains to say that this is not a guaranteed fix—there was a possibility that it wouldn’t help much at all,” says Bourke, who would cover the \$3,000 treatment himself.

“But the more I heard about it, the more I liked the science of it,” says Bourke, an electrical engineer by training. “It’s not rebuilding cartilage, it’s using your own cells to affect improvement in your joint, so there’s not the rejection issue.”

Having twice before endured joint replacement, followed by long weeks of rehabilitation, he liked the idea of avoiding—or at least delaying—the intrusion of surgery. In his mind, stem cell therapy offered a welcome compromise.

Compared with previous knee replacements, the procedure was simple and relatively painless. On January 11, Bourke reported to Emory Orthopaedics, Sports, and Spine at Johns Creek, where stem cells were removed from adipose tissue in his abdomen. With a local anesthetic, it was only mildly uncomfortable, he recalls.

Once extracted, his stem cells were spun, isolated and reintroduced into his hip joint—probably the least comfortable part. He compares it to receiving a cortisone shot.

After about 10 minutes, Bourke

was allowed to leave, with orders to stay off his legs for a few days. Within several weeks, he began to feel improvement. Now more than two months out, having completed a dedicated course of physical therapy, he’s thrilled with the results.

“My hip has improved a ton. I’m doing the best I’ve done in a long time,” he says. “I own a couple of acres, and I’ve been able to get out and walk on my property and return to the gym, working on getting my weight down again.”

If the treatment had to be repeated in a few years, he says, he would gladly do it again.

It may sound like a modest victory, but in the lives of his patients, Olufade recognizes that conquering daily pain is a huge achievement.

**“The goal from my perspective is to keep people enjoying what they enjoy. High school student, professional athlete, middle-aged person—it’s really just about helping them function the way they want,” he says.**

Beyond OA, Olufade has also used stem cell therapy to help with tendon and rotator cuff injuries. “The goal is to help address pain,” he says.

His patients come to him with a myriad of conditions and hopes for relief. A 30-year-old man desperate to avoid a knee replacement. A middle-aged woman who yearns to ride horses



**Weight-bearing joints like the hip (above), knee, and spine are most likely to be affected by osteoarthritis.** *Medical Illustration by Michael Konomos, Visual Medical Education, Emory School of Medicine*

again. An executive looking to recapture his golf game. An 85-year-old man who simply isn’t a strong candidate for hip replacement surgery.

**“Stem cell therapy is an option for athletes,” says Olufade, “but also for the guy who just wants to live a normal life and play soccer with his grandkids.”** ■

#### DR. OLUSEUN OLUFADE

Sports medicine, Emory Orthopaedics, Sports & Spine at Johns Creek and Dunwoody.





*Anne Marie Kerchberger loves the patient-centered approach of primary care medicine but isn't sure yet what path she will follow in her career. Her parents, brothers, and other relatives specialized in pulmonary critical care, radiology, ob/gyn, gastroenterology, infectious disease, anesthesiology, and general surgery. "My mind changes every two days," she says. "That's the beauty of medicine."*

# ‘Nothing Matters More’

## Training the next generation of diagnosticians

BY Michelle Hiskey ■ PHOTOS BY Bryan Meltz

*Before entering medical school, Anne Marie Kerchberger worked for an ophthalmologist who saw up to 80 patients a day. Kerchberger wanted the chance to develop strong relationships with her patients and to spend as much time as she could with each one. But she was beginning to think this kind of doctor—or level of care—didn’t exist anymore.*

Kerschberger’s recent training at Emory’s Paul W. Seavey Comprehensive Internal Medicine Clinic opened her eyes to doctors who fulfill a modern version of the iconic family physician—the trusted expert who spends time listening to their patients’ concerns.

Located in Emory Clinic A, the internal medicine clinic reflects the charismatic style of the late Paul Seavey, a long-time Emory internist and professor of medicine who treated three Emory presidents as well as other prominent community members. His friendships with these Atlanta leaders led to a continued philanthropy that helps fund the clinic’s eight physicians. “Dr. Seavey epitomized the essence of the Emory physician,” said Amy Rollins Kreisler, whose grandfather O. Wayne Rollins founded Orkin and was a Seavey patient, and whose family

foundation recently made a second \$5 million gift to the clinic. “That is what we hope will be instilled in the doctors who are training here.”

