

VanderbiltMedicine

WINTER 2014



**HURT. HEALED.
WHOLE AGAIN.**

For 25 years, the Trauma Center has given patients such as musician Will Hoge a second chance at life.

STARS SHINE ON VANDERBILT



The ABC television hit "Nashville" filmed its Season 2 premiere at Vanderbilt University Medical Center. This scene, which features actresses Hayden Panettiere, left, and Lennon Stella, right, was shot in the Critical Care Tower atrium. The episode, directed by Michael Waxman, center, aired in September 2013.

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VanderbiltMedicine

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:: on the cover

Nashville resident and musician Will Hoge was critically injured in a scooter accident and cared for by the Vanderbilt Trauma team. In this issue Hoge and other trauma patients share their stories of survival.



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BY JEFF BALSER, M.D., PH.D.
Vice Chancellor for Health Affairs
Dean of Vanderbilt University School of Medicine

It would be an ironic understatement to say that 2013 was a year of challenges. Vanderbilt University Medical Center, along with most of the nation's academic medical centers, alongside the broader national health care community, began to cope with unprecedented revenue reductions due to myriad factors that seemed to land on our shores all at once.

We experienced a “perfect storm:” national economic and legislative reform that Tennessee opted to reject, including federal payments that would have covered a huge amount of the growing uninsured care costs for patients we treat; greatly reduced payments from National Institutes of Health (NIH) and Medicare, our two largest payers, due to dysfunction in Washington, D.C., and the sequester; and an aging population that is causing a quantum shift from commercial insurance to a cash-strapped Medicare system. It is

fair to say that I was very happy to toast the end of 2013.

So, where are we? Through it all, it is clear we not only survived, but actually thrived in the midst of these challenges. Evidence? Despite a stark nationwide decline in research funding, research awards from the NIH to Vanderbilt Medical School have increased—in fact, our funding relative to peer research institutions actually advanced to ninth in the U.S. Virtually all areas of our health care system have grown at record-setting pace—from clinic visits, to inpatient discharges to surgeries. And our revolutionary new educational program for medical students—Curriculum 2.0—is garnering national recognition, winning awards and attracting students in record numbers. More than 6,500 talented young people applied for 88 coveted positions in the Vanderbilt medical class this fall.

Truth-telling is essential in times of anxiety and stress. Credibility and trust with the more than 20,000 people working at VUMC requires that we be clear about the bad as well as the good. And the truth is, we continue to face new financial pressures brought about by rapid growth of an aging population shifting from commercial insurance to Medicare, and continued downward pressure on commercial reimbursement rates following the trends in Medicare. However, like climbers ascending Mt. Everest, we are acclimating to a more challenging environment.

So in this issue of *Vanderbilt Medicine* we speak to how the Medical Center addressed the sudden and unprecedented challenges of 2013, and what these broad-based changes across our industry mean as we move forward. We articulate, with clarity of purpose, how we will continue to push forward with our mission of national leadership through innovation-driven education, research and patient care.

Yet while doing so, we share stories about our extraordinary success—successes worth celebrating. They speak to the incredible depth and breadth at

Vanderbilt that transcend the economic and political challenges we are managing and will certainly overcome.

For example, our Level 1 Trauma Center is celebrating its 25th anniversary. It was not that long ago when trauma care in our region was a patchwork of uncoordinated activities without state-of-the-art leadership or resources. The capability to quickly deliver critically injured patients the highest level of emergency care simply did not exist. Pioneers at Vanderbilt built that coordination and capability, and today tens of thousands of Middle Tennesseans suffering devastating injuries have been saved.

Equally impressive is the evolution of Vanderbilt's historic Diabetes Research and Training Center (DRTC). The Vanderbilt center is a “benchmark” national resource, now 40 years old and the first center established by the NIH. Over the years, it has become internationally renowned for its impact on research and treatment for patients with all forms of diabetes. A poster-child for the extraordinary collaboration and innovation that is possible at Vanderbilt through our “one university” culture, the DRTC now supports hundreds of faculty distributed among 18 departments across the seven schools and colleges of the university.

This issue also includes an inspiring story of outreach. Our Department of Obstetrics & Gynecology has leveraged the rapidly growing Vanderbilt Health Affiliated Network to deliver the most cutting-edge care to expectant mothers in outlying communities near Nashville. Could there be a greater calling for a university medical center than to export its knowledge and advanced capabilities to people beyond its borders?

These stories remind us all that Vanderbilt is truly a special place where discovery and innovation are harnessed to educate the next generation while caring for people everywhere. This is our history and our future. **VM**

Antipsychotic drug use in children for mood/behavior disorders increases type 2 diabetes risk

“Atypical” antipsychotic medications prescribed to children and young adults with behavioral problems or mood disorders may put them at unnecessary risk for type 2 diabetes, a Vanderbilt University Medical Center study shows. Young people using medications like risperidone, quetiapine, aripiprazole and olanzapine had a three-fold increased risk of developing type 2 diabetes within the first year of taking the drug, according to the study published in *JAMA Psychiatry*.

While other studies have shown an increased risk for type 2 diabetes associated with the use of atypical antipsychotic medications, this is the first large, well-designed study to look at the risk in children, said Wayne A. Ray, Ph.D., professor of Preventive Medicine, and senior author of the study. The authors note the use of these drugs for non-psychosis-related mood, attention or behavioral disorders in children now accounts for the majority of prescriptions.

State-provided, de-identified medical records were examined for TennCare youths ages 6-24 from 1996 through 2007. During that time children and youth who were prescribed treatment with atypical antipsychotics for attention, behavioral or mood disorders were compared with similar youth prescribed approved medications for those disorders. Even with the further elimination of certain disorders that are commonly associated with diabetes, like polycystic ovarian syndrome, those taking antipsychotics had triple the risk of developing type 2 diabetes in the following year, with the risk increasing further as cumulative dosages increased. The increased risk persisted for at least a year after the medications were stopped.

Ray and his colleagues say developing type 2 diabetes is still rare in this age group. **VM**

- CAROLE BARTOO



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Senses of sight and sound separated in children with autism

Like watching a foreign movie that was badly dubbed, children with autism spectrum disorders (ASD) have trouble integrating simultaneous information from their eyes and their ears, according to a Vanderbilt study published in *The Journal of Neuroscience*.

The study, led by Mark Wallace, Ph.D., director of the Vanderbilt Brain Institute, is the first to illustrate the link and strongly suggests that deficits in the sensory building blocks for language and communication can ultimately hamper social and communication skills in children with autism.

“There is a huge amount of effort and energy going into the treatment of children with autism. Virtually none of it is based on a strong empirical foundation tied to sensory function,” Wallace said. “If we can fix this deficit in early sensory function then maybe we can see benefits in language and communication and social interactions.”

And the findings could have much broader applications because sensory functioning is also changed in developmental disabilities such as dyslexia and schizophrenia, Wallace said.

In the study, Vanderbilt researchers compared 32 typically developing children ages 6-18 years old with 32 high-functioning children with autism, matching the groups in virtually every possible way including IQ.

Study participants worked through a battery of different tasks, largely all computer generated. Researchers used different types of audiovisual stimuli such as simple flashes and beeps, more complex environmental stimuli like a hammer hitting a nail, and speech stimuli, and asked the participants to tell them whether the visual and auditory events happened at the same time.

The study found that children with autism have an enlargement in the temporal binding window (TBW), meaning the brain has trouble associating visual and auditory events that happen within a certain period of time.

A second part of the study found that children with autism also showed weaknesses in how strongly they “bound” or associated audiovisual speech stimuli.

The research was supported by the National Institutes of Health grants DC010927 and DC011993, Simons Foundation Explorer award, Vanderbilt Kennedy Center MARI/Hobbs award, and the Vanderbilt Brain Institute. **VM**

- CRAIG BOERNER



Gene interactions and cavities

Dental caries—decay of hard tooth surfaces—is a chronic disease that decreases quality of life worldwide. Recent genome-wide association studies (GWAS) have identified several loci and genes that contribute to susceptibility for dental caries.

To explore the role of interactions between genes, Zhongming Zhao, Ph.D., Lily Wang, Ph.D., and colleagues have now performed gene set enrichment analyses on an existing GWAS dataset. They used four representative gene set analysis methods and found 13 significantly and 17 marginally associated gene sets including “sphingoid metabolic process,” “ubiquitin protein ligase activity” and “regulation of cytokine secretion.” These gene sets represent signaling pathways that potentially contribute to the oral immune response related to caries development—and that were not identified in single marker-based analyses.

The findings, reported recently in *PLOS ONE*, provide insights into the molecular mechanisms and interactions in dental caries and suggest new avenues for understanding the complex causes of tooth decay.

This research was supported by grants from the National Institutes of Health (DE022093, DE014899, DE018903). **VM**

— LEIGH MACMILLAN

Study finds cognitive deficits common after critical illness

Patients treated in intensive care units enter their medical care with no evidence of cognitive impairment but often leave with deficits similar to those seen in patients with traumatic brain injury (TBI) or mild Alzheimer’s disease (AD) that persist for at least a year, according to a study published in the *New England Journal of Medicine*.

The study, led by members of Vanderbilt’s ICU Delirium and Cognitive Impairment Group, found that 74 percent of the 821 patients studied, all adults with respiratory failure, cardiogenic shock or septic shock, developed delirium while in the hospital, which the authors found is a predictor of a dementia-like brain disease even a year after discharge from the ICU.

Delirium, a form of acute brain dysfunction common during critical illness, is associated with higher mortality, but this large study of medical and surgical ICU patients demonstrates that it is associated with long-term cognitive impairment in ICU survivors as well.

At three months, 40 percent of patients in the study had global cognition scores similar to patients with moderate TBI, and 26 percent scored similar to patients with AD.

Deficits occurred in both older and younger patients, irrespective of whether they had coexisting illness, and persisted for 12 months, with 34 percent and 24 percent still having scores similar to TBI and AD patients, respectively.

“As medical care is improving, patients are surviving their critical illness more often, but if they are surviving their critical illness with disabling forms of cognitive impairment, then that is something that we will have to be aware of because just surviving is no longer good enough,” said lead author Pratik Pandharipande, M.D., MSCI, professor of Anesthesiology and Critical Care.

Wes Ely, M.D., professor of Medicine, said at least some component of this brain injury may be preventable through efforts to shorten the duration of delirium in the ICU by using careful delirium monitoring and management techniques, including earlier attempts at weaning from sedatives and mobility protocols that can save lives and reduce disability. After the patient leaves the hospital, cognitive rehabilitation might be helpful to somebody like this, he added. **VM**

— CRAIG BOERNER



Wes Ely, M.D., left, and Pratik Pandharipande, M.D., MSCI



Limited resources for injured surgeons: study

Nearly half of orthopaedic surgeons sustain at least one injury during their career and, in many cases, the resources available to them are inadequate, according to a Vanderbilt study in *The Journal of Bone & Joint Surgery*.

The study is the first to demonstrate that many surgeons are injured on the job during their careers, according to lead author Manish Sethi, M.D., assistant professor of Orthopaedic Surgery and Rehabilitation.

Twenty-five percent of orthopaedic surgeons surveyed reported an injury to the hand, followed by the lower back (19 percent), neck (10 percent) and shoulder (7 percent).

"I expected a fair number of back and hand injuries, but I was surprised that 38 percent of injured respondents reported no institutional resources available to support them as they recovered," Sethi said. "In addition, only about 25 percent of respondents said they had reported their injury to their institution."

Forty-four percent of the surveys indicated that the surgeon had sustained at least one occupational injury in his career and 10 percent of respondents missed work due to their injuries, the study found.

"These results would suggest that we need to think about the resources available to orthopaedic surgeons, given that this volume of missed work may have economic implications for both the surgeons and their health care systems," Sethi said.

The electronic survey used in the study captured information such as the respondent's subspecialty, practice setting and length of time in practice, as well as some basic information about the injuries sustained.

Surgeons who had practiced from 11-20 years or from 21-30 years were more likely to be injured than those in practice for 10 years or less. **VM**

- CHANLER KNOWLES

Effort focuses on mental health of young athletes

The rate of mental illness is more than twice as high for those ages 18-25 than those ages 50 and older, and participating in college athletics can add even more mental pressures for young adults.

Given the NCAA student athlete participation rates of more than 450,000 each year, the likelihood of Sports Medicine professionals encountering a student athlete with mental health problems is high.

To prepare for these encounters, the National Athletic Trainers' Association unveiled new recommendations for developing a plan to recognize and refer college athletes with psychological concerns.

Alex Diamond, D.O., assistant professor of Orthopaedics & Rehabilitation and Pediatrics, was one of 11 national experts charged with developing the consensus statement.

"Athletic trainers are in a unique position to get to know athletes well and earn their trust. If a mental health problem arises, we think there should be a plan in place to get that athlete appropriately referred and evaluated," Diamond said.

Psychological concerns for college athletes may include depression, anxiety, eating disorders, substance abuse, attention deficit hyperactivity disorder, violence or suicidal thoughts.

"There's a stigma against mental illness, especially in college athletes who want to appear tough. But as we come to recognize the prevalence of mental illness in these young adults, we want to leverage athletic trainers as an important frontline resource to get them the care they need."

The consensus statement is published in the September-October 2013 issue of the *Journal of Athletic Training*. **VM**

- LESLIE HILL

Women and Children First

OB-GYN dedicates career to providing care to underserved population

WRITTEN BY KATHY WHITNEY

PHOTOGRAPH BY DOMINIKA A. GRODZICKA-TRUDGETT, M.D.

John Heusinkveld, M.D., thought when he was a medical student that he didn't want to practice obstetrics and gynecology (OB-GYN). So, during his third year, he chose the specialty as his first clinic rotation to get it out of the way.

But he was surprisingly pulled in that direction, and after graduating from VUSM in 1996 and completing two years of an internal medicine residency and a medical informatics fellowship, he did a second residency in OB-GYN in Tucson, Ariz.

One thing he has always been sure of is that he wanted to care for the underserved population.

For the past 10 years he has been a practicing OB-GYN in his home state of Arizona and neighboring New Mexico, tending to the needs of Native American women on a Navajo reservation in Tuba City and volunteering twice yearly in Afghanistan. He said he can't imagine doing anything more fulfilling.

Called to Serve

Born in Rochester, N.Y., and raised in Tucson, Heusinkveld's father was a physician, so, aware of the demands of the profession, the younger Heusinkveld looked at other careers before he chose medicine.

"I kind of tried everything else first," said Heusinkveld, who has a master's degree in computer science. "I finally decided nothing else was going to work for me."

After completing his OB-GYN residency he went to work for the Indian

Health Service and also joined the Public Health Service, which deployed him to help with the Katrina and the Gustav/Hanna/Ike hurricanes.

"Those were interesting experiences," he said. "It was eerie driving across the devastated areas and observing the destruction of civilization, basically. We stopped for gas at a gas station and the owner turned off the pumps right as we pulled in. They were about to run out. He turned on a pump so we could fill up and that nearly caused a riot. We got a view of how fragile civilization is," he said.

He worked as a general OB-GYN on a reservation in Ship Rock, N.M., before moving to another reservation in Tuba City, Ariz., to start a center to deliver state-of-the-art gynecologic surgical care to the Native American population. He recently became board certified in the subspecialty of Female Pelvic Medicine and Reconstructive Surgery.

"The Navajo people and Hopi people have maintained their traditional culture. With the older generation you have to be careful getting informed consent because in the Navajo culture you don't talk about bad things that might happen. That's like wishing they would. When you are talking about possible complications about a procedure, you have to be careful in how you phrase them," he said.

From Arizona to Afghanistan

One of his partners on the reservation, Qudratullah Mojadidi, M.D., is an Afghan-American who left Afghanistan in the late '60s because his family was being

persecuted by the communist government. He came to the United States where he trained in OB-GYN and established a practice. As soon as the Taliban fell, Mojadidi went back to start a program to train Afghan OB-GYNs in western standards. They now form the faculty of a teaching hospital there.

"Dr. Mojadidi suggested to me that some of my skills would be valuable over there. I thought about it for a year before I got up the courage to go and then I went in May 2011 and spent two weeks there with Cure International," Heusinkveld said. "It is definitely not safe for foreigners over there. The organization does everything it can to minimize the risks. The guest house where I stay still has personal items in it from people who were killed over there. Ultimately, I decided I really wanted to do it."

On his first trip to Afghanistan he flew to Dubai on Emirates airline and noticed that the news feed on the plane had been blocked out.

"My wife (**Dominiika A. Grodzicka-Trudgett, M.D., '00**), texted me that Osama Bin Laden had been killed. I had no idea what the reaction in Afghanistan would be like. I decided having just spent 16 hours on a plane, there was no way I was going to turn back," he said.

Heusinkveld volunteered at the Cure International teaching hospital in Kabul, training physicians in evidence-based medicine and providing care that is up to the standards of the developed world.

"I think it's a good facility. I've been back four times since then, and I feel like it's a very successful model," he said. "The doctors over there are all pretty fluent in English. They study it at the University. Any time I need to communicate with a patient, they translate. I've been studying Farsi there. It's not yet sufficient where I

can directly interview a patient or explain an operation.”

The biggest challenge is equipment, all of which is donated. Heusinkveld purchased most of the laparoscopic equipment on eBay, which allowed him to help the local physicians perform the first laparoscopic hysterectomy ever in Afghanistan, where he later oversaw the first ever hysteroscopy. Recently, a generous donation of equipment from the Karl Storz Corporation, which also supports his work on the Navajo Reservation, has allowed progress to accelerate.