Other VIPs treated at the Seavey Clinic express gratitude for their care by paying it forward: More than \$35 million in donations have come from grateful patients in the past 28 years. That philanthropy helps recruit great medical students regardless of their financial need, recruit and retain faculty physicians, and support research.

### **Personal care**

“This is going to feel a little bit uncomfortable,” Kerchberger, 25, says to Frank Erbrick, 77, a retired UPS information technology executive, as she palpates his abdomen. “Take a deep breath in . . . and all the way out.”

She is in her third semester of

medical school, and David Roberts, who trained under Seavey and now runs the clinic, has told her to find Erbrick’s liver. The conversation and atmosphere between the three is casual and relaxed, covering Erbrick’s dog walking, smoking, and family members with cancer. Roberts and Erbrick have been doctor-patient since the early 1990s, when Roberts flat out told Erbrick he had to sober up or find another physician. Erbrick did more than that. When the Seavey Clinic needed technology upgrades, Erbrick helped get them installed; other patients donated funds. “He’s the best thing that ever happened,” Erbrick says of Roberts. “My family could never pay for the care he has given us. He is the consummate ideal of what a doctor should be.”

No one rushes much at the Seavey Clinic; it has more of a



**Dave Roberts** (above, with Kerchberger and patient), director of the Seavey Comprehensive Internal Medicine Clinic, carries on Paul Seavey's philosophy of care: "It is of greatest importance to learn from each patient from careful listening and observation, which, while time consuming, may often reveal the diagnosis. Time can be our best diagnostic tool."



**Paul Seavey** (above), founder of the internal medicine clinic, cared for U.S. and Emory presidents and CEOs, but all patients received the same level of care and personal attention—an approach passed on to medical trainees at the Seavey clinic.

business feel than medical. Ricky Aaron, the Emory Healthcare director of infrastructure virtualization, has the next appointment. At 59 and Roberts' patient for more than 20 years, Aaron mentions that he is building a barn, and that a sleep study has helped with his apnea.

He has a wart on his left elbow that Roberts freezes with liquid nitrogen. "You have to kill the base of the wart," Roberts tells Kerchberger. "That's where the virus and rapidly growing cells are. They're like coral, but the living part is on the bottom, not the top."

### **Seavey's legacy**

Roberts learned his approach to care at the side of Seavey, especially the soft skills—making a patient feel that nothing matters more than their health.

After serving in World War II, Seavey attended Emory College then the medical school on the GI Bill. During his residency, he lived in a closet-like room at Emory Hospital and later married an Emory nurse. He was known for his starched white coat, white hair, and confident manner. He strove to be accessible to his patients all the time, responding quickly to their concerns.

This brand of medicine was exactly what Roberts desired, and, as his own medical school years wound down, he refused to be pressured into specializing. Close, personal relationships with patients are not a bygone, romantic ideal to him; they offer an antidote to physician burnout. "The only other physicians in my family were a great-uncle and his father who made house calls in Missouri in a horse and buggy and got paid in chickens and apples," Roberts says. "The image of being one-on-one with a patient over time is what I wanted, and you can't do that in other fields of medicine."

Perhaps the best measure of Seavey came from the many doctors who sought him for their own treatment. Seavey believed that no one could care for the whole person better than the general internist, who by definition is in charge of every aspect of a patient's health. Because these types of doctors generally have fewer research and scholarship opportunities and their productivity is usually measured by the number of patients they treat, Seavey advocated for more academic resources and promotions for them.

With patients ranging from former President Jimmy Carter—who threw

*“About 80% of chronic disease is preventable, and the best way to prevent it is through a trusting relationship with a physician over time, not someone you see once. Choosing primary care comes down to how you see yourself adding value.”*—SHARON BERGQUIST (BELOW, LEFT),

A ROLLINS DISTINGUISHED CLINICIAN AT THE SEAVEY CLINIC



a surprise birthday party for him—to Emory trustees and everyday Atlantans, Seavey was driven by intense curiosity. “He was a listener who loved stories,” says his daughter Cheryl Seavey Murphy, who like her sister Susan trained as an Emory nurse; sister Carol is an Emory College grad. “From Georgia farmers to international executives, he loved their stories. People opened up to him, and his bottom line was that the rest of their health may be related to their stories. That’s why he would take one and a half hours for an initial workup. His overarching theme was ‘what matters in life is people.’”