Cultural Differences

All of the OB-GYNs he works with in Afghanistan are women. The men train as family medicine providers, although they are trained to deliver babies and perform C-sections. A woman can receive medical care from a male physician only if there is no female physician available.

“During Taliban time there was very little medical care for women because the attitude was that women shouldn’t be physicians because that involved educating them. It was unacceptable for a woman to receive care from a male physician,” Heusinkveld explained. “It’s still a very conservative Muslim culture, but the vast majority of Afghans would say ultimately a woman’s health is more important than her modesty.”

About one in 11 Afghan women dies as a consequence of childbirth. In 2004, less than 20 percent of births were handled by a skilled attending physician. Today, nearly 40 percent of births have a midwife in attendance. That’s a significant improvement, Heusinkveld said.

Although he practices some general OB-GYN, much of his time is spent repairing complex urogynecologic issues that are prevalent in developing countries such as vesicovaginal fistulas and pelvic organ prolapse.

“My career has been enormously fulfilling. I like the mixture of medical and surgical care. I like the fact that unlike other surgical specialties we tend to follow

“...in the Navajo culture you don’t talk about bad things that might happen.” - JOHN HEUSINKVELD, M.D.

our patients over a long period of time. I like taking care of women. The problems of women and children in the developing world are so compelling that this, to me, is the most fulfilling field I could be in.”

A group of graduates from the teaching hospital have started their own hospital called Al-Hayat, located outside of Kabul, where they are implementing the same model of ethical, evidence-based care. Witnessing their dedication to improving care for women and their children gives Heusinkveld hope for a part of the world torn apart by violence.

“This is totally an Afghan effort. They have built this from the ground up. I contributed a small amount of equip-

ment and expertise. I work with incredibly talented people over there—a lot of whom are from disadvantaged backgrounds who found ways to educate themselves,” he said. “It gives me a huge amount of hope for the future, and as a result of my experience over there I think I have a totally different view on the future of Afghanistan than most people over here. If I had one message to American readers it would be: don’t give up on Afghanistan and have patience.” **VM**

JOHN HEUSINKVELD, M.D.





HURT. HEALED. WHOLE AGAIN.

**The Trauma Center: 25 years. 58,000 patients.
Countless second chances.**

WRITTEN BY **JENNIFER WETZEL**
PHOTOGRAPHS BY **DANIEL DUBOIS**

About 58,000 critically injured patients have passed through the doors of the Vanderbilt Trauma Center, which recently celebrated a quarter-century as the region's only provider of Level 1 trauma care.

Every patient and incident is different, but they all have one thing in common. Their lives were dramatically and tragically altered in an instant. Among the more memorable patients in recent years: a well-known singer-songwriter gravely injured in a scooter accident; a law enforcement officer injured in the line of duty; a mother of two who hit a tree while riding a moped without a helmet; a young patient who had a horrific accident while texting and driving and has had to relearn everything like a toddler.

Their stories of survival are a testament to the level of care they received from the moment they became patients of the Trauma Center.

LIKE A SYMPHONY

In August 1988, Vanderbilt became the first hospital in Middle Tennessee designated as a Level 1 Trauma Center, and to this day remains the area's only hospital that meets the rigorous standards required to care for the most acute patients.

Covering a 65,000-square-mile territory, the Trauma Center has admitted 58,000 patients over its 25-year lifespan, including more than 25,000 from motor vehicle accidents, nearly 4,500 from gunshots, 1,700 who were stabbed and more than 7,000 injured by falls, along with a high volume of other injuries ranging from construction accidents to pedestrians hit by cars to recreational mishaps.

A ubiquitous disease that can affect anyone, trauma is the leading cause of death in persons younger than 44, but receiving care at a Level 1 Trauma Center can lower risk of death by 25 percent, according to the Centers for Disease Control and Prevention. Patients who arrive at Vanderbilt alive have a 95 percent chance of survival.

These patients are cared for by one of nine board-certified trauma surgeons and eight trauma fellows, along with Emergency

Medicine physicians and nurses who are trained extensively to care for the most critically injured patients. This team also works closely with orthopaedic trauma surgeons and subspecialists in neurosurgery, facial trauma, radiology and vascular and spine surgery. Vanderbilt also operates the region's only burn center, with 20 beds dedicated to burn care.

"We've developed a regionalized system that rapidly transports, resuscitates and manages critically injured patients, with the best overall results of saving lives in our region. We are the experts, and we've learned how to do this really well," said Richard Miller, M.D., chief of the Division of Trauma and Surgical Critical Care and professor of Surgery.

"It's a real collaborative effort, from the time LifeFlight lands on the helipad and continuing between the Emergency Department and our Trauma team; everyone has a specific role, and it's like a symphony."

This "symphony" of Vanderbilt's trauma care includes a fleet of five LifeFlight helicopters and a world-class Emergency Department that sees more than 60,000 patients annually, providing an integrated approach to care that has been emulated in hospitals nationwide.

"There is a reason why Vanderbilt stands out as one of the most exemplary trauma centers in the world—team work

and expertise when treating every patient, every time," said Corey Slovis, M.D., professor and chair of the Department of Emergency Medicine.

"When I arrived here more than 20 years ago, I was taken aback by how standardized our trauma care was, with every patient treated exactly the same in the initial resuscitation. But over time, I saw the greatness of the Vanderbilt trauma care system. Injuries were not missed, expert care was the rule and was never compromised and younger physicians learned as they worked their way up the system and became exemplary team leaders. Today, doctors, nurses, paramedics, radiology, respiratory, social work, housekeeping and registration all work as a team, every patient, every time."

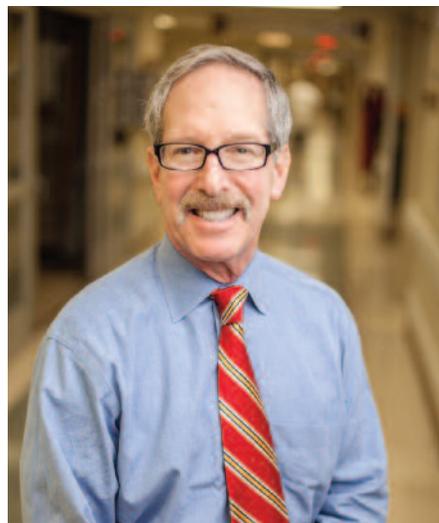
THE EARLY YEARS

This integrated approach to trauma care that today is standard practice at Vanderbilt was pioneered with John Morris, M.D., at the helm.

"We started from ground zero," said Morris, associate chief of staff of the Vanderbilt Health System, chief medical officer of the Vanderbilt Health Affiliated Network and Vanderbilt's first director of the Division of Trauma and Surgical Critical Care. "And now, over the last 25 years, we've treated nearly 60,000 trauma patients, and we've done it in a fashion that I think all of us are proud of clinically, and all of us are proud of our contributions to research and education. We've made a significant difference in the community's care of the injured patient."

Morris began his tenure at Vanderbilt fresh out of his fellowship in 1984, at a time when the institution had no helicopter, no trauma service, no trauma doctors and no Department of Emergency Medicine. Morris took his first call on July 4 that year and saw no trauma admissions the entire holiday weekend. For perspective, 18 combined Level I and Level 2 trauma patients were brought to Vanderbilt July 4, 2013, alone, with eight admissions to the Trauma Unit. Within six years of his arrival, Vanderbilt was one

Richard Miller, M.D., left, and Corey Slovis, M.D., oversee the well-orchestrated system of caring for trauma patients.



of only a handful of medical centers in the country to offer a trauma fellowship program. Vanderbilt now has the largest trauma and acute care surgery fellowship in the nation that meets the American Association for the Surgery of Trauma's rigorous standards to be a certified American College of Surgeons fellowship, and has trained more than 50 surgeons since 1990, including current Trauma Chief Miller as the program's first fellow.

Meanwhile, Vanderbilt's Department of Emergency Medicine was born in 1992, followed by its residency program in 1993, and Vanderbilt's LifeFlight fleet grew to five helicopters plus a fixed-wing aircraft and ground ambulances. In the early 1990s, critically injured patients were grouped with other surgical intensive care patients, and Vanderbilt's ICU was becoming inundated with trauma patients. It became evident that the hospital needed dedicated trauma space.

On Aug. 13, 1998, the acute care unit known as the Vanderbilt Trauma Center, located on 10 North in Vanderbilt University Hospital, officially opened its doors. The 31-bed acute and sub-acute unit has treated a diverse patient population from all walks of life.

IN AN INSTANT

Years later, the staff of the Trauma Center still recall the patients they've treated: a country music star and a professional football player, who were both critically injured in automobile accidents; members of Middle Tennessee's law enforcement community injured in the line of duty; a rodeo cowboy gored by a bull; a teenager who nearly had his head severed as he was garroted by a wire fence while riding an all-terrain vehicle; an elderly man who suffered a traumatic brain injury after falling from a horse and then having the horse, in turn, fall on his head; and a teenager who had both feet severed by an amusement park ride.

But Vanderbilt's trauma service to Middle Tennessee and the surrounding area doesn't stop within its walls, as doctors

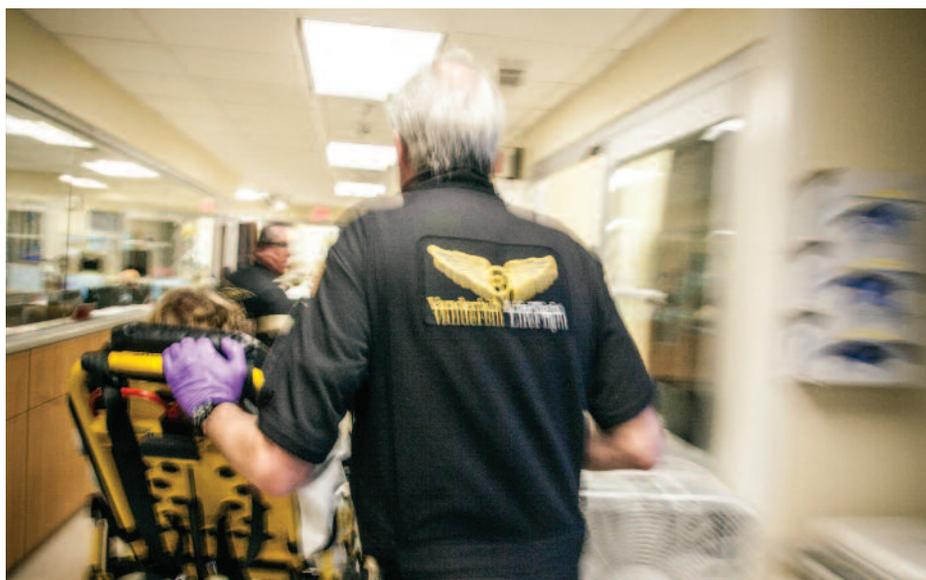
and nurses regularly conduct prevention and education programs free of charge in area businesses and schools. A Level 1 facility must be able to provide leadership and total care for every aspect of injury, from prevention to rehabilitation, which means Vanderbilt's trauma program is continuously learning and looking at ways to improve performance across disciplines and enhance communication between specialties.

"Our ongoing mission is to provide optimal care for our community, leading the way in medical education, research

and high-quality patient care," Miller said. "Our patients are regular people, who one minute were going to work or having dinner, and the next minute are in critical condition from a car wreck."

These "regular people" include six trauma survivors who, on the following pages, share their stories of hurt and healing and the painful process of becoming whole again. **VM**

The goal is to move a Level 1 trauma patient out of the ER within 15-20 minutes of his arrival.



LIVES FOREVER CHANGED

Vanderbilt Trauma Center patients
share stories of survival

PHOTOGRAPHY BY DANIEL DUBOIS

“I could hear people saying ‘this girl’s not going to make it.’”

RACHEL PENTECOST

Rachel Pentecost was leaving a church revival on a rainy night in a small Kentucky town May 21, 2013, when her life was forever changed by a horrific car accident.

The 19-year-old says she remembers every detail of that eventful night when she hydroplaned into a tree. Pinned in her car, first responders worked more than three hours to extract her from the vehicle before transporting her to a nearby hospital, where she coded three times and doctors said only a miracle could save her.

“I was so scared, but I knew I had to stay calm for the firefighters, because they were working so hard in the pouring down rain to get me out of my car,” Rachel said. “When we got to the first hospital, I could hear people saying ‘this girl’s not going to make it.’”

Rachel’s parents, the Rev. Darren and Kathy Pentecost, were allowed into the ICU to spend what they feared would be their last moments with their daughter, but when Rachel survived a few hours, a transport to Vanderbilt via LifeFlight was arranged.

Thirty-four days at Vanderbilt, a leg amputation, seven surgeries, seven kidney dialyses and 96 units of blood later, the Pentecosts say Rachel would not be here today if it weren’t for God and for the doctors, nurses and staff at Vanderbilt.



“The staff in the trauma unit became like family to us,” Kathy said. “The doctors and nurses took remarkable care of Rachel, and their thoughtfulness and kindness made the journey so much easier.”

Rachel says her nurses brightened her day and pushed her to keep giving it her all. A highlight was getting to take occasional trips outside to visit her new niece, who was only 3 weeks old at the time of her accident.

While hospitalized, Rachel had the opportunity to reconnect with the LifeFlight crew who cared for her in transport to Vanderbilt. Flight nurses Allan Williams, R.N., EMT, and Chandler Perdue, R.N., EMT, along with one of Rachel’s physicians, Oscar Guillamondegui, M.D., Trauma Medical Director, met with the Pentecosts on the hospital’s helipad just days before she was discharged, presenting her with a LifeFlight wings pin and allowing her to see the craft in which she was flown.

Since her time at Vanderbilt, she has stayed in touch with many of the nurses and staff, including Lisa Long, R.N., and Jimmy Closser, R.N., who recently visited her Kentucky church to present her with a plaque inscribed:

*Welcome Home Rachel Pentecost
For an extraordinary individual who has defied the odds
From your Trauma Team Family*

At the time of the accident, Rachel was in school to become a beautician. Since she is relearning how to walk and is making progress with extensive therapy, she’s set a goal to one day do something in health care, possibly physical therapy, saying it would be wonderful to help people going through similar experiences to hers.

“I’m sad that I lost my leg, but I’m so grateful to be alive and so grateful to wake up every day and know I got another chance at life,” Rachel said. “The state I was in, I should have died, but God gave me another chance. I’m so happy I get to live life to the fullest again.”

“Every day truly is a blessing.”

WILL HOGE

Singer-songwriter Will Hoge says he has a “before and after delineation” of his life—the things that happened before a near-fatal motor scooter accident and the things that happened after the experience that sent his life and music in a new direction.

On Aug. 20, 2008, Will left a recording session for his fourth album and was traveling by scooter toward his East Nashville home when he made a detour to the grocery store for some milk.

He never made it to his intended destination. Instead, he awakened days later at Vanderbilt, learning that he had collided head-on into a 15-passenger van that failed to yield, each of them traveling approximately 30 mph.

Will lost 6 pints of blood on the pavement at 7th Avenue and Main Street in Nashville, his injuries including a broken sternum and collarbone, broken shoulder blades and ribs, crushed lungs, a concussion, temporary blindness, a shattered knee and a missing 4-inch section of his femur.

Doctors used 300 stitches to repair his face and had to sew his eyelids back in place.

After multiple blood transfusions and seven surgeries, the musician, husband and father began the journey of rehabilitation.

Although Will didn’t break his hands or arms, he had to relearn how to hold a guitar for long periods of time and initially lacked the stamina and lung support to sing.

“I took a year off from performing because the things that were far more important were my ability to walk again and regain motor function and just feel whole again,” Will said.

He eventually returned to the studio to finish the album he was working on at the time of the accident, appropriately renaming the album “The Wreckage.”

The following September, Will stepped back on stage for the first time in more than a year, playing a brief acoustic tour including two benefit concerts for Vanderbilt’s Trauma Survivor’s Network, a community of patients and families looking to connect with one another as they rebuild their lives after serious injury.

“I don’t think I was ready to [perform], but I did it anyway,” Will said. “I was afraid if I sat too

long I would freak myself out about going back on stage. Being back out there was intense but very therapeutic, too.”

Today, Will tours regularly and has released four albums since his 2008 accident. He also achieved his first No. 1 single, “Even if it Breaks Your Heart,” in 2012, a song written for country recording artists the Eli Young Band which garnered him Grammy, CMA and ACM award nominations.

Will and his wife, Julia, have two sons, ages 6 and 3, and he shudders to think that without his second chance at life, he wouldn’t be with his family and they wouldn’t have their second child.

“I was always grateful to do what I do for a living, and I was always grateful for my wife and family, but an event like this [accident] makes it so apparent what a gift all of this is that we have,” Will said. “Every day truly is a blessing, and I’ve gotten a second chance to be a better husband, better dad, better musician and better friend.”



“I still look at her...and can't believe this happened to our daughter.”

SHAWN COLTHARP

The nurse's words to Shawn Coltharp were every parent's worst nightmare.

“Mom, we have your daughter,” said the voice over the phone. “Drive carefully, but hurry.”

When Shawn and Paul Coltharp arrived at Western Baptist Hospital in Paducah, Ky., they saw the expressions of hopelessness among the hospital staff as they learned their daughter, Hillary, had been in a horrific car accident.

She had been texting while driving, a decision that led to a traumatic brain injury, a collapsed lung and multiple orthopaedic injuries.