John Rollins, the brother of O. Wayne, became such good friends with Seavey that they and their wives vacationed together abroad, traveling in the Rollins jet. Seavey cared for four generations of Rollinses. “They both loved rags-to-riches stories, that if you had intuition and grit and hard work, you could achieve your dream, and Emory offered that possibility,” Murphy says. “Whether you succeed or fail, you just keep going.”

Seavey’s first major gift came in 1988 with a \$1 million donation from Jack Lupton, a Coke bottler whose philanthropy transformed downtown Chattanooga. The Seavey Endowment encouraged Emory’s top primary care doctors through special awards, research funds, opportunities for lifelong learning, and generous distinguished clinician awards.

### ***Off the treadmill***

“Dr. Seavey wanted to make sure physicians weren’t on a treadmill of 25 to 30 patients a day, to protect the time to get down to what’s going on,” said Ronnie Jowers, recently retired vice president and CFO of Woodruff Health Sciences Center. “For Emory physicians, the endowment money is the carrot of opportunity to practice differently.”

Seavey established Emory’s executive health program, which along with Special Diagnostics Services is headquartered at the clinic. “An executive physical is part of the benefits package that recruiters use, like stock options,” says Seavey Clinic nurse manager Trish

Archer, who partnered with Seavey for almost 20 years. “He knew that to get quality residents in primary care, you had to give them a great experience.” The O. Wayne Rollins Fund for Clinical Excellence supports the Seavey Clinic’s faculty physicians, known as Rollins Distinguished Clinicians, and the Executive Health Discovery Database, which identifies and measures markers of health and disease.

The most recent \$5 million Rollins donation allows the Seavey model to move forward with sustainability.

Patricia Keegan, an advanced nurse practitioner in cardiology at Emory, says training at the Seavey Clinic “reaffirmed my faith that it’s OK as a provider to look at each person as a whole, that understanding their social interactions, and financial and medical concerns are part of developing goals of care and meeting them.” This, she says, is especially important with tough conversations, such as how an elderly patient plans to maintain independence. “I hope to be able to teach others by example,” Keegan says.

Just as Seavey would have wanted. ■



# Learning from the Zuni

BY Jessica Rollin ■ PHOTOS BY Jessica and Francois Rollin

**Francois and I met my first year of medical school at Emory. He was doing his MPH in between his third and fourth year. We spent a week in Haiti together providing medical care to people who otherwise would not get it. We did the same thing the following year, and Francois went again as an attending physician after he had graduated. We both loved that experience and knew that providing care to the underserved was a passion for us.**

After graduating, we decided to pursue jobs through the Indian Health Service because we wanted to provide medical care in a new, challenging setting and in an environment that was far away from the pressures and demands of urban, academic medicine. We wanted to have an adventure and explore a brand new side of medicine.



So we moved to Zuni, New Mexico, in September 2015 after I finished my psychiatry residency at Emory and Francois had done two years as an attending at Grady Hospital. We packed up our belongings and our 14-month-old daughter and headed west.

The Zuni are a tribe of Pueblo Indians who have lived in this part of the world for more than 900 years. The reservation is near the Arizona border, about 2½ hours west of Albuquerque. We are surrounded by red rock mesas and other rock formations, Juniper trees, and piñon pines. Our house looks out onto a vast expanse of nature, and we are greeted by magical sunrises and sunsets. On our first walk after arriving here, we saw a tarantula in the middle of the path. We've seen lots of jackrabbits, elk, snakes, roadrunners, and beautiful western birds. We often go a week or more here without using our car—or our credit cards.



Francois and Jessica Rollin came to New Mexico looking for adventure and a place to practice medicine. What they found was a community.

We serve a population of about 15,000, and see both Zuni and Navajo patients. The Zuni Comprehensive Health Center is an Indian Health Service facility with 12 inpatient beds, obstetrics capabilities, an ER, and a large outpatient practice. There is a dental clinic, physical therapy, optometry, and audiology. Francois did his residency in internal medicine but here he practices as a full-spectrum family physician and sees kids, pregnant women, and ER cases.