“We went to the emergency room, and there was our beautiful daughter,” Shawn said. “No one thought she would survive. We said goodbye to her, we told her how much we loved her and how much her son loved her, and we gave her over to God.”

Hillary's family had gathered for a small reunion at a restaurant near Kentucky Lake for the 2007 Labor Day Holiday. Running late, the 26-year-old called her family to say she was 4 miles away and asked them to order an appetizer for her.

The minutes passed and the food grew cold. Her father, Paul, and brother-in-law, Billy, went looking for her and saw the backup of cars on the interstate.

They initially thought the wreck couldn't be Hillary, as the traffic backup was in the opposite direction that she was traveling.

They later learned that a few words to a friend on a text message caused Hillary to cross the median and flip her car three times. Not wearing a seatbelt, she was ejected from the vehicle more than 100 feet before landing on the right side of her head.

She was flown to Vanderbilt University Hospital via LifeFlight, where numerous operations followed, including a craniotomy to remove a subdural hematoma and part of her right temporal lobe.

For weeks, she remained in critical condition, but doctors offered guarded hope.

Six weeks later, Hillary was discharged from the hospital, but the journey was just beginning.

“She was barely capable of doing much more than a toddler,” said Shawn. “Growing up all over again, that is what a brain-injured young woman has to do.”

Hillary spent another six weeks in physical rehab, and has spent the last six years living at home with her parents. Now 32, Hillary has made significant progress through speech, occupational and physical therapy, but suffers from amnesia due to the significant brain injury she suffered, her mind now a sea of lost memories.

“We are so blessed she is here, but I still look at her and hear her and can't believe this happened to our daughter and that our family has changed so much,” Shawn said.

The person who lost the most, Shawn says, is Hillary's now 12-year-old son, Max, who was just shy of his 6th birthday at the time of his mother's accident. Because of her significant injuries, Hillary lost custody of Max, who now lives with his father but regularly visits his mom.

Today, Hillary and her parents are tireless advocates against distracted driving, working with the Kentucky Office of Highway Safety for speaking engagements and public service announcements about the dangers of texting and other distractions while behind the wheel.

When they speak to groups, they show photos of Hillary before the accident followed by a photo of her in the hospital fighting for her life. They ask audiences to take out their phones, look through their messages and find the one message that is worth risking their lives for.

It is their hope that Hillary's life was spared so her testimony could potentially save others from the devastating consequences that can come from distracted driving.

Now Hillary relies heavily on her phone to remind her of everyday things such as appointments and birthdays, and even to call her son, Max.

“Her cell phone is her saving grace, kind of her other brain now,” said Shawn. “Her entire life is prompted by her cell phone, the very thing she was using that crushed her life.”



“The good part is, we survived it.”

MARK CHESNUT

Sgt. Mark Chesnut was no stranger to Vanderbilt University Hospital. The 22-year veteran of the Metropolitan Nashville Police Department had witnessed many victims of violence undergo treatment in one of the Emergency Department’s four trauma bays, where the region’s most critically injured patients go for initial resuscitation and stabilization.

Because of this, Mark says he recognized the “looks” exchanged among the emergency team when he found himself a patient in a trauma bay, still conscious but severely injured after being shot multiple times in the line of duty.

Mark served on the Interstate Interdiction Unit, comprised of uniformed officers who travel in unmarked cars primarily looking for drug couriers. While working Interstate 40 west of Nashville on June 25, 2009, he noticed a car that met several indicators for suspicious activity.

Mark was able to pull the driver over for a seatbelt violation, and upon approaching the car, realized there was another man in the backseat acting nervously, which only added to his suspicion of the pair. He returned to his car to call for backup and run the driver’s license when the passenger approached his vehicle and shot him several times, causing life-threatening injuries to Mark’s abdomen and right arm.

The shooter was an escapee from a Mississippi prison, who later admitted to shooting Mark because he “didn’t want to go back to jail.” He was serving a life-sentence for armed robbery and aggravated assault and escaped custody during an optometrist appointment with the help of the driver, a family member.

Mark says he remembers everything until he was taken for his first of many surgeries, including the numerous police officers who swarmed the hospital upon hearing the news.

“I just kept thinking, I’m glad it happened to me and not someone else,” Mark said. “As police officers, that’s what we do, and we know that. Every officer is putting his life on the line.”

Meanwhile, Mark’s wife, Michelle, was traveling through Alabama with one of his three children when she received the news and initially understood



he was killed. Through coordination with Alabama and Tennessee’s highway departments, she was flown via helicopter to Vanderbilt, learning on the hospital’s helipad that her husband was still alive but extremely critical.

Eight days in a coma and septic, Mark underwent multiple surgeries, including a temporary ileostomy due to the severity of his abdominal injuries.

Nearly three weeks later, he was able to start rehabilitation, but many reconstructive surgeries followed, which required multiple readmissions to the hospital and prolonged his recovery.

Although Mark made significant gains over time, he is no longer physically qualified to be a police officer but is fulfilling a longtime dream of working in the homebuilding and remodeling business.

“Physically, I’m reminded multiple times a day that I was injured, and because of my injuries, it’s changed what I can do,” Mark said. “The good part is, we survived it. We’re strong people, we have kids to raise, we want to have a good family and we do, and we’ve continued to move forward and enjoy life as best we can.”

“You can either grow bitter or grow better. I chose to grow better.”

JACQUI MCDANIEL PIERCE

When Jacqui McDaniel Pierce watched her daughter take her first steps, the proud mother was able to empathize with her wobbly toddler in a way few parents can.

Just a few years earlier, Jacqui had to learn how to walk again after an accident that nearly took her life.

“Learning to walk again was the hardest thing I have ever had to do,” Jacqui said of the challenge that stemmed from a life-changing event that took place Aug. 9, 2004.

It was the first day of Jacqui’s senior year in high school. Captain of her high school dance team, a straight-A student, active in church and loved by all who knew her, Jacqui had a bright future ahead with everything planned when she says God put the brakes on her life.

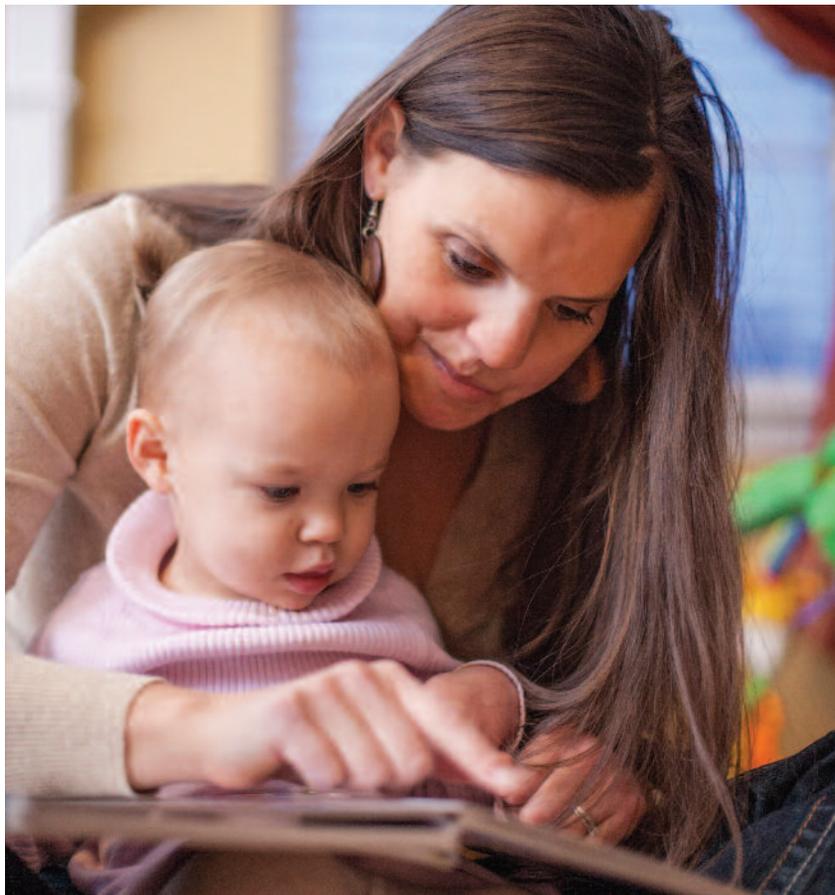
On that late summer day after school, she and her sister, Lizzy, were enjoying moped rides with friends along a country road near her home in Murfreesboro, Tenn., when the sisters lost control of the bike and were thrown into the air. Lizzy suffered a concussion and many scrapes and bruises, but Jacqui’s landing was far less forgiving.

Thrown face-first into a tree, the collision left her with a brain injury, shattered facial bones, a broken jaw, a basal skull fracture, a compound fracture of her left femur and a crushed left wrist.

She was airlifted to Vanderbilt by LifeFlight, where doctors told Jacqui’s parents that she was the sickest patient in the Trauma Unit. Prepared for the worst but refusing to give up hope, many friends and family members filled the Vanderbilt University Hospital lobby, praying for a miracle.

In the Vanderbilt Trauma Center, Jacqui walked the line between life and death, undergoing multiple surgeries including one to reconstruct her shattered face. The surgeons used a rib to reconstruct her eye sockets and placed numerous titanium plates and screws throughout her face, leg and wrist.

Clinging to faith, Jacqui’s parents took her off life support 11 days post-accident, and prayers were answered as she continued to breathe without the help of machines.



Jacqui finally awoke on Aug. 28 and began the uphill battle of learning to live this new life she had been given.

“Prior to the accident, I had never even broken a bone,” Jacqui said. “I went from being captain of my dance team to living life in a disabled body.”

Relying on her supportive family and her faith in God, she worked day after day, staying dedicated to therapy and an overall determination to live life to the fullest.

“You can either grow bitter or grow better. I chose to grow better,” Jacqui said.

Physical and speech therapy allowed her to eventually walk and talk again, but she still feels the effects from the two strokes she experienced while she was in a coma, and she was left with optical nerve damage and a hand that cannot open and close.

Four months after her accident, Jacqui returned to school to finish her senior year, still wheelchair bound at this point, but able to walk without assistance across the graduation stage that following spring.

She later attended Middle Tennessee State University and met her husband, RJ. They married in 2009 and have two children, Addison, 2, and Hayes, 3 months.

Jacqui now celebrates two birthdays a year—the day of her birth, and Aug. 9, the fateful day her life was forever changed.

“I feel very fortunate for what I’ve learned over the past decade,” Jacqui said. “I’ve chosen to live the life God gave me; I’ve chosen to embrace it.”

“I am mindful every day of the great gift I received.”

GUY DOTSON

Guy Dotson admits it is hard for him to accept gifts, but the 50-year-old attorney and father of three says he received a gift last year that he can never repay—his life.

On Dec. 27, 2012, Dotson purchased a Glock pistol. He had put it away for the evening and was headed to bed when he decided he wanted to look at it one more time. Not realizing there was a bullet in the chamber, the pistol discharged as he was cleaning it, the bullet entering his lower right abdomen and exiting through his back, just missing his spinal column.

Guy says he does not believe in luck, but he is a believer in miracles. As fate would have it, his oldest daughter, a law student at the time, was at his Murfreesboro, Tenn., home that evening and was able to call for help.

He was first taken to a local hospital where they quickly arranged for his transport to Vanderbilt. He awoke four days later in the hospital's Trauma Unit, where he learned how critically injured he was.

He spent two weeks in the Trauma Unit, losing part of his colon, a kidney and his gallbladder and receiving a temporary ileostomy (an opening in the belly that is made during surgery to move waste out of the body when the colon or rectum is not working properly).

At the time of the accidental shooting, Guy had been training for a triathlon, which he credits in part for his ability to physically recover. As his prognosis began to look brighter, he asked his surgeon, Richard Miller, M.D., also a triathlete, if he might be able to train again.

Miller, chief of the Division of Trauma and Surgical Critical Care and professor of Surgery, told Guy that he could not only complete a triathlon, but that he would participate alongside his patient when the day came.

On Sept. 7, 2013, fewer than nine months after Guy's accident, the pair crossed the finish line at the Riverbluff Triathlon in Ashland City, Tenn.

Guy also celebrated another momentous occasion since his accident—the birth of a daughter, Grace, who joined siblings Samantha, 26, and Trey, 20, on Aug. 20, 2013.

“I received a special blessing, such special gifts in this experience,” Guy said. “I am mindful every day of the great gift I received, and I'm going to accept it and make the most of it.”

Guy had always been active in the community. He grew up in Murfreesboro, Tenn., and returned to his hometown to practice law in 1987. Of utmost importance to him is his church, and while at Vanderbilt, he says people who share his faith came in droves to pray for his healing.

“I got to go to my funeral without dying,” Guy said. “I couldn't believe the number of people who came to see me; people kept telling me ‘God still has something for you to do,’ and I feel like God was saying, ‘watch what I can do.’”



A Lesson in Healing

VUSM supports medical student who finds himself on receiving end of cancer care

WRITTEN BY **KATHY WHITNEY**
PHOTOGRAPH BY **DANIEL DUBOIS**

Third-year medical student **Mike Powers** learned a lot about being a good doctor by being a patient. Diagnosed with cancer just over a year ago, he has a new connection to patients and to the Vanderbilt University School of Medicine community who saw him through some dark days.

Each challenge Mike and his wife, Jenny, faced was met with acts of kindness and generosity from friends, family, VUSM faculty and classmates. At every turn, no matter how far they fell into the pit of illness and despair, there was someone there to reach down and pull them up.

“Families are one thing, and they were definitely next in line, but then there were all of these other people who are part of the Vanderbilt community who showed me what being a good person is really, at its core, all about,” Jenny said.

BOY MEETS GIRL

Jenny and Mike, both 32, are a highly accomplished, bright, optimistic couple. Mike graduated from the University of Pennsylvania, where he played football with the goal of joining the NFL. He signed with the Cincinnati Bengals but was let go after sustaining an injury. He had considered medical school early on, but pre-med wasn't compatible with pursuing the NFL, Mike said.

He worked as a journalist with McGraw-Hill before earning his MBA from the University of Notre Dame. He dabbled in entrepreneurship and did a summer internship with a small, start-up investment fund.

“I knew I didn't want to spend my life on spreadsheets and sales calls,” said Mike, explaining his decision to pursue medicine.

Jenny graduated from Harvard University and was accepted to Vanderbilt Medical School. They met at a gathering at the home of her classmate and Mike's best friend from high school, Will Moore. Jenny graduated from VUSM in 2008, and she and Mike were married a few days later. They settled in Boston where she

did her residency, and he enrolled in pre-med classes at Boston University and was a research associate at the Harvard School of Public Health.

“It was a fun time. We had a 400-square-foot apartment in the middle of Boston. We traveled a lot. We went to China and to Korea,” Jenny said.

Mike was accepted to VUSM in fall 2011 at age 29 and received the David Hitt Williams Scholarship. Jenny finished her residency in Boston and moved to Nashville in July 2012.

“We closed on our first house and were settling in, connecting with old friends from my med school days. It was my first job, so that was a little bit of an adjustment. Things were just kind of rolling along,” said Jenny, who is an assistant professor of Dermatology at Vanderbilt.

SIGNS AND SYMPTOMS

In fall 2012, Mike began to experience episodes of low-grade fever, chills, fatigue and lower back pain. He made an appointment with Andrew Scharf, M.D., the attending physician at the Student Health Clinic, and his lab results came back normal.

Thinking it could be stress-related, Mike and Jenny headed to the beach with his family to celebrate Thanksgiving and to announce her pregnancy. She was due with their first child at the end of June. When they returned to Nashville, he had another episode of fever and pain, and that's when they knew something was wrong. He visited Scharf again and this time his lab work showed some slight abnormalities. Scharf recommended a CT scan.

“I wasn't sold on the fact that it was something serious,” Mike said. “I texted Jenny and asked her if I should do this.”

“There was enough on the table that in my mind we just needed to check it off the list,” Jenny said.

He had the CT scan on Wednesday, Dec. 5. Later that day, Mike logged on to his laptop to check his medical record to see if



Mike and Jenny Powers, with their son, Teddy, a year after Mike's cancer diagnosis.

the report had been posted. Sitting alone at his kitchen table, he read it and saw the words: 15 cm mass in retroperitoneum (behind the abdominal cavity).

"The first thing I thought was, 'Oh, God, I'm expecting a child. I can't bring a child into the world and abandon it,'" Mike said.

This 6-foot-3 inch, 245-pound, former offensive lineman broke down into tears.

Jenny was working in the Dermatology Clinic at One Hundred Oaks, so he drove to campus and met with his trusted adviser, Amy Fleming, M.D., assistant professor of Pediatrics. After reviewing the report, Fleming looked at Mike and said, "This is very concerning." She drove Mike to Jenny's office so he could tell her in person that he was seriously ill.

"I remember Amy poked her head

around into my clinical workstation and she had this serious look on her face. She pulled me out to the hallway where Mike was. I remember he was wearing a blue and red flannel shirt and jeans," Jenny said. "The three of us sat in my office, and I initially put all of the emotion aside and wanted to get things moving."

The next day, Mike's mother and father, a pathologist, came up from

Birmingham, Ala. His other adviser, Ban Allos, M.D., associate professor of Medicine, arranged for him to have a biopsy on Friday morning, Dec. 7. He also had a testicular ultrasound that showed some calcification.

“It was nerve-racking waiting to have a biopsy to find out what kind of cancer I had,” Mike said.