As the only psychiatrist in 150 miles, I do mostly outpatient work, and consult on ER and inpatient cases. I also see children, despite not having a child or adolescent fellowship. At first this made me nervous and I felt inadequately prepared to offer care to such vulnerable patients. I soon realized, however, that there was no one else and that my services

were better than nothing—a lot better.

We feel lucky that we landed in this spot. The Zuni have one of the best-preserved cultures and religious traditions of all Native American tribes. They are generally very private about their traditions, but in clinical settings, our patients tell us stories about their history and traditions. We've seen knee pain in an 85-year-old that was “worse when I ride my horse,” and frostbite in a man out shepherding. We've treated someone who quit drinking because of his initiation into an important religious group, and learned that babies have reflux because their mothers “left things half-eaten” during pregnancy. In fact, we had our second child three months into being here, and learned a lot about Zuni traditional wisdom as applied to babies. First, it is frowned upon to learn the gender of your baby before it is born (luckily for us, we had also wanted to wait to find out). Then, my son had reflux and

I was told it was because I had snacked too much during pregnancy and didn't have enough full meals, but if I drank a large glass of juice quickly the issue would be resolved. We were also advised to rub apples on his head to cure his baldness.

The Zuni have high rates of diabetes, obesity, and kidney disease as well as higher than usual rates of rheumatoid arthritis and cystic fibrosis. (There is a specific Zuni CF mutation.) Some older Navajo have lung disease related to working in uranium mines earlier this century.

We see a lot of the effects of poverty. In this regard, it is not too different from our work at Grady. Poverty has a profound impact on the health and well-being of entire families, and here we see that much more intimately than we did in Atlanta. There's a lot of trauma here as well as depression, alcoholism, and suicide. Francois' first patient on his first day was a teenage boy who had tried to slit his throat. This was a shock for both of us.

The sense of community, however, is strong and ever-present. We know our patients' lives more closely than in the past. In small-town medicine,

you see your patients at the grocery store, post office, and elsewhere. Francois and I coached a soccer team of six- to nine-year-olds through the Zuni youth enrichment project (named “Team France” because of Francois), and we would see parents and kids we knew from there in the clinic. At community-sponsored walks and runs, it is amazing to see patients we're treating for depression or diabetes out there doing what we encouraged them to do. At night dances, amid the drumming, chanting, and visits from special kachinas, we run into patients, the pharmacist, and public health nurses—all in 10-degree weather at 10 p.m.

Ultimately, though, we are visitors, and we feel fortunate to be here. This land and place belongs to the Zuni, and for now they are sharing it with us. ■

# windows

## OF OPPORTUNITY

If you've been touched by a story or stories in this issue of *Emory Medicine*, these windows can open up ways for you to turn your inspiration into action. Here you'll see how you can invest in the people, places, and programs you're reading about. Gifts to Emory produce powerful, lasting returns: they help create knowledge, advance research, strengthen communities, improve health, and much more.

*Find your window.*



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## 24 BODY, HEAL THYSELF

The Emory Department of Orthopaedics is on the forefront of cell-based therapy, and the primary goal is to improve outcomes for patients with musculoskeletal illnesses and injuries. This work is driven by philanthropy. Donor gifts support the most promising research ideas while they are still in the very early stages of development—too early to secure major grants from the National Institutes of Health and elsewhere. Gifts enable researchers to gather the data required by those competitive funding sources.

To learn more, contact Susan House, director of development, at 404.778.4258 or shouse2@emory.edu.



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## 28 TRAINING THE BEST PRIMARY CARE DOCTORS

By preparing the next generation of practitioners to provide high-quality primary care, the Paul W. Seavey Comprehensive Internal Medicine Clinic is helping Georgia deal with a serious shortage of physicians. Six Georgia counties have no family physician at all, and more than half of the state's doctors are over age 50, reports the Georgia Board for Physician Workforce.

To support primary care training for medical students, contact Vicki Riedel, executive director of development, at 404.778.5939 or vriedel@emory.edu.



TRANSPLANT SURGEON NICOLE TURGEON

PAGE

## 9 LEADING THE WAY IN TRANSPLANT SURGERY

The Emory Transplant Center continues to break new ground in care and research for patients. In February 2017 center surgeons performed Georgia's first HIV-positive kidney transplant, and the center's liver transplant program was ranked first in the state—and second nationally—for the high quality of patient outcomes.