They spent the weekend prepping the house for Christmas. On Saturday Mike developed a fever and was in extreme pain. On Monday, Allos advised him to go to the Emergency Room where Corey Slovis, M.D., professor and chair of the Department of Emergency Medicine, was waiting for him. A work-up revealed that he had a bleed in his retroperitoneum caused by the biopsy. From his hospital bed, Mike anxiously texted pathologist Joyce Johnson, M.D., to learn the result of his biopsy.

“The preliminary report was it could be seminoma (testicular cancer) or it could be sarcoma. Extensive sarcoma is bad. You

Mike Powers, center in pink, is surrounded by medical school classmates who shaved their heads to support him as he went through chemotherapy.



don't live very long with that,” Mike said. “When Joyce realized I was alone in the ER, she came and sat with me for an hour.”

Slovis got the call with the pathology results. “Congratulations. It's seminoma!” he told Mike with a big grin. The lesser of two evils, the diagnosis came as a relief, but the reality was Mike had Stage IIC testicular cancer.

CANCER, CHEMO AND CHRISTMAS

Mike's parents shared the burden of his care. They, along with many people from the Medical Center, saw the couple through the course of treatment. Jenny and Mike's classmates threw a chemo kick-off party and a dozen of them shaved their heads in a show of support.

“From the diagnosis phase, we had the red carpet rolled out every step of the way. We were getting the most up-to-date information and it makes you realize that it is absolute agony waiting for information. We had Mike in treatment within one week of his biopsy. We had the best specialists at our fingertips, and multiple doctors in the family (including Jenny's father) and it was still pretty horrible,” Jenny said.

Mike started chemotherapy on Dec. 17, 2012, and underwent 21 infusions. Unable to eat, he sustained himself on ginger ale, water and IV fluids. A particularly low point came on Christmas Eve. He developed terrible chest pain caused by reflux and nothing seemed to help. Jenny took him to the ER where he was treated with morphine and oral lidocaine to no avail. Finally, intravenous Pepsid did the trick. They left hours later with a prescription and headed to the only pharmacy open at 9 p.m. on Christmas Eve, near the airport. There were 30 customers waiting in line when they arrived.

“I told the pharmacist that my husband was a chemo patient in horrible pain out in the car and they got it to us a little bit sooner,” Jenny said.

Over the next few weeks, Mike experienced frightening side effects of chemotherapy including an irregular heart rhythm at home.

“His heart was racing. We were trying to decide if we had to take him to the ER. Was he going to die at home?” Jenny recounted. “I am a dermatologist and this is the kind of stuff that I dread. And when it's your husband, you can't even think straight.”

For Mike the worst night was when he developed a neutropenic fever that caused his whole body to shake uncontrollably.

“After nearly an hour, I just started crying, and I told Jenny, ‘I can't take this anymore,’” as he lay under a pile of blankets and his wool coat in the ER. Jenny, now in her second trimester of pregnancy, spent the night with him there.

Throughout treatment, Mike's classmates brought them food and kept them entertained, and faculty members, Fleming, Allos and Kathy Murray, M.D., whom they call their three angels, went above and beyond too many times to count. Mike was never alone during his chemotherapy infusions, which lasted several hours.

“When Mike was super sick from chemo, they would come and watch him for an hour or so, which meant getting

him drinks and blankets to keep him warm. That kind of support was just great,” Jenny said.

His last day of chemotherapy was Feb. 11, 2013. Too weak to go to school, he worked from home on the days that he felt well enough. With the help of classmates, including one who made handwritten duplicates of all her Pharmacology flash cards for him, he was able to take his exam. His instructor dropped it off at his house and told him to take it when he was able. It took him four days to finish. He was not able to attend a single lecture until April.

“They really just helped me in any way that they could,” Mike said.

Mike had surgery on May 17, his and Jenny’s fifth wedding anniversary. What was supposed to be a three-hour surgery took eight hours. Urologic surgeon Mike Cookson, M.D., dissected all of the scar tissue left from the cancer in order to preserve Mike’s kidney and abdominal aorta.

“I don’t know that many surgeons would have been capable of doing that, and I am immensely thankful,” Mike said. “Surgery was pretty awful. It was more pain than I knew was possible to endure. Between the chemo and the surgery, I’ve come to appreciate how much pain we’re capable of inflicting on patients. It’s really bad. I’ve found I have a much deeper connection with patients now.”

A NEW LIFE

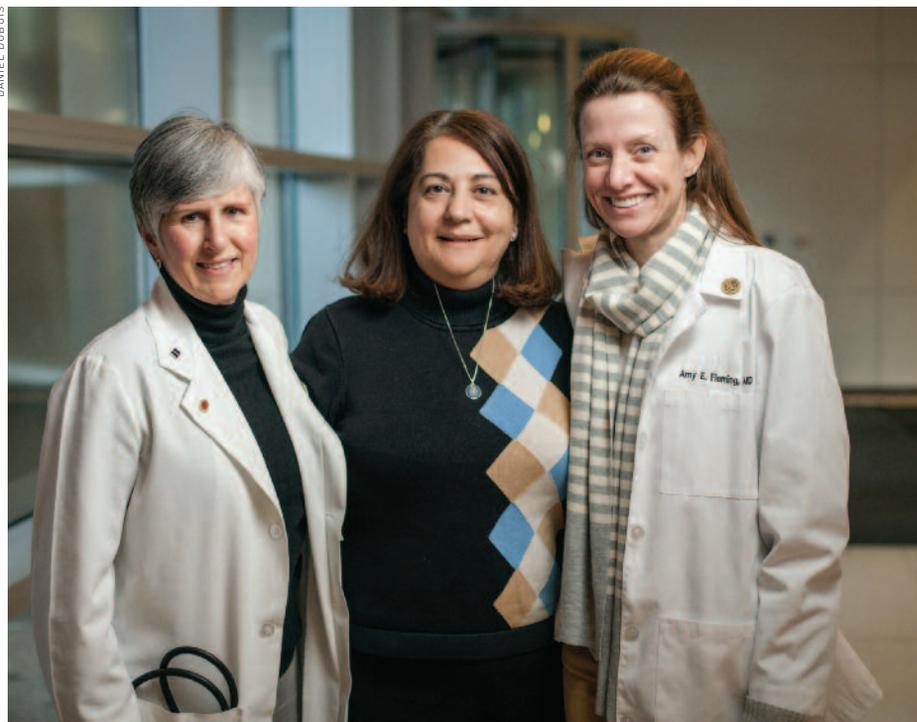
Mike was recovering from surgery and starting to get his energy back when Jenny underwent a C-section on July 4 and delivered their son, Teddy.

What was certainly a joyous occasion was tempered by yet another setback.

“That’s another saga, but I managed to get out alive after I developed a severe infection,” Jenny said. “I developed rigors (shaking due to fever) like Mike did, unfortunately.”

They have matching scars, both physical and emotional.

“It’s the most seriously ill I’ve ever been. It’s been a wild ride. Those were challenging times when I was recovering



DANIEL DUBOIS

and Mike was recovering still. I was like, ‘I can’t believe this is our life.’ I was so physically sick from my delivery. It was rough month,” Jenny said.

Their family and the Vanderbilt community continued to pitch in while they recuperated and cared for their newborn. Mike also had to study for step one of the boards. In fall 2013, Jenny returned to work and Mike gradually returned to the classroom. The faculty continues to work with him on his third-year schedule to accommodate his energy level. His surgery rotation, the most physically demanding, has been postponed.

“I have spells where I am basically myself, but I only have a certain number of hours in the day where I feel like my old self,” Mike said, nearly one year after his diagnosis.

“Since then life has continued to be on the mend,” Jenny said. “I am juggling work and the baby. Our son is such a joy.”

“I can’t say enough for all of the people who helped us along the way. I feel like I’ve learned a lot about what’s really important in life. I know how busy their lives are, but they just stopped and literally

The “three angels” who helped support Mike and Jenny, from left: Kathy Murray, M.D., Ban Allos, M.D., and Amy Fleming, M.D.

poured out their energy and their help and that included in the postpartum period. That’s the kind of stuff that floors me,” she said, wiping tears from her eyes. “There’s been this continued presence of his classmates and the three angels who have been so great.”

Mike feels that his experience has confirmed he made the right decision to study medicine.

“I’m thankful that I chose to go to medical school. My experience has confirmed to me the ability of a good physician to have an immensely positive impact of people who are at their most vulnerable. Because of my experience, I find that I am able to connect with both patients and their families, even at the end of life. Death doesn’t scare me now that I’ve faced it.” **VM**



BUZELLI

A Storm Within

Recognizing the signs of a brewing anxiety disorder

WRITTEN BY **NANCY HUMPHREY**
ILLUSTRATION BY **CHRIS BUZELLI**

Sixteen-year-old Hannah is a picture-perfect Middle Tennessee teenager.

A straight-A student, beautiful, active and musically talented, she starred in her high school's spring musical.

Hannah (not her real name) hid a brewing anxiety disorder so well that even her mother had no idea she was becoming incapacitated by it—until she came home from a movie with her boyfriend last spring and quietly said that she had thought about committing suicide that night.

Already seeing a therapist, Hannah assured her mom that she would tell her if she had suicidal thoughts again. The therapist worked with her on relaxation techniques.

"I had never faced a situation like this before," her mother recalls. "I had no idea that depression and anxiety had built up to the level it had."

Then, one day her mother received a call from the nurse's office at Hannah's high school. Hannah was having a panic attack. "The nurse told me that I needed to come and get her and that they couldn't release her until I agreed to take her to Vanderbilt for evaluation," her mother said.

Hannah spent five days at Vanderbilt Psychiatric Hospital. "Leaving her was the hardest thing I've ever had to do," her mother said. "It's one of those things you would never in a million years think would happen to you. It was heart wrenching. But we have learned so much about ourselves and the signs that we missed. I just didn't see the warning signals."

But they had been there—frequent unexplained headaches and stomachaches as a child; problems separating from her parents; disliking Sunday nights (dreading school on Monday); and an inability to put stressful events behind her.

Anxiety, a normal reaction to stress, can become a

problem when it's an excessive, irrational dread of everyday situations that becomes disabling, according to the National Institute of Mental Health (NIMH). About 8 percent of teens have an anxiety disorder, with symptoms commonly emerging around age 6. Anxiety disorders are highly treatable, although only about one-third of those who suffer from them receive treatment, according to the NIMH.

Hannah, currently being treated with a combination of behavioral therapy and medication by Cheryl Cobb, M.D., assistant professor of Psychiatry at Vanderbilt University Medical Center (VUMC), was good at masking the outward display of her emotions. "She internalized her anxiety, and she has obsessive-compulsive tendencies," her mother said. "There were a lot of things about her personality I should have seen years ago."

A mind filled with 'what ifs'

Todd Peters, M.D., assistant professor of Psychiatry at VUMC, says that fear is a protective mechanism that is ingrained in humans. "It pays to be anxious at times," he said. For example, if a vicious animal is coming toward you, you need to be anxious and go into fight or flight mode.

"But when people develop anxiety disorders, I think of it as a car alarm going off in a parking lot when nobody is around to touch it. The wiring gets faulty and your anxiety meter is triggered and tripped off when it doesn't need to be, and you perceive situations as anxiety provoking or dangerous to your health that don't really need to be."

The Diagnostic and Statistical Manual of Mental Disorders (DSM), the standard classification of mental disorders used by mental health professionals, has listed five

major types of anxiety disorders: Generalized Anxiety Disorder, Panic Disorder, Social Phobia (or Social Anxiety Disorder), Obsessive Compulsive Disorder (OCD) and Post-Traumatic Stress Disorder (PTSD). However, the anxiety chapter in the most recent DSM-V no longer includes OCD or PTSD. They have been relocated to their own chapters.

Peters said that people with Generalized Anxiety Disorder, like Hannah, usually become incapacitated by the “what ifs.” “It’s like having a worry queue in your head with a long lineup of worries. The worries go on 24/7 and you have a worry meter that’s always going off. When one worry pops out of the queue, another pops in.”

Peters said that thoughts can become distorted, and worries, disabling. “Sometimes worries are justified. Bad things happen and your worst fears end up being reality, but if you consistently worry about those worst things happening, it can incapacitate you and make you nonfunctional. There are risks to living in general, but if you’re so handcuffed by those risks, you can’t live the life you want to live. The ‘what ifs shouldn’t control your life.”

We all know people who worry excessively, Peters said. “Maybe Grandma wasn’t just a worry wart. She might have had a Generalized Anxiety Disorder.”

Peters said that anxious people often become tired, run down, irritable, have insomnia and suffer from pain and other somatic complaints. Suffering from anxiety also opens the door for other issues like substance abuse and depression.

“When we think about our brains operating like a computer, anxiety is a huge program that’s running in the foreground, slowing everything else down on the computer.”

Treating the anxious patient

Treatment for anxiety disorders depends on the type and the patient, Peters said. For milder cases, cognitive behavioral therapy (CBT) alone may work. For moderate to severe cases, a

“...if you consistently worry about those worst things happening, it can incapacitate you and make you nonfunctional.”

combination of medication and CBT is normally recommended.

CBT is usually individualized for each patient. “We have to look at how certain feelings and thoughts lead to certain behaviors, and try to learn how these thoughts and behaviors are intertwined,” he said.

People suffering from anxiety disorders need to learn a new thought process, he said. Talking through situations that make a person anxious can help, and staging situations (for specific phobias, like a fear of snakes) where people are exposed to situations in a controlled, progressive way is often helpful.

“We help people overcome their fears so they’re not incapacitated by them,” he said. For those with generalized anxiety, mindfulness techniques, progressive muscle relaxation and deep breathing techniques can help.

Peters said there’s no evidence that anxiety disorders are increasing, but with the destigmatization of mental health issues, people who have them are more open to seeking help.

Health care providers are also becoming more adept at identifying anxiety disorders, he said. Anxious people usually

present first to primary care physicians, often having repeated visits for unexplained medical complaints like headaches and stomachaches.

Do anxious children become anxious adults? Not always, Peters said, but it definitely increases the risk (see sidebar on page 25).

“Anxiety disorders, even those that are treated, can come and go through different phases of your life,” Peters said.

“A child may start out with separation anxiety, then have generalized anxiety during adolescence, then social anxiety once they get to high school. Think of anxiety like a game of Whac-a-Mole. You might have a period of time where you meet the criteria for an anxiety disorder, then with treatment or through the natural course of things, it abates, and then pops up again.”

Look no further than the amygdala

The amygdala is the brain’s threat detection system, often called its fear center. At the first glimpse of a potentially

Todd Peters, M.D., left, and Jennifer Urbano Blackford, Ph.D.



JOHN RUSSELL



SUSAN URMY

fearful situation, the almond-shaped set of neurons located deep within the brain's temporal lobe sends signals out to the other parts of the brain to get the adrenaline and cortisol, the primary stress hormone, flowing.

Conditions like anxiety disorders, depression, post-traumatic stress disorder and phobias are all believed to be linked to the amygdala.

"We need the amygdala, but we also need another part of the brain to be able to shut it down when you determine, 'oh actually, I'm safe,'" said Jennifer Urbano Blackford, Ph.D., assistant professor of Psychiatry and Psychology. Blackford, who studies the genetic and neural roots of anxiety vulnerability, said there are a couple of theories that might be occurring in those with anxiety disorders.

"The circuit that helps shut down the amygdala might not be functioning properly," she said. "Another theory is that the amygdala is getting engaged too easily in people who are anxious. It might be hyper reactive. Or you could have both of those things happening—the amygdala may be too sensitive to the potential threat, and when it is, it can't turn off properly."

"We've learned a lot about the neuroscience of anxiety by studying fear," she said. "Fear is very normal and adaptive. You should actually be afraid of threatening things. It becomes an anxiety disorder when you're afraid of things that can't actually hurt you."

Blackford and colleagues studied a group of inhibited (shy) individuals, who are at high risk for developing anxiety and depression, and compared them to uninhibited individuals who are at very low risk. Each group was repeatedly shown pictures of unfamiliar faces to see how the amygdala responds. The theory is that anxiety vulnerability might be the result of deficits in the amygdala.

Functional Magnetic Resonance Imaging (fMRI) was used to examine the brains of both groups of these individuals.

Blackford's study, published in the journal *Social Cognitive and Affective*

Neuroscience, found that the individuals who identified themselves as inhibited or shy may experience habituation failure, or the inability to adapt to new stimuli, in the amygdala.

The brain response of the low-risk uninhibited individuals increased when the faces were new, but declined as they became familiar. In contrast, the high-risk inhibited individuals failed to show the habituation decline.

Blackford and her colleagues think the failure to habituate may be a key cause of Social Anxiety Disorder, the second most common anxiety disorder, affecting approximately one in 10 adults in the United States.

Blackford's group is now studying the brains of both adults and children at high risk for developing anxiety to see what happens when they're anticipating something frightening. "Anticipatory anxiety is a huge part of anxiety for children who

have worry or social anxiety—the fear of what's going to happen," she said.

They are also following high-risk children and will look to see if there's something in the brain early on that will predict who will develop an anxiety disorder.

All of the Vanderbilt studies may someday help children and adolescents like Hannah who live with anxiety.

Hannah's panic episodes are less severe, her mother says, and she's making great strides.

"Everybody has great confidence that she's going to be fine. I just didn't realize how hard it is for someone wired like she is. My hope for her is that she will be happy and feel content and safe and able to move ahead.

"She's learning to manage her feelings and learning how to let things go. She feels a lot better. She's in a much better place." **VM**

ABDOMINAL PAIN AND ANXIETY—IS THERE A LINK?

A Vanderbilt University study recently looked a little closer at a common childhood complaint—"my tummy hurts"—to see whether children with frequent functional abdominal pain (FAP) are more prone to anxiety disorders.

The study, published in August 2013, in the journal *Pediatrics*, tracked 332 children with FAP (abdominal pain without a medical cause) between the ages of 8 and 17, comparing them with 147 children reaching adulthood who had never had FAP.

The researchers caught up with the kids when they were around 20 to see if they had any symptoms of anxiety or depression.

A little more than half of the children who had FAP as children had an anxiety disorder at some time in their life. Thirty percent of those had a current anxiety disorder diagnosis when they were surveyed. And 40 percent of the children with FAP experienced depression as they were growing up, compared with 16 percent of those who had never experienced the abdominal pain.

"Anxious children are more likely to worry about pain and cautiously avoid activities—such as school—where they might have pain. This makes it more difficult for them to cope with pain and over time creates stress, such as getting behind in schoolwork, that can further exacerbate pain, anxiety and disability," said study author Lynn Walker, Ph.D., professor of Pediatrics and Psychology.

A decade ago a well-publicized study determined that youth who presented with chronic stomach pain in primary care deserved careful assessment for anxiety and depressive disorders. But until the Vanderbilt study there has been no controlled prospective study that evaluated psychiatric outcomes for FAP patients in adulthood.

Social anxiety disorder was particularly common in the pediatric FAP patients. Patients with FAP carry a long-term vulnerability to anxiety that begins in childhood and persists into later adolescence and early adulthood, even if abdominal pain resolves, the study showed.



SPECIAL DELIVERY

Niche clinics address
high-risk pregnancies

ALTHOUGH A NORMAL PREGNANCY AND DELIVERY OF A HEALTHY CHILD ARE every woman's goal, sometimes challenges arise that require specialized care for both the mother and baby. For four decades, Vanderbilt has provided innovative specialty clinics to assist high-risk pregnant women and will continue to target specific health needs for this population.

One of these clinics was the difference between life and death for Claire Moseley and her unborn child.

Six months pregnant and addicted to opioids, Moseley, 26, was running out of options. She was discovering there were three outcomes for addicts other than recovery: jail, rehabilitation centers or death.

"I had already been to jail," said Moseley. "I had been to rehab, twice. There was only one thing left and that was death."

The young mother, challenged by feelings of guilt, shame and regret, calls her son a miracle. Born three weeks early on Nov. 18, 2012, Vann weighed 5 pounds and 13 ounces.

Surrounded by family and friends, she recently hosted a birthday party, which was more than a celebration of her son's first year. It was also recognition of her accomplishment—sobriety.

Moseley credits Jessica Young, M.D., assistant professor of Obstetrics and Gynecology, for her success. Young runs Vanderbilt's Drug Dependency Clinic for pregnant women, one of a few of its kind in the country.

WRITTEN BY **JESSICA PASLEY**
PHOTOGRAPH BY **DANIEL DUBOIS**

“I have no doubt that if I had

not gotten help I would have overdosed at some point and I am certain that my son would have either not made it or would have been born with a lot of health problems,” Moseley said. “He has been perfectly healthy from day one and never shown any negative signs of my drug use.

“At first, no part of me felt that I deserved this sweet, healthy baby. But when he was born—there was nothing in this world more important to me than staying sober so that I could be a good mom.

“He deserves 100 percent of me and if I am not sober, I cannot give that to him.”

LEADING THE WAY

“Vanderbilt has taken a leadership role in opening these clinics that cater to a

specific patient population. Other medical centers will follow in creating similar clinics for pregnant women with specialty needs,” said Frank Boehm, M.D., professor and vice chair of OB-GYN.

For example, Vanderbilt Psychiatric Hospital was the first in the region to use buprenorphine when it opened a clinic in 2005 to treat dependency to opioids including heroin and other widely prescribed pain control medications like oxycontin, lortab, and percocet that are highly addictive.

Buprenorphine carries a lower risk of abuse, addiction and side effects, and most importantly, blocks the craving for other opioids. It is one of three medications commonly used to treat opioid addiction.

According to medical reports, buprenorphine makes the brain think it is receiving an opioid, which keeps withdrawal symptoms at bay. While taking the medication, the patient feels normal, not high.

“The golden standard for opioid addiction during pregnancy is methadone and I wanted to steer clear of it,” said Moseley. “I wanted to have the least amount of side effects for my baby. I had seen grown men detoxing from methadone and it was horrible. I just couldn’t do that to my baby.

“Without this clinic, I don’t think I would have been able to stay clean. It is so hard to overcome, but Dr. Young really worked with me—finding the right doses of medication that worked for me and not fitting me into a category.

“Everyone in the clinic was rooting for me, working with me so that I could be successful. Never once did I feel judged.”

That was music to Young’s ears. She has worked to ensure that her clinic is a safe and nonjudgmental environment for mothers seeking health care and drug treatment.

Many patients are burdened with fear, worry and guilt, all of which serve as barriers to care, she pointed out. Young and her staff work to peel away those layers in hopes of helping women make a lifestyle change.

“Our challenge is to help them not only overcome those fears but to also build a therapeutic relationship of trust—I must trust them and they must trust me. In order to do that, I have to meet them with respect and listen to their stories.

“The overarching goal is to get them and their baby through their pregnancy in the healthiest way possible,” she said. “Secondary is getting them to a place in their recovery where they will remain stable



Claire Moseley celebrates her triumph over drug addiction and her son’s first birthday.

after delivery, after the postpartum period and beyond.”

Patients like Moseley inspire and motivate Young to continue her efforts to help this patient population.

“I feel lucky to just play a small part in helping them, but they are really the ones doing all the work,” said Young. “They are the ones finding the power within to make the change. I am just giving them the tools; they must decide to use them or not.”

For Moseley, who had been fighting an opioid addiction on and off for nearly five years, the clinic was her saving grace. What started as recreational use of an acquaintance’s leftover dose, turned into a hard-hitting heroin habit.

“When I first started, I took small amounts of oxycontin here and there,” recalled Moseley. “At the time, it was easy to get. I had no idea that I had become addicted until I couldn’t get it anymore and I got sick.

“It didn’t seem dangerous or a big deal. It really took me off guard that I was addicted. I switched to heroin because it was easier to find, lots cheaper and the high lasted longer.”

Moseley was nearly through the first trimester when she learned she was pregnant. She was admitted to her second rehab facility, an out-of-state center that accepted pregnant women.

Three months later she returned home, detoxed and ready to move forward, until an injury from a bathtub fall a few weeks later sparked her urge to use drugs. Although not as intense as before, she had relapsed.

“I wanted so badly to stay clean, but it seemed like any kind of pain or stress ... I had a really strong addiction. I was admitted to Vanderbilt to begin buprenorphine so that they could monitor both me and the baby.”

RELYING ON RESEARCH

Vanderbilt was one of eight sites to test the use of buprenorphine in expectant mothers in a trial which was part of the MOTHER project—Maternal Opioid Treatment: Human Experimental Research.

EXPORTING EXPERTISE

Network takes care to communities

The Vanderbilt Health Affiliated Network (VHAN) is the largest provider-organized network of doctors, regional health systems and other health care providers in Tennessee and seven surrounding states, and is a cornerstone of VUMC’s strategy to lead health care transformation.

An outcome of VHAN are two clinics designed to meet women’s health needs in their communities: the Integrative Vanderbilt Center for Women’s Health at NorthCrest Medical Center in Springfield, Tenn., and the Vanderbilt Franklin Women’s Center at Williamson Medical Center.

The Center for Women’s Health is the most recent specialty clinic to open at NorthCrest following a 2011 affiliation. The clinic broadens the scope of VUMC’s specialized OB/GYN services into Northern Middle Tennessee and Southern Kentucky.

The clinic occupies 9,600 square feet in a new office building on NorthCrest’s grounds. The clinic features 10 exam rooms and three rooms reserved for maternal-fetal medicine patients. Obstetrical services include six labor and delivery suites all outfitted with hydrotherapy tubs and new, state-of-the-art electronic fetal monitoring systems.

The Vanderbilt Franklin Women’s Center at Williamson Medical Center offers services for women in all stages of life and performs normal obstetric deliveries and gynecologic surgery at Williamson Medical Center.

These clinics that developed from affiliate medical center relationships represent the emphasis on offering comprehensive women’s health services in locations other than the VUMC campus.

Due to unprecedented growth over the past four years there has been tremendous pressure on the obstetrical services at Vanderbilt University Hospital. The number of deliveries grew from 2,523 in fiscal year 2008 to 4,164 in fiscal year 2012.

“Because of the very rapid growth we have experienced, we needed to consider ways to expand our services beyond the existing main campus location,” said Howard Jones III, M.D., professor and chair of Obstetrics and Gynecology. “With Vanderbilt’s new alliance with Williamson Medical Center and NorthCrest we can now offer patients Vanderbilt providers who practice at a Vanderbilt affiliated hospital.”

The results of the study were documented in a 2010 issue of the *New England Journal of Medicine*. The study, co-authored by Vanderbilt’s Peter Martin, M.D., director of the Division of Addiction Psychiatry, found that the newer buprenorphine is at least as good for both mother and child as methadone, the standard of care, when both were combined with comprehensive treatment of opioid dependence in pregnant women.

“We demonstrated a statistically significant improvement above the standard of

care in important outcomes in the babies of mothers who received buprenorphine during the pregnancy compared to those who were administered methadone,” Martin said.

Buprenorphine had previously not been well studied in pregnancy, although it is now widely prescribed to treat opioid addiction.

Study results showed that babies of mothers who received buprenorphine compared to those who received methadone throughout pregnancy needed significantly less morphine to treat their

“...it’s hard to tell if we are offering a service that people need, and utilization is up, or whether the number of women addicted to these medicines is increasing.”

neonatal abstinence syndrome (NAS), had shorter hospital stays (10 days vs. 17.5 days), and shorter duration of treatment for NAS (4.1 days vs. 9.9. days).

It was soon after that study was published that Young and her colleagues began to notice an increase in the number of expectant mothers who were opioid dependent. There was also a spike in NAS births in Tennessee.

Vanderbilt clinicians took action. Since opening in the fall of 2011, the clinic has treated about 150 patients.

Originally a once-a-week, half-day clinic, the Drug Dependency Clinic now operates twice a week to meet the increasing patient volume. The clinic follows 30-50 women. The appointment schedule is completely booked.

Young is not sure what to make of the growing population.

“We are at the point where it’s hard to tell if we are offering a service that people need, and utilization is up, or whether the number of women addicted to these medicines is increasing,” she said. “I worry that it is the latter.”

Young said one-third of her patients’ drug abuse begins with an injury or pain after a surgical procedure. Another third have been treated in pain clinics, while one-third are patients whose recreational drug use escalated, like Moseley.

Ultimately Young hopes to expand the clinic in order to meet the growing demands. There is currently a collaborative model with patient care including obstetrics, psychiatry and social work. They would like to expand to include case management and group therapy.

Jessica Young, M.D., helps pregnant and addicted patients overcome their fears and build a relationship of trust.

“There have been studies that show that integrating prenatal care with addiction treatment improves outcomes,” said Young. “We are trying to get a handle on the epidemic and figure out the best way to treat these women. I want to bring everything into one place to make it easier for them. We want to give them every opportunity to be successful.”

A TEAM APPROACH

One of the clinicians treating Moseley, Michael Caucci, M.D., assistant professor of Clinical Psychiatry and OB-GYN, runs the Vanderbilt University Women’s Mental Health Clinic at Vanderbilt Health One Hundred Oaks.

Caucci and Young team up prior to a patient’s delivery and immediately after the

baby is born. He typically follows patients for three months postpartum to make sure they are stabilized.

This concept is not only beneficial for the patients, but also creates a collaborative environment for our clinicians, Boehm said. “That team approach allows them to provide care in an all-encompassing manner.”

Moseley sees Caucci every month to monitor her buprenorphine dose. The pair will work together to create an appropriate tapering schedule.

Caucci is pleased with Moseley’s progress.

“She has worked really hard in her recovery to achieve this success,” said Caucci. “I am glad that we are able to offer services to women to enable them to get through their pregnancies safely, educate them about their addiction and the effects it has on their baby as well as continue therapy to get them on the road to recovery.

“We want to end the drug abuse, but first, we have to get at what is causing it. It goes beyond the delivery. This impacts the rest of their lives and their child.” **VM**



JOHN RUSSELL

SPECIALTY OB CLINICS:

Improving Outcomes Through Customized Care

The Department of Obstetrics and Gynecology offers a broad spectrum of health care options for expectant mothers including a number of specialty clinics. In 2013, about 4,500 women delivered their babies at Vanderbilt and several thousand utilized Vanderbilt's prenatal services.

Fetal Center at Vanderbilt

The largest of these subspecialty clinics, it meets five days a week. It is directed by Kelly Bennett, M.D., director of the Division of Maternal Fetal Medicine.

Specialists help minimize risks to both mother and baby. The team of experts manage any problems that may occur during pregnancy. With advancements in fetal diagnosis and therapy, the center has seen improved outcomes of the fetus at risk.

The Fetal Center is located at the Monroe Carell Jr. Children's Hospital at Vanderbilt. Consultations by appropriate specialists are coordinated at a single site with Maternal Fetal Medicine, Pediatric Surgery, Neonatology, Pediatric Neurosurgery, Pediatric Cardiology, Pediatric Urology, Pediatric Plastic Surgery, Pediatric Otolaryngology, Genetics, and Diagnostic Imaging.

Obstetrics at the Comprehensive Care Clinic (HIV/AIDS medical clinic)

Known as the OC3, this clinic began in 1999. More than 350 women have been seen at the clinic that combines OB and HIV care. Since its opening, more than 300 infants have been born to HIV-positive women. Only one of these infants has been HIV positive.

The statistics for rate of transmission for babies born under the care of clinicians at the OC3 are remarkable—less than 0.5 percent, which is below the national average of 2 percent.

Lavenia Carpenter, M.D., assistant professor of OB-GYN, points to the collaborative efforts established early on at the clinic. Studies have shown that the lowest rates of transmission are among the group of women who start medications early and maintain and adhere to the medication regime, she said.

The team consists of clinicians and case managers who follow both the mom and baby through pregnancy and the postpartum period. Staffing includes an HIV family nurse practitioner, Maternal Fetal Medicine faculty member, pediatric infectious disease clinical nurse specialist, social worker, medical case manager, nutritionist, mental health clinician and a pharmacy team member.

Nearly one-third of OC3 patients are newly diagnosed at the time of their pregnancy.

"Not only are these women finding out that they are pregnant, they are also finding out that they are HIV positive," said Carpenter. "They are very grateful for our services because having the combined support in one place has been tremendously helpful for them. That is a major reason why this model of collaborative care has been so successful."

Diabetes Clinic

The first specialty clinic established in the early 1970s at Vanderbilt, the Diabetes Clinic is now run by Etoi Garrison, M.D., Ph.D., assistant professor of OB-GYN.

Designed to meet the unique needs of patients with type 1 and type 2 diabetes, the clinic delivers about 80 babies a year.

"As the rate of obesity rises within Tennessee and Nashville, we are seeing more patients with type 2 diabetes," said Garrison. "We are seeing an increase in our population, and with the rise in the prevalence of obesity, I am looking ahead and seeing the need to expand our clinic."

Coordinating care for pregnant women with diabetes allows clinicians to not only care for the mom but to also monitor the baby.

"For moms with diabetes, being pregnant can increase the risk that their diabetes can be more difficult to manage," Garrison said.

Congenital Heart Disease Clinic for Pregnant Women

As babies born with congenital heart diseases reach adulthood, maternal fetal medicine practitioners are seeing a rise in the number of patients requiring specialized services.

In the past year, Carla Ransom, M.D., assistant professor of OB-GYN, and May Ling Mah, M.D., assistant professor of Pediatric Cardiology, have cared for nearly 100 patients with congenital heart disease (CHD). The volume of patients prompted the Medical Center to create a specialized clinic for pregnant CHD patients. It will open in March.

"This gives women a designated group of physicians who will care for them and who they can call on at any point in their pregnancy," Ransom said. "Few centers in the country offer this service. It has been shown that the overall pregnancy care improves when there is communication between cardiology and maternal fetal medicine."

Bariatric Obstetric Care Clinic

"There is a real need to decrease obstetric complications associated with obesity," said J Michael Newton, M.D., Ph.D., Maternal Fetal medicine specialist, assistant professor of OB-GYN and director of the new center. "It is my hope that a specialty clinic aimed at a better understanding of these patients and a comprehensive approach to their care will improve outcomes."

Nationwide, more than one-third of expectant moms are obese, which is characterized as having a total body mass index (BMI) above 30. Newton's clinic is targeting women with a BMI over 50 or a BMI over 40 with co-morbidities like hypertension or diabetes.

Patients falling in the obese category are at increased risk for diabetes, hypertensive disorders, pre-term delivery, cesarean deliveries and complications with anesthesia.

The comprehensive clinic will have a perinatologist, nutritionist, psychologist and social worker as well as opportunities for patients to meet with an exercise physiologist and bariatric surgeon or experts in the Center for Medical Weight Loss.

Leadership Through Turbulent Times

Tough decisions necessary to set course for the future

WRITTEN BY JOHN HOWSER

ILLUSTRATION BY SVETLIN RUSEV/ILLUSTRATION SOURCE

In 2011, as the country was recovering from the worst economic crisis since the Great Depression, storm clouds gathered on the horizon as concerns deepened over rising health care costs.