To invest in the life-saving work of the Emory Transplant Center, contact Amanda Miles, director of development, at 404.727.5124 or amanda.miles@emory.edu.

## GIFTS OF NOTE



**Douglas Skelton 63M (left) established the Drs. Holland and Skelton Adopt-a-Doc Scholarship in memory of his mentor, Bernard Holland Jr. 40C 43M.** “Bernard

was my teacher, then my department chair, and for many years my friend and colleague,” Skelton said. “He offered me challenges and opportunities which led to a career in health care and medical education administration, culminating in leadership of Mercer University School of Medicine. I owe Dr. Holland and Emory. I like it that future students benefiting from the scholarship will know that they have my and Dr. Holland’s support on their medical journeys.”



**Since 2015, gifts to the Emory Cardiology Training Fund, raised through the annual Hurst Logue Wenger Cardiovascular Reception, have enabled**

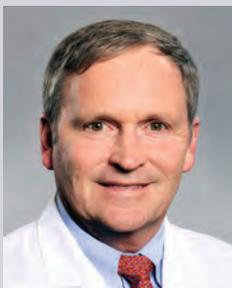
**Emory cardiology fellows to make more than 35 trips to national conferences, often to present their research.** Katz Cardiology Fellow Salim Hayek, for example, attended the most recent American Congress of Cardiology as an invited faculty member. He reported his findings on the novel biomarker suPAR and its relevance to kidney disease, which was published in the *New England Journal of Medicine*. The training fund also supports innovative education programs, events, and other resources for medical fellows and graduate students.

**In gratitude for Emory physicians’ longstanding commitment to the health of corporate leaders, two former UPS executives set up generous funds to support the Paul W. Seavey Comprehensive Internal Medicine Clinic.** The Dale and Gwen Orred Family Foundation established the Seavey Clinic Director’s Fund to support physician training, education, and recruitment in memory of Paul Seavey. The Chuck and Carol Schaffer Innovation Fund will support the work of clinic director David Roberts 86M 89MR. (See related article, p. 30)



**The Montgomery Foundation II will establish the Montgomery Chair for Palliative Care, to be held by an outstanding faculty member.**

The first Montgomery Chair is expected to be Tammie Quest, who directs the Emory Palliative Care Center. Emory is a leader in palliative care, which can reduce anxiety for patients with serious illnesses, better control their symptoms, make care plans more realistic and consistent with their preferences, and reduce conflicts about the use of life-sustaining treatments.



**To support Clyde Partin Jr. 78C 83M 86MR as he trains the next generation of primary care physicians, Ben Milazzo and Valerie B. Milazzo 97B**

**established the Milazzo/Mayzo Fund.** The gift will be used to purchase books and other training materials and to support the annual J. Willis Hurst History of Medicine Symposium, which Partin organizes. An award-winning educator, Partin is an associate professor of medicine and the medical director of Emory Special Diagnostic Services in the Paul W. Seavey Comprehensive Internal Medicine Clinic.



**The Zeist Foundation is helping improve the lives of children in need through gifts, including**

**\$405,000 to PARTNERS for Equity in Child and Adolescent Health, a program based in the Emory Department of Pediatrics.** PARTNERS is expanding the number of school-based health centers in Georgia and creating a family-centered model for comprehensive primary care services for at-risk children.

**A combined \$2.5 million gift from the James M. Cox Foundation and Jim Kennedy will establish the James C. Kennedy Fitness Center at Emory Saint Joseph’s Hospital, where physicians, nurses, and staff will have access to cardio and strength machines, a yoga/mindfulness area, and other programs that promote healthy living.** “Exercise is important for everyone, especially health care providers who have the important job of taking care of patients,” said Kennedy, who was treated for prostate cancer at Emory Saint Joseph’s Hospital.

**A \$150,000 grant from the SunTrust Foundation and the the Walter H. and Marjory M. Rich Memorial Fund, which is a SunTrust trustee foundation, will benefit the Emory Healthcare Veterans Program.** The grant will provide teleconference services for veterans unable to travel to Emory for care and remote follow-up for those who have completed treatment. The funds also will purchase a van to assist with local transportation and to create the SunTrust Warrior Room, a space for veterans to access training materials and support with career transitions. “At SunTrust, our purpose is ‘Lighting the Way to Financial Well-Being,’ and our foundations are pleased to cooperate with Emory Healthcare and accomplish this goal for veterans,” says Kirby Thompson, senior vice president for community and government affairs at SunTrust.