The leadership of Vanderbilt University Medical Center (VUMC) began to see these challenges ahead for the health care industry nearly two years ago and initiated aggressive efforts to reduce operating expenses through non-labor cost reductions that would total nearly \$70 million.

However, these cost savings were only a beginning as VUMC and many of the nation's other academic medical centers would be required to respond even more aggressively to economic forces beyond their control.

With demand and patient volumes at an all-time high for inpatient and outpatient services, the Medical Center's faculty and staff were working harder than ever. However, its hospitals, clinics, laboratories and classrooms would soon face unprecedented challenges.

Due to legislative changes at the federal and state levels, future payment levels for commercial insurance payers, and an aging population, VUMC was facing revenue reductions of approximately \$100 million for its current fiscal year and an additional \$150 million during fiscal year 2015. As a result, the Medical Center's leadership identified the need to reduce overall operating expenses by approximately \$250 million by June 2015.

"Vanderbilt and the nation's other academic medical centers have been delivered an unprecedented set of economic circumstances. Here, rather than wait until we were in crisis, we chose to proactively embrace change, make some very tough decisions, and set the course for the future," said Jeff Balser, M.D., Ph.D., vice chancellor for Health Affairs and dean of the Vanderbilt University School of Medicine.

Frequently during the past year Balser outlined four broad-based economic challenges facing the nation's academic medical centers, which include:

Federal sequestration—Through the federal sequester, which went into effect on March 1, 2013, VUMC and other major academic medical centers will lose tens of millions of dollars in revenue each year through an ongoing 2 percent reduction to reimbursements for patients insured through Medicare and through reductions to funding for the budget of the National Institutes of Health, which funds much of VUMC's research.

Tennessee's failure to expand medicaid enrollment—Already the state's largest provider of Medicaid services and the region's largest provider of uncompensated care, VUMC is losing the opportunity to treat more insured patients because Tennessee remains among a minority of states refusing to accept billions of federal dollars through Medicaid expansion. Concurrently, VUMC will also lose millions in annual revenue through the discontinuation of federal disproportionate share (DSH) funds to Tennessee through federal health care reform.

Shifting national demographics—Growing numbers of Baby Boomers departing the workforce are impacting revenues of nearly all U.S. hospitals as more patients shift,

on a percentage basis, from commercial insurance to Medicare coverage. Medicare pays hospitals considerably less than most commercial insurers.

Changes in commercial insurance—Following trends of federal insurance programs Medicare and Medicaid, commercial insurers are already negotiating for reduced rates for inpatient, outpatient, laboratory and pharmacy services. As patients move from employer-based plans to exchange-based plans, the rates paid to hospitals will be less.

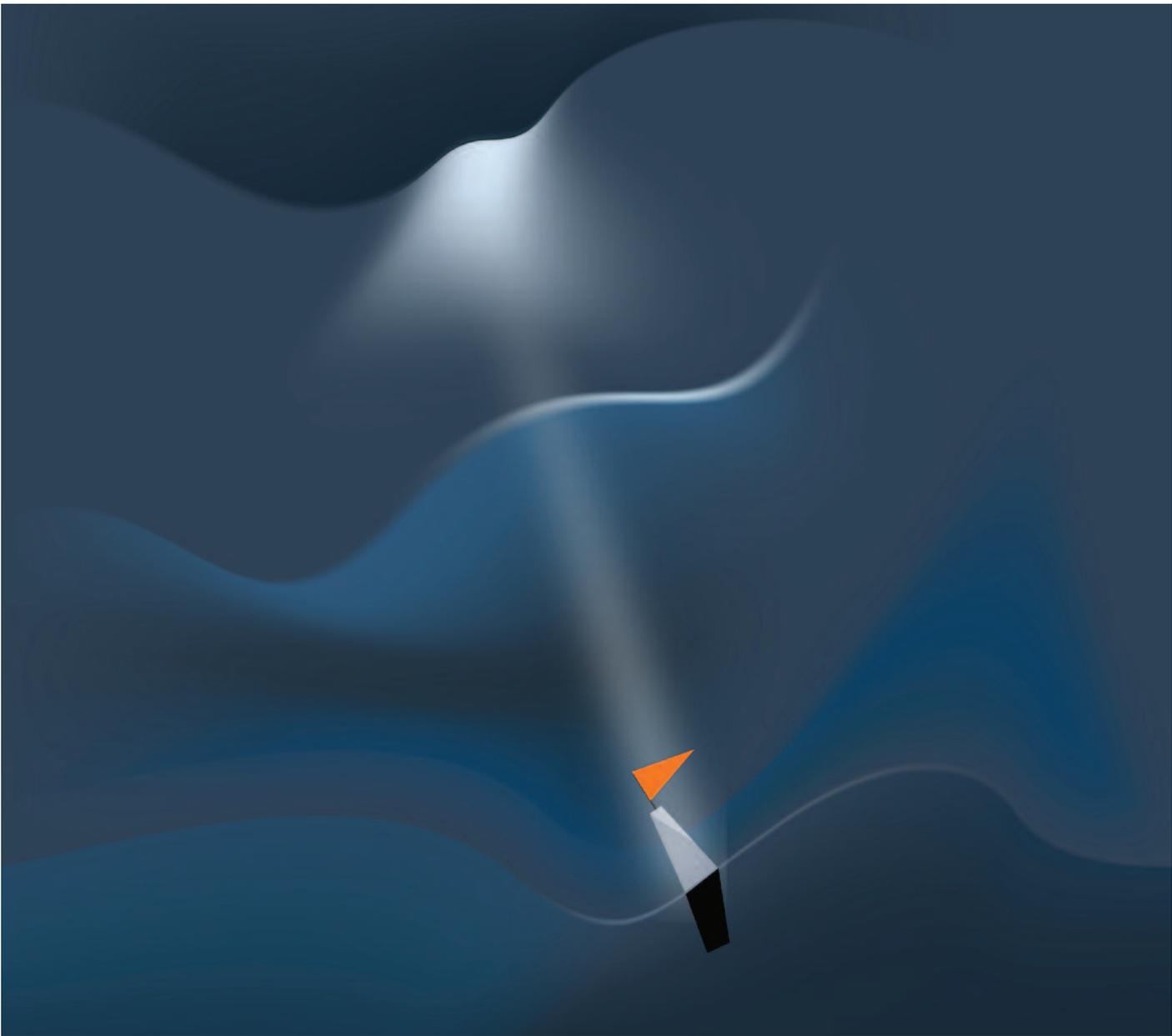
Before any measures were considered that might impact employment, other significant steps were taken including: a months-long hiring freeze, halting the accrual of vacation hours for three months and a voluntary early retirement program. The Medical Center also did not offer a traditional annual salary increase for the current year.

Nonetheless, Balser and other members of the Medical Center's leadership were resolved to strategically reduce overall operating costs by an amount necessary to accommodate for these challenges. By early summer, it was clear that workforce reductions would be needed.

Balser made a strategic decision to use effective and open communication about the economic challenges and what steps would need to be taken, however difficult. While this degree of transparency created understandable anxiety, it also ensured that institutional trust would be preserved. As VUMC became one of the nation's first academic medical centers to openly and aggressively address its financial circumstances, there was strong local and national media attention.

"The challenges we faced were multi-dimensional, and not only operational but also psychological," Balser said. "Because we were so transparent we had to weather a period of intense media scrutiny. We also needed to address perceptions that Vanderbilt was somehow the only institution affected by these economic forces."

Balser chose to speak directly to the Medical Center's workforce about the



challenges ahead through “Rounds,” a monthly self-penned column already being published within the Medical Center that he used to address other topics. He and other members of the Medical Center’s leadership team engaged in numerous faculty meetings, and town hall forums with medical students, house staff, nursing students and other audiences, both internal and external, about the forces creating the need for change and the steps that would need to be taken.

As summer drew to a close, other academic medical centers were featured in the press. Cleveland Clinic announced it would trim \$330 million and 2,500 positions; Indiana University Health stated its goal was a reduction of \$1 billion and 800 posi-

tions; Wake Forest announced it would need to eliminate more than 950 positions.

While a nine-month hiring freeze had already created the opportunity to eliminate more than 800 vacant positions, the most difficult period came in September when approximately 275 staff left the Medical Center through a reduction-in-force, as VUMC began to reorganize workflow through a system-wide process across all mission areas: patient care, education and research.

By year’s end approximately 1,500 positions had been eliminated through the hiring freeze, the early retirement offering and reductions-in-force. Operational redesign remains underway in 2014 as VUMC continues to achieve additional

non-labor operational savings across all areas due to shifting sands underneath the health care industry.

“Our people and our culture remain our greatest asset and our first priority. Together, we persevered through last year with true teamwork and sacrifice. And together we will continue to face one of the most challenging periods in health care. The enormous amount of time and effort put into operational change this past year has set the course for the Medical Center’s future. We have emerged an organization that is more nimble and better able to adapt to the constant changes that will continue to occur within health care delivery, education and research,” Balser said. **VM**

Day of events highlights past and current efforts to fight diabetes

BY BILL SNYDER

Oscar Crofford, M.D., shook his head in wonder.

The man who brought the nation's first diabetes research center to Vanderbilt University in 1963, and who led the national trial, launched a decade later, which revolutionized the treatment of the disease, said he is astounded that "40 years later, the problem still exists."

"We're coming face to face with a substantial shortage of individuals to solve the problem," Crofford said. "We don't have enough people being trained as medical scientists to deal with the problems of diabetes. We don't have clinicians being trained to take care of people with diabetes.

"And the problem's going to get worse," he said. "So anything that can be done to encourage students to channel their career in the direction of research and care of people with diabetes I think is very important."

Diabetes affects 26 million Americans, more than 8 percent of the population, and cost the country \$245 billion in 2012, according to the American Diabetes Association.

Crofford spoke Nov. 21, 2013, during the annual Diabetes Day at the Vanderbilt Student Life Center, which drew about 200 attendees to lectures by four nationally known diabetes researchers and a poster session displaying more than 70 Vanderbilt research projects.

Two young Vanderbilt scientists, one a graduate student in Biomedical Engineering, the other a postdoctoral fellow in the Department of Molecular Physiology and Biophysics, were named the first "Scholars in Diabetes" in honor of Crofford and another diabetes pioneer at Vanderbilt, Daryl Granner, M.D.

The graduate student, Christopher Nelson, who is developing a biodegradable "scaffold" to enhance diabetic wound healing under the mentorship of Craig Duvall, Ph.D., was named the Oscar B. Crofford Scholar in Diabetes at Vanderbilt.

Arion Kennedy, Ph.D., who is studying immune cells and animal models of obesity and hyperlipidemia in the laboratory of Alyssa Hasty, Ph.D., was named the Daryl K. Granner Scholar in Diabetes at Vanderbilt.

Alvin Powers, M.D., currently director of both the Vanderbilt Diabetes Research and Training Center (DRTC) and Vanderbilt Diabetes Center, also announced the creation of lectureships in Crofford's and Granner's names.

Alisa Escue, administrative officer of the Vanderbilt Diabetes Center, received the Robert Hall Award for her service to the center.

The event was sponsored by the DRTC and the Vanderbilt

Center for Diabetes and Translation Research (CDTR), both of which are funded by the National Institutes of Health.

In addition to the DRTC and the CDTR, which is led by Tom Elasy, M.D., MPH, the Vanderbilt Diabetes Center includes the Vanderbilt Eskind Diabetes Clinic, named for the late Nashville physician, philanthropist and VUSM alumnus Irwin B. Eskind, M.D., '48.

Shubhada Jagasia, M.D., associate professor of Medicine, is medical director of the Eskind Clinic, which also is home to Vanderbilt's diabetes program for children and adolescents. That program is led by William E. Russell, M.D., Cornelius Vanderbilt Professor of Pediatrics and director of the Division of Endocrinology and Diabetes.

Attending Diabetes Day were the sons of Eskind and his widow, Annette—Jeffrey Eskind, M.D., and Steven Eskind, M.D., both Vanderbilt faculty members.

The DRTC also serves as the coordinating center for the nationwide, NIH-funded Medical Student Research Program in Diabetes, which Crofford and the late Phillip Felts, M.D., first launched as a prototype in the mid-1970s. In 2013, 115 medical students from more than 75 medical schools presented their research during an annual symposium at Vanderbilt.

Top photo: Oscar Crofford, M.D., (at microphone) testified in 1973 for increased federal funding for diabetes research.

Bottom photo: From left, Oscar Crofford, M.D., Alvin Powers, M.D., and Daryl Granner, M.D., at Diabetes Day in November 2013.



JOE HOWELL

Also attending Diabetes Day was Margaret Hargreaves, Ph.D., professor of Internal Medicine at Meharry Medical College and a member of the DRTC who has contributed significantly to research on the disproportionately high impact of diabetes and other diseases in minority communities.

Granner, who led and expanded the DTRC during much of the 1990s, said the rising cost of diabetes is “unsustainable.”

“The projections are that in a generation, maybe less, the annual cost of diabetes alone will be what the defense budget is today (more than \$600 billion),” Granner said.

Cutbacks in federal funding for research are reducing incentives “for people to stay in diabetes research, even more to go into it, particularly clinicians,” said Alan Cherrington, Ph.D., who succeeded Granner as chair of Molecular Physiology and Biophysics and who, like Crofford, served as president of the American Diabetes Association.

“Now is not the time to pull the research-dollar rug out from under the enterprise,” agreed Kevin Niswender, M.D., Ph.D., associate professor of Medicine and of Molecular Physiology & Biophysics.

“We’re literally at a turning point in diabetes, in understanding a lot of these other influences on the brain, on other parts of the body,” Niswender said.

Vanderbilt’s far-flung diabetes efforts include studies of the pancreatic islet, recent advances in understanding the genetics of the disease, the role of oxidative stress, which is aggravated by obesity, and how parents can help increase the fitness and decrease the risk of obesity in their children.

Tight control of blood glucose levels, the lesson of the Diabetes Control and Complications Trial (DCCT), which Crofford led, revolutionized the treatment of type 1, insulin-dependent diabetes. Many people on insulin “do phenomenally well,” avoiding complications like diabetic neuropathy, retinopathy and nephropathy. But many others do not, Niswender said.

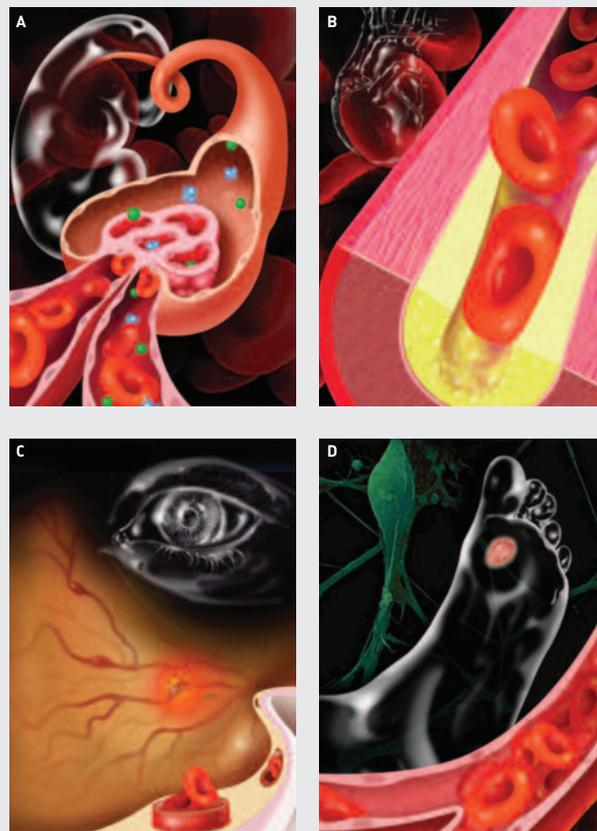
In addition, the tidal wave of diabetes hitting the country is of the type 2 variety, characterized by insulin resistance, and associated with obesity.

More than 120 Vanderbilt faculty members from 15 departments and three schools are affiliated with the Vanderbilt DRTC and are conducting a wide range of research to improve the understanding and treatment of all forms of diabetes.

Associate directors of the DRTC are Roger Cone, Ph.D., chair of Molecular Physiology and Biophysics and director of the Vanderbilt Institute for Obesity and Metabolism, and Owen McGuinness, Ph.D., professor of Molecular Physiology and Biophysics.

Other DTRC leaders include Maureen Gannon, Ph.D., who directs its enrichment, training and outreach program and helped organize Diabetes Day; Richard O’Brien, Ph.D., who coordinates the center’s research base; and Roland Stein, Ph.D., director of the center’s pilot and feasibility program. **VM**

COMPLICATIONS OF DIABETES



A: Kidney disease

Diabetes can damage the glomeruli, the blood-filtering units of the kidneys. Protein is lost in the urine, and the kidneys gradually lose their ability to remove waste products from the bloodstream. The kidneys may fail and patients will require dialysis.

B: Heart disease

Most adults with diabetes have high blood pressure and high blood levels of triglycerides and low-density lipoprotein (LDL) cholesterol. Elevated cholesterol can lead to atherosclerosis, the build-up of fatty deposits in artery walls. High blood pressure and atherosclerosis, if untreated, can lead to heart attack or stroke.

C: Retinopathy

Diabetes can damage tiny blood vessels in the retina at the back of the eyeball. The damaged vessels can leak fluid into the retina, blurring vision. Fragile new blood vessels also may grow into the retina and leak blood, destroying the retina and causing blindness.

D: Nerve damage

Diabetes can damage nerves throughout the body, causing numbness. Sores may appear on numb areas of the foot because pressure or injury goes unnoticed. Poor circulation may inhibit healing. If the injury is not treated and infection spreads to the bone, the foot may have to be amputated.

:: medical center giving

FAMILY'S SUPPORT ENHANCES CANCER RESEARCH TRAINING

John F. Brock III, chairman and CEO of Coca-Cola Enterprises, his wife, Mary, and their three children have established an endowment to support an oncology fellowship at Vanderbilt-Ingram Cancer Center (VICC).

The Brock Family Fellowship will provide financial assistance long into the future for young physicians, postdoctoral students and medical investigators who are furthering their training in cancer research.

"We are very interested in supporting cancer research and, in particular, helping the next generation of doctors and researchers finish their training. VICC is a world-class institution, and we are really excited to be able to support the oncology efforts of young and deserving fellows there," said John Brock.

The Brock family has a special interest in cancer research following the death of John Brock's mother from lung and colon cancer. Anise McDaniel Brock did not smoke and practiced healthy lifestyle habits but still succumbed to cancer in 2006.

"We are truly proud to fund the Brock Family Fellowship, which will support Vanderbilt oncology fellows who we believe have opportunities for transformational progress in cancer research," said Mary Brock.

"Through this important commitment the Brock family demonstrates tremendous generosity, while investing in the future in a manner that will assure talented physician scientists can continue their career development in cancer research," said Jeff Balsler, M.D., Ph.D., vice chancellor for Health Affairs and dean of the School of Medicine.

Named as the first Brock Family fellows are Brent Ferrell Jr., M.D., a graduate of the University of North Carolina at Chapel Hill School of Medicine who completed his residency at VUMC, and Douglas Johnson, M.D., a graduate of University of Alabama School of

Medicine who completed his residency at Duke University Medical Center.

The Brock family has lengthy ties to Vanderbilt University, with several family members graduating from the university over the years. Daughter Rebecca Brock Dixon was accepted early admission to Vanderbilt in December 1994, and her brother, John F. Brock IV followed as well in the fall of 1996. Daughter-in-law Tracy Tendall Brock, whom John met during his freshman year, is also a Vanderbilt graduate.

"We are so grateful for this significant and heartfelt gift from John and Mary Brock and their children," said Jennifer Pietenpol, Ph.D., director of VICC. "Support for oncology research training for the next generation of clinical investigators is crucial. We are increasingly reliant on private philanthropy for our research and training missions around personalized therapies for cancer patients."

In recent years, John Brock has assumed a leadership role at Vanderbilt University, including eight years on the Vanderbilt Owen Graduate School of Management Board of Visitors.

Brock was born in Moss Point, Miss., and earned his bachelor's and master's degrees in chemical engineering from Georgia Tech. He started his career at Procter & Gamble and has held leadership

positions at several international beverage companies. In 2000, he was named the Beverage Industry's Executive of the Year.

In 2006, he joined Coca-Cola Enterprises as CEO and in 2008 was named chairman of the company, which is headquartered in Atlanta.

As chairman and CEO, Brock has also worked closely with Coca-Cola Enterprises board member Orrin H. Ingram II, a former Vanderbilt University trustee and chairman of the VICC Board of Overseers. John and Mary Brock said their friendship with Ingram played a role in their interest in considering VICC as a recipient of their gift.

"With visits to the VICC and several discussions with Jeff Balsler and Jennifer Pietenpol, we came together as a family and decided endowing the Brock Family Fellowship was just the right decision for us to make," said John Brock.

"John and Mary Brock and their children are all exceptional individuals with a strong commitment to providing support for important endeavors, including cancer research," said Ingram, president and CEO of Ingram Industries, Nashville. "This endowment will create a valuable legacy for future generations of Cancer Center investigators."

- DAGNY STUART

John F. Brock III, chairman and CEO of Coca-Cola Enterprises, with his wife, Mary.



JOHN RUSSELL

GLAUCOMA PATIENTS FOCUS OF SOUSAN'S SHARING NATURE

Suzanne Sousan is not afraid of much.

No stranger to adversity, in a short span of time she lost her husband to cancer, survived a melanoma that invaded her eye cavity and overcame two floods.

Through the tumult she triumphed.

But there was one thing that challenged her—the prospect of losing her eyesight. After learning that her father had glaucoma, Sousan had to find out if she too had inherited the condition.

She made an appointment to see Karen Joos, M.D., Ph.D., associate professor of Ophthalmology and Visual Sciences at the Vanderbilt Eye Institute (VEI). As one of the leading glaucoma specialists in the country, Joos closely monitored Sousan for any signs of the condition, the second leading cause of blindness in the world.

“Although I don’t have glaucoma, I am so glad that Dr. Joos has been so diligent, concerned and caring,” said Sousan. “What really alarmed me? There is no cure yet and most people don’t even know they have the disease.

“For me, it is all about quality of life,” said Sousan.

Glaucoma is a chronic disease that affects nearly 4 million people in the United States. It leads to damage of the optic nerve typically caused by increased pressure in the eye that can result in vision loss. The disease often requires lifelong treatment to control.

Armed with information about early detection and treatment, Sousan wanted to do something to help make an impact on patients and families living with blinding eye diseases.

In 2011, the William A. Black Glaucoma Research Fund was created in memory of her late father. Recently the William A. Black Chair in Ophthalmology at VEI was established. Both gifts were made in honor of Joos.

“We are thrilled that Ms. Sousan has chosen to support the Vanderbilt Eye



JOW HOWELL

“I am not a doctor. And I cannot offer any useful skills in a lab. But what I can do is share. This is how I can help. This is how I hope that I can help make a difference.” - SUZANNE SOUSAN

Institute through these wonderful gifts,” said Paul Sternberg Jr., M.D., George Weeks Hale Professor and chair of Ophthalmology and Visual Sciences and director of VEI. “The continued success of VEI’s academic mission is inextricably linked to the generosity of grateful patients like Suzanne Sousan, and I am pleased that she has elected to make these gifts in honor of Dr. Joos.”

Joos is touched by the gifts.

“There is no greater reward than that of a patient’s acknowledgment of a job well done,” said Joos.

“The physician-patient relationship is one I take to heart. And as our patients entrust me and my colleagues with their vision, it is an exceptional honor when a patient elects to contribute toward developing new methods for the fight against blindness.”

“Mrs. Sousan’s generosity will help propel cutting edge research at Vanderbilt,

resulting in discoveries that will positively impact not only our patients battling glaucoma but the lives of others around the world battling devastating eye diseases,” said Jeff Balser, M.D., Ph.D., vice chancellor for Health Affairs and dean of the School of Medicine. “I want to express my gratitude for these gifts.”

For Sousan, the donation was a way she could make a tangible contribution in an effort to continue the groundbreaking work in blinding eye diseases conducted at Vanderbilt.

“I am not a doctor,” said Sousan. “And I cannot offer any useful skills in a lab. But what I can do is share. This is how I can help. This is how I hope that I can help make a difference.

“If they can intervene and change the outcomes—what a vision that would be.”

- JESSICA PASLEY

TRAVIS FAMILY'S VANDERBILT LEGACY GROWS

He was a successful, self-made businessman, and she was a pioneering nurse, but the many professional accomplishments of Nancy and Hilliard Travis were eclipsed only by their ongoing generosity to the community, especially their beloved Vanderbilt.

The most recent example is a generous gift to the Vanderbilt University School of Nursing for student scholarships, and to the Monroe Carell Jr. Children's Hospital at Vanderbilt for ongoing research, both areas designated by the Travises themselves, through a bequest from their estate. The gift not only gives permanence to their legacy and dedication to Vanderbilt, it provides a significant boost to scholarship support and research in children's health, impacting students, patients, families and society on a global level.

"Mr. and Mrs. Travis have left an indelible mark on Vanderbilt and on

Nashville, continually giving of their time and financial support throughout their lives and now as part of their legacy," said Jeff Balser, M.D., Ph.D., vice chancellor for Health Affairs and dean of the Vanderbilt University School of Medicine. "Lasting results of their generosity will provide for two noble missions: to train nursing leaders and to provide the funds necessary for our researchers to unravel the mysteries surrounding serious childhood diseases."

The impact of prior Travis gifts to Vanderbilt include providing scholarships for 447 nursing students, bringing happiness and hope to the lives of children treated at Vanderbilt and endowing the Nancy and Hilliard Travis Chair in Nursing, which is currently held by Colleen Conway-Welch, Ph.D., C.N.M., School of Nursing Dean Emerita.

"These two remarkable people are wonderful role models for us all. They never took anything for granted, never shied away from hard work and found much joy in helping others in so many



Hilliard and Nancy Travis

ways. Until her death last year, Nancy supported and encouraged me personally, and she was always committed to helping curious, hardworking students get a nursing education," Conway-Welch said.

— KATHY RIVERS

ENDOWED CHAIRS

Five Vanderbilt University School of Medicine faculty members named to endowed chairs were lauded for their extraordinary academic achievements during an Aug. 28, 2013, celebration. Jeff Balser, vice chancellor for Health Affairs and dean of the School of Medicine, noted that the generosity of Vanderbilt's donor community enables the university to honor renowned scientists, scholars, physicians and teachers.

"Some of the gifts that we honor at this ceremony were given to Vanderbilt more than a century ago, and some very recently," Balser said. "But they all represent the collective vision and foresight of many individu-

als who have chosen to invest in the power of knowledge, and believe that it transforms the world. That kind of generosity means a great deal not just to Vanderbilt's future, but to the future of scholarship and new knowledge in this country and around the world."

They are:

- David P. Bichell, Cornelius Vanderbilt Chair in Surgery and chief of Pediatric Cardiac Surgery;
- F. Peter Guengerich, Tadashi Inagami, Ph.D. Chair in Biochemistry;
- Charles R. Sanders II, Aileen M. Lange and Annie Mary Lyle Chair in Cardiovascular Research, professor of Biochemistry and professor of Medicine;

- Yu Shyr, Harold L. Moses Chair in Cancer Research, Ingram Professor of Cancer Research, professor of Biostatistics, Biomedical Informatics, Cancer Biology and Preventive Medicine;
- Roland W. Stein, Mark Collie Chair in Diabetes Research, professor of Molecular Physiology and Biophysics and professor of Cell and Developmental Biology.

Since the major University initiative to recruit and retain outstanding scholars and teachers was announced by Chancellor Nicholas S. Zeppos in August 2010, 114 chair holders have been recognized at institution-wide celebrations.

SCHOLARSHIPS ALLOW VANDERBILT UNDERGRAD TO PURSUE CAREER IN MEDICINE

John Chen, a second-year medical student at Vanderbilt University School of Medicine (VUSM), is not sure what type of doctor he will become, but one thing is certain: he will have the chance to follow his heart in selecting his field of study and said he owes that all to Vanderbilt.

As an undergraduate, Chen received the Cornelius Vanderbilt Academic Scholarship, a four-year, full tuition award. As a sophomore, Chen applied to VUSM through an early acceptance program guaranteeing him a spot in the incoming class of 2012. But he had no idea how he would pay for it.

“It was great,” recalled Chen. “But I did have to apply for financial aid. I had no information about the amount of aid I would receive. I am so thankful that Vanderbilt helped me again.”

As one of the recipients of the Drs. Frank Luton and Clifton Greer Scholarship, the 23-year-old will not be saddled with the debt commonly associated with acquiring a graduate degree.

“Financial assistance is so important when enrolling in graduate school,” said Chen. “Because of the long timeline associated with medical school in particular, and then residency and potential fellowships, there is a long period where you are not making enough money to pay back anything on loans.

“Any contribution I receive toward paying for my education today actually amounts to a lot more based on the fact that I would have had to borrow money and pay interest on it.

“And not having a huge debt burden does free up the choices I have for my future. I do not feel pressured to select a career based on my salary. What I choose to do in medicine will be based on my desire.”

Chen’s need-based scholarship was established in 1995 through the estate of



Generous scholarship support allowed John Chen to attend Vanderbilt as both an undergraduate and medical student.

Clifton Greer Jr., M.D. ‘51, VU ‘45 in honor of Frank Luton, M.D., ‘27. Luton was a professor of Psychiatry from 1930 to 1964 and served as a neurologist and psychiatrist-in-chief from 1942 to 1956. In recent years, such gifts from alumni and others support the Scholarship Initiative for Vanderbilt University School of Medicine, an effort to reduce student debt by growing the scholarship endowment.

Chen grew up experiencing the goodness of others. Born in Shanghai, he was raised by his grandmother while his parents attended graduate school in the United States. He joined them in Troy, Ohio, when he turned 5 years old. He recalled the generosity of the community

while his parents juggled school and family responsibilities in a new country.

“Philanthropy and goodwill have played a huge role not just in my education but with my family as well,” Chen said. “Although I am not able to donate a lot right now, I make sure I always give Vanderbilt something.

“It’s important to me to make that donation,” he said. “I have been afforded a lot of opportunities. I want to pass that chance along to others, and I will one day.”

More information about the Scholarship Initiative is available at vanderbilthealth.com/MDscholarship or by calling (615) 936-0230.

– JESSICA PASLEY



ANN H. PRICE, M.D.
Associate Dean for Alumni Affairs,
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Dear Vanderbilt University Medical Alumni,

Please save the date for our next biennial Reunion 2014 Thursday-Saturday, Oct. 9-11, in conjunction with VU's Homecoming. See chart for special anniversary classes. Check our VUSM Reunion website for updates: medschool.vanderbilt.edu/alumni.

**Abbreviated Reunion 2014
Schedule of Events**

See medschool.vanderbilt.edu/alumni for details.

Thursday, Oct. 9, Evening

- Welcome Reception/Buffer Dinner/Awards Program

Friday, Oct. 10

- Complimentary breakfast (LH, Student Lounge)
- Plenary Session I
- Qinq Induction Ceremony, Classes 1964 and 1965
- Qinq Medical Society Luncheon, VUSM Classes 1965 and earlier
- All Alumni Luncheon for all VUSM Classes 1966 and later (venue TBD)
- Afternoon tours and free time
- Evening, class parties

Saturday, Oct. 11

- Complimentary breakfast (LH Student Lounge)
- Plenary Session II
- VU Tailgate/Olin Lawn/begins two hours before Homecoming football game kickoff
- Homecoming football game: VU vs. Charleston Southern (kickoff time TBD)

Ann H. Price

REUNION 2014	SPECIAL ANNIVERSARY CLASS CELEBRANTS	CLASS CHAIRS	GIFT CHAIRS
Quinq Plus	1963 and earlier	Robert H. Alford, M.D.	Richard B. Johnston Jr., M.D.
50th	1964	James O. Finney Jr., M.D.	
	1965	Charles E. Mayes Sr., M.D.	Antonio M. Gotto Jr., M.D., Ph.D.
45th	1968	James S. Price, M.D. Robert A. Sewell, M.D.	Marvin H. Vickers Jr., M.D.
	1969	William J. Anderson, M.D.	Wyatt E. Rousseau, M.D. James (Jim) A. Bentley Jr., M.D., M.A.
40th	1973	John ("Dick") H. Dixon Jr., M.D. Edwin B. Anderson Jr., M.D.	
	1974	Brian R. Carlson, M.D.	Robert E. Mallard, M.D.
35th	1978	Douglas C. Heimburger, M.D., M.S.	Stinson E. Humphrey, M.D. Thomas W. Nygaard, M.D.
	1979	James M. Kleinert, M.D. Peter C. Rawlings, M.D.	Jean R. Anderson, M.D. Susan Niermeyer, M.D.
30th	1983	Daniel L. Phillips, M.D.	
	1984	Thomas C. Naslund, M.D.	Robert Michael Aris, M.D. Thomas C. Naslund, M.D.
25th	1988	Thomas S. Johnston, M.D.	Robert E. Ivy II, M.D.
	1989	Jan Lewis Brandes, M.D.	Jeffrey M. Sippel, M.D., MPH
20th	1993	Steven R. Norris, M.D. Bradley J. Stoneking, M.D.	William Gordon Tanner, M.D. Robert Matthew Jotte, M.D., Ph.D.
	1994	Chetan R. Mukundan, M.D.	Russell Boyd, M.D. Laura Lee Anderson, M.D.
15th	1998	Laura L. Lawson, M.D.	Sylvia Lucia Parra, M.D. Erica Reed Waters, M.D.
	1999	James ("Huck") A.S. Muldowney III, M.D.	Jennifer Halpern Moore, M.D.
10th	2003	Kristin Ehst Martel, M.D.	Kimberly N. Vinson, M.D.
		Morgan F. McDonald, M.D.	
		Dana D. Verner, M.D. Michael H. Hooper, M.D. J.P. Norvell, M.D. Sarah E. Ramos, M.D.	Clarence E. Smith, M.D.
5th	2008	Jonathan A. Kroppski, M.D.	Heather Renee Burks, M.D.
	2009	Michael N. Young, M.D.	Brian C. Drolet, M.D.

Read *Vanderbilt Medicine* online, and send in your alumni news at www.mc.vanderbilt.edu/vanderbiltmedicine. Digital photos (200-300 dpi and at least 4 by 6 inches) are always welcome and will be included as space permits.

KEY

- MD - Medical School Graduate
- HS - House staff
- FE - Fellow
- FAC - Faculty

50s

Angus Graham Jr., M.D., '55, medical director of Manatee Diagnostic Center in Bradenton, Fla., received the Sen. Edgar H. Price Jr., Lifetime Achievement Award from the Manatee County Rural Health Services Foundation.