# Through the eyes of my patients

“Buenas tardes! Soy la Dra. Bell. Cómo están?”

A youngish mom in a McDonald’s uniform smiles brightly. “Hola Doctora, muy buenas tardes! Estamos bien gracias. Y usted?”

It’s 1:15 pm. and I’m beginning my afternoon continuity clinic, part of Grady Health System in Atlanta, which primarily serves children of Hispanic immigrants. Only a few cars are in the parking lot—most patients walk, or take a taxi or bus. Despite the challenges, there are rarely cancellations, and there are always walk-ins. The community cherishes their interactions with the clinic and its providers.

My first patient is a 10-year-old girl who is fainting during soccer practice. “Estoy bien, gracias. Porque están aquí hoy?” I ask.

“Se desmayó dos veces jugando futbol. Nunca ha pasado esto. Siempre es muy competitiva, siempre que meter goles y ganar,” says the mother.

Her daughter is sitting up on the exam table, an athletic girl with two long side braids. “Como estas hoy?” I ask her. She smiles shyly. “Te sientes bien?” I ask encouragingly. “Te gusta mucho jugar futbol?”

She smiles and responds, “Si. Es que mi hija juega para Tophat soccer club! Ya la invitaron jugar con el Tophat Gold!” she says proudly. Tophat Gold is the highest level of an elite Georgia girls’ soccer club, famous for winning national tournaments.

We continue the history and exam. She will need an evaluation with car-

diology to rule out syncope of cardiac origin. I discuss the plan with her mom.

Next, I drive a few miles down the road to the children’s hospital, where it’s the first day of my hospitalist rotation. I see Emili, 15, who has been diagnosed with systemic lupus

erythematosus. She recently arrived from El Salvador and is by herself in the hospital. Her mom works in a hotel until

8 p.m., and her dad is in construction. “Hola como estas?” I say. “Soy la Doctora Bell, una residente trabajando en tu equipo médico.”

Emili smiles at me. “Hola!”

“Cómo te sientes hoy? Comiste algo de desayuno?” I ask. She looks shyly at her bedside tray. “Si,” she says. “Comí mis pancakes, gracias.”

She asks if I know when she can go home. “Si, a lo mejor mañana,” I say, and she brightens.

The next day I walk into Emili’s room to give her her discharge instructions. I look at her, thinking of her new SLE diagnosis, her new daily medication regimen of Plaquenil and steroids, her follow-up appointments with rheumatology, ophthalmology, renal. The new school that awaits her.

Later that afternoon, I meet her mom and her dad, who have left work to come for their daughter. Emili has changed into regular clothes and is beaming. I introduce myself in Spanish, and both of them open their eyes wide and begin to talk at the same time. “Hola, mucho gusto, Doctora!” I ask if they have any questions.

“Una pregunta, Doctora. Lo que tiene mi hija es un cáncer?” her mother asks. “No, ella no tiene cáncer,” I reply, explaining SLE in basic terms and emphasizing the importance of follow-up appointments and the medications.

She says she will do whatever it takes to keep her daughter healthy. Emili’s father hands me a stack of immigration papers, and I see that she was granted asylum two months ago. She arrived by herself at the border crossing in Texas, since her parents already were working here. “Necesita algo más para registrarse en la escuela?” her dad asks.

“Tiene todo lo que necesita para la escuela. Pero ya necesitan entrar su aplicación de Medicaid,” I tell him.

He nods and smiles. “Muchas gracias, Doctora. Estamos muy agradecidos.”

This is typical of my experience with my patients and their families. Upon making proper introductions and eye contact, and world of questions and gratitude comes pouring out. And just an extra minute of clarification in a patient’s own language may enable them to better understand lifesaving information. ■



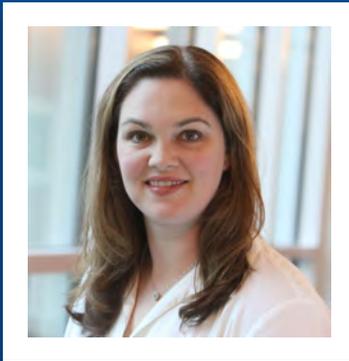
*Christine Bell is a third-year pediatric resident at Emory.*

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