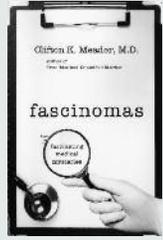
60s

Stuart Mackler, M.D., HS '68, FE '71, was elected president of the Virginia State Board of Medicine.

Larry Parrott, M.D., HS '62, won the Super Senior Golf Championship at Camden County Club in Camden, S.C., in September 2013. He is presently in his 19th year of teaching at MUSC and USC since his retirement. He is the proud father of three and grandfather of six.

70s

Michael Evans, M.D., FE '76, has been appointed to the Ivy Tech Community College Board of Trustees by Indiana Gov. Mike Pence. Evans is president and chief executive officer of AIT Laboratories, which he founded in 1990.



book focus

Clifton K. Meador, M.D., '55, (BA '52), HS '60, FE '61, author of "True Medical Detective Stories," recently wrote "Fascinomas," a collection of 35 true clinical cases. The book sheds light on how doctors and nurses sometimes assume the role of detectives to find evidence in unusual cases.

80s

Joseph B. DeLozier III, M.D., '89, assistant clinical professor at Vanderbilt and chief of plastic surgery at Saint Thomas Midtown Hospital, was recently elected to the Board of Regents by the University of the South Board of Trustees. He will serve a six-year term.

Ira Evans III, M.D., '83, received the 2013 Department of Surgery Clinical Excellence and Professionalism Award given by North Shore Medical Center (NSMC) in Cape Ann Beacon, Mass. Evans, an orthopaedist with Sports Medicine North Orthopaedic Surgery in Peabody, has been on the medical staff of NSMC for 21 years.

Carroll McWilliams (Mac) Harmon, M.D., '83, Ph.D., '92, HS '91, has been named chief of the division of pediatric surgery and director of the pediatric surgery fellowship at the University of Buffalo (UB) School of Medicine and Biomedical Sciences in Buffalo, N.Y. He will also have a joint appointment as pediatric surgeon-in-chief at Women and Children's Hospital in Buffalo. His

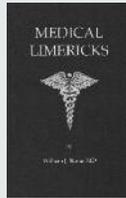
faculty appointment will be professor in the UB Department of Surgery.

David Patterson, M.D., '85, was recently elected to a four-year term on the Vanderbilt University Board of Trust. Patterson is the immediate past president of the Vanderbilt Medical Alumni Association and served on the

Amazon.com and at Barnes and Nobel and Berean Christian bookstores. The proceeds from the sale benefit the Isle of Hope United Methodist Church Missions Committee.

Marc Hungerford, M.D., '92, HS '93, director of joint replacement and reconstruction at Mercy Medical Center in Baltimore, has been named the hospital's new chief of orthopaedics.

Elizabeth Pfaffenroth, M.D., '99, an oncologist at Kaiser Permanente in Maryland, recently remarried in 2012 and welcomed daughter Katherine Anne Searight on June 16, 2013, who joined brother Drake Cartwright, 8.



book focus

William J. Stone, M.D., HS '66, FAC, published two books in 2013 - "Medical Limericks I" and "Medical Limericks II." Stone is a professor of Medicine at Vanderbilt and chief of Nephrology at the Department of Veterans Affairs Medical Center.

Vanderbilt Medical Center Affairs Committee in 2012. A busy practicing internist in the Washington, D.C., area, Patterson also serves as an associate clinical professor of medicine at George Washington University Medical Center.

90s

Jeffrey R. Balsler, M.D., '90, Ph.D. '90, vice chancellor for Health Affairs and dean of the Vanderbilt University School of Medicine, has been elected to the Association of Academic Health Centers Board for a three-year term.

Jack Eades, M.D., HS '97, recently published a Christian devotional book, "In a Hurry to Be Holy," which features short devotionals drawn from all 66 books of the Bible. It is available on

2000-



Anna Butters Tanner, M.D., '95, HS '99, has been named a Top Doctor by "Atlanta Magazine" and was featured on the cover.



book focus

William Fleet, M.D., '58, recently published "Sawdust and Turnip Greens," a collection of essays based on his 40 years as a pediatrician. He began his creative writing after retiring and has been published in literary journals and in his local newspaper.



Jill Hutton, M.D., '96, an American Board of Obstetrics and Gynecology-certified OB-GYN practicing in Houston, recently authored "Nameless, Blameless Reproduction."



Bond Almand, M.D., '99, recently fulfilled a lifelong dream and competed in the Ironman World Championships in Kailua-Kona, Hawaii.

Christian Anderson, M.D., '07, HS '12, is currently at Tennessee Orthopaedic Alliance. Prior to joining the practice, he completed a fellowship in sports medicine and hip orthoscopy at Standard University Medical Center in Palo Alto. During that time he served as a team doctor for the San Francisco 49ers leading up to and during Super Bowl XLVII.

Joey Barnett, Ph.D., FAC, and **Keith Churchwell, M.D., FAC**, have been named to the American Heart Association's Greater Southeast Affiliate board of directors for the 2013-2014 fiscal year.

Nagesh Chopra, M.D., FE '11, joined the Ohio Health Heart, Lung and Vascular Surgeons Group in April 2013. An electrophysiologist, he is board certified in cardiovascular medicine and internal medicine.

Bradley Corr, M.D., '09 and wife **Sara Horvitz Corr, M.D., '09**, moved to Denver where Brad recently began a fellowship in gynecologic oncology at the University of Colorado and Sarah is working in internal medicine at Centennial Primary Care. Their family welcomed son Charlie in September 2013, who joined big sister Hannah, 2.

Judson Davies, M.D., HS '13, joined the Urology Center practice in Omaha, Neb., where he lives with his wife, Traci, and their two children, Caroline and Meredith.

Rebecca Dezube, M.D., '09, is serving as an assistant chief of service for the internal medicine residency at Johns Hopkins during a one-year sabbatical from her pulmonary and critical care fellowship at Johns Hopkins.

Lesly A. Dossett, M.D., '03, MPH '08, will complete her four-year active duty obligation with the U.S. Navy in June, and begin her fellowship in complex general surgical oncology at Moffitt Cancer Center/University of South Florida in July.

Kevin Elias, M.D., '08, is hoping to make a go as a physician-scientist as he tackles his second fellowship in gynecologic oncology at Brigham and Women's Hospital in Boston while staying busy in the lab at Dana-Farber Cancer Institute. He and his wife, Josie, recently completed renovations to their 120-year-old Victorian home.

Sheryl Fleisch, M.D., '08, (BS '04) FAC, assistant professor of psychiatry, received the 2013 Organization of Resident Representatives Community Service Award for her work at the University of North Carolina-Chapel Hill, providing mental health services to the homeless. The award was presented by ORR president **Brenessa Lindeman, M.D., '09**, 2009 Founders Medalist.

Nathan R. Hoot, M.D., '09, MS '05, Ph.D., '07, HS '12, joined the faculty at UT Houston where he began his academic practice and research in biomedical informatics.

Kevin Kozak, M.D., '03, Ph.D., '01, is the chief medical officer for Novelos Therapeutics Inc. He is also a radiation oncologist and basic scientist at the University of

Emily Shuman, M.D., '03, and her husband, **Andy**, welcomed daughter **Lily Marian** on Sept. 28, 2013. She joins big brother **Jonah**. The family is moving back to Ann Arbor from New York City at the end of the year to start faculty positions at the University of Michigan.



Wisconsin Carbone Cancer Center. Kozak is founder of Co-D Therapeutics.

Jon Kropski, M.D., '08, HS '11, FE, and his wife, **Julie Kropski, BS '04**, Ph.D., '10, FE, welcomed son **Matthew Jackson** on Nov. 16, 2013.

Biren Kamdar, M.D., '06, MBA '06, HS '09, is an attending physician at the University of California-Los Angeles. He and his wife, **Navie**, welcomed their daughter, **Reina Raju**, on Aug. 12, 2013.





Ashley Rowatt Karpinos, M.D., '07, HS '11, MPH '13, FE '13, was inducted into the Kenyon College Sports Hall of Fame for her accomplishments as a five-time national champion and a 13-time All-American in swimming. Board certified in internal medicine and pediatrics, she holds a fellowship in primary-care sports medicine at Vanderbilt.



Rachel Apple, M.D., '12, HS (current), and her husband **Rick (VU Law and Owen '12)** welcomed their first child, **Warren Dean,** on Aug. 19, 2013.

Megan Elizabeth Mignem, M.D., '09, HS '14, will begin a fellowship in August in pediatric orthopaedics at Texas Scottish Rite Hospital in Dallas.

Laila Malani Mohammad, M.D., '13, and **Noman Mohammad** were married on May 26, 2013, in Atlanta.

Meredith Montero, M.D., FE '13, has joined the staff of Michigan Otolaryngology Surgery Associates in Ann Arbor, Mich. In addition to seeing patients with ear, nose and throat conditions, Montero is a specialist in laryngology.

Will Moore, M.D. '08, recently moved to Bomet, Kenya, to work as an orthopaedic surgeon at Tenwek Mission Hospital through World Medical Mission's Post Residency Program. He is only the third full-time orthopaedic surgeon at the hospital.

Neal Patel, M.D., MPH '00, has been named chief informatics officer for Vanderbilt University Medical Center. A professor of clinical pediatrics, he was medical informatics officer for the Monroe Carell Jr. Children's Hospital at Vanderbilt for two years before being named inpatient chief medical information officer.

Anup Pradhan, M.D., '06, an orthopedic surgeon on the medical staff of Texas Institute for Surgery at Texas Health Presbyterian Dallas, was featured with his wife, **Sonya Jagwani, MD.,** in the family issue of "ON Magazine."

Lindsay Roofe, M.D., HS '12, FE, and **Kyle Lavin, M.D., HS,** were married on Oct. 19, 2013, in Ocean Isle Beach, N.C. Roofe completed a pediatric residency at Vanderbilt and is a medical fellow in pediatric emergency medicine. Lavin is a medical resident in psychiatry.

Brent Taylor, M.D., '09, completed his residency in dermatology at the Medical University of South



Yaa Aboagyewa Kumah-Crystal, M.D., '08, HS '11, shown here with her husband, **Brett,** and son, **Jude,** is in her last year of a pediatric endocrinology fellowship and is doing a second fellowship in biomedical informatics at Vanderbilt.

Carolina and has begun a Mohs surgery fellowship at Scripps Clinic. He and his wife, **Ashley,** and their 3-month old son, **Beckett,** moved to San Diego in June 2013. Brent was a Canby Robinson Scholar at VUSM.

Justin Weiner, M.D., FE '07, joined the OhioHealth Heart & Vascular Physicians group in October. An electrophysiologist, he is board certified in internal medicine, cardiovascular disease and cardiac electrophysiology.



Dana Warren Hipp, M.D., '13, and **Dustin Hipp, M.D., '13, MBA '13,** welcomed their daughter **Grace Samantha** on Feb. 6, 2013.

Michael Blood, M.D., '81, died July 16, 2013. He was 57. Dr. Blood is survived by his wife, June; and children, Megan, Kristen, Daniel and Jason.

John Brothers, M.D., '65, HS '70, died Nov. 9, 2013. He was 74. He is survived by his wife, Anne; children, John, Carter and Robert; and five grandchildren.

John Chapman, M.D., HS '73, died Dec. 30, 2012. He was 68. Dr. Chapman is survived by his wife, Molly; children, Emily and Erin; and two grandchildren.

Frederic Cowden, M.D., '42, BA '39, HS '47, FAC '86, died Sept. 28, 2013. He was 97. He was predeceased by his wife, Miriam, and son Fred. He is survived by children, Louise and Mary; seven grandchildren and 10 great-grandchildren.

William Cromartie, M.D., HS '39, died Jan. 28, 2013. He was 99. He was predeceased by his wife, Josephine. He is survived by children, William, Robert, Mary, John and Martha; eight grandchildren and one great-grandchild.

Achilles Demetriou, M.D., HS '82, died June 20, 2013. He was 67. Dr. Demetriou is survived by his wife, Kristen; children, Nedra and Nicholas; and two grandchildren.

Harry Ezell, M.D., '44, HS '45, died Oct. 9, 2013. He was 93. Dr. Ezell was predeceased by his first wife, Miriam, and is survived by his wife, Elizabeth; children, Harry III, Mark, Doug, Will and Nancy; stepchildren, John, Beth and Scott; eight grandchildren and three great-grandchildren.

Jackson Harris, M.D., FAC '01, died Sept. 5, 2013. He was 87. Dr. Harris was predeceased by his wife, Martha; He is survived by his children, Jackson, Ginger, Julie and Jeanne, and eight grandchildren.

Jessie Howard, M.D., HS '63, died Sept. 29, 2013. He was 86. Dr. Howard was predeceased by his wife, Thelma, and is survived by

children, David, Carol and Diane; and four grandchildren.

Henry Kirkman Jr., M.D., HS '57, died May 29, 2013. He was 86. Dr. Kirkman was preceded in death by his wife, Margaret, and is survived by children, Alice, David, Marian and Celia; and three grandchildren.

Don Krohn, M.D., FAC '92, died Aug. 2, 2013. He was 84. Dr. Krohn is survived by his wife, Betty Jo; children, Bill, Vicki, David and Katherine; six grandchildren and two great-grandchildren.

William Lane III, M.D., HS '63, died July 2, 2013. He was 77. Dr. Lane is survived by his wife, Gail; children Cheryl, Cristy and Mark; and seven grandchildren.

James Lanier III, M.D., '42, BA '39, HS '49, FE '48, died Sept. 27, 2013. He was 95. He is survived by his wife, Mary; and children, Suzanne, Linda and James; and four grandchildren.

Marion Russell Lawler Jr., M.D., HS '69, died June 18, 2013. He was 75. Dr. Lawler is survived by his companion, Susan; children, Marion and Karen; and four grandchildren.

George Mann, M.D., FAC '88, died July 17, 2013. He was 95. Dr. Mann is survived by his children Ted, Marian, Daniel, Nathaniel and Paul; four grandchildren and two great-grandchildren.

Jack Martin, M.D., '53, died Sept. 7, 2013. He was 86. Dr. Martin is survived by his wife, Ann; children, Sarah, Richard, Charles and Robert; and nine grandchildren.

James O'Brien, M.D., HS '75, died July 29, 2013. He was 64. Dr. O'Brien is survived by his parents, Donald and Evelyn; siblings, Joe, Mary Beth and Walter; and numerous nieces and nephews.

Mark Parsons, M.D., '81, FE '89, died Sept. 15, 2013. He was 57. Dr. Parsons is survived by his wife, the Rev. Lou Tucker Parsons, and children, Lisa and William.

Evangelos Polakis, M.D., HS '57, died Oct. 7, 2013. He was 87. He is survived by his wife, Youla; children, Jerry, Maria, Vicky, Anastasia and Ersi; and three grandchildren.

Leonard Rabold, M.D., '41, died Sept. 1, 2013. He was 98. Dr. Rabold was predeceased by his wife, Emily. He is survived by his children, Jeanne, Barbara, Rod and Susan; and eight grandchildren.

James Shaw, Jr., M.D., HS '74, died Sept. 5, 2013. He was 75. Dr. Shaw is survived by his wife, Pat; children John, Stephen, Merri, Mark and Susan; and five grandchildren.

Marion Smith, M.D., '49, HS '56, died Aug. 19, 2013. He was 78.

Patrick Tekeli, M.D., '84, died June 27, 2013. He was 55. Dr. Tekeli is

survived by his mother, Stella; siblings Michael, and Wendy; step brothers Michael, Steve and Douglas; companion, Pam; and nephew Nicholas.

Mary Lou Watkins, M.D., Ph.D., '67, HS '82, died Aug. 24, 2013. She was 78. Dr. Watkins is survived by her son, Stephen, and six grandchildren.

Gerald Winokur, M.D., '43, BA '40, HS '48, died July 6, 2013. He was 94. Dr. Winokur is survived by his wife, Marian; children, Nancy and Susan; and two grandchildren.

Otis Wooley Jr., M.D., '55, died June 10, 2013. He was 84. He is survived by his wife, Margaret; children Otis, John, Laura and Dudley; and six grandchildren.



Robert D. Collins, M.D., professor of Pathology, Microbiology and Immunology, Emeritus, died Nov. 28, 2013. He was 85.

Dr. Collins received his B.A. in 1948 and his M.D. in 1951, from Vanderbilt. He began his prestigious career at Vanderbilt as an instructor of Pathology in

1957. He attained the rank of professor in 1968 and established the Division of Hematopathology in the early 1970s.

From 1996 through 2009, he held the John L. Shapiro Chair in Pathology. Dr. Collins was designated the Harvie Branscomb Distinguished Professor in recognition of his "distinguished accomplishment in furthering the aims of Vanderbilt University." He received the Grant Liddle Award for Excellence in Research. Dr. Collins received the Distinguished Alumnus Award from the Vanderbilt Medical Alumni Association.

He influenced generations of medical students as an iconic teacher and mentor. Many credit him with being among their earliest and most influential role models regarding professionalism and what it means to be a Vanderbilt doctor. Dr. Collins has been honored with numerous teaching awards such as, the Shovel Award (four times) and the Jack Davies Award for Best Preclinical Teacher (seven times). The Medical School faculty award, for Excellence in Teaching Medical or Graduate Students or Practicing Physician in the Lecture Setting, is named the Robert D. Collins Award in his honor.

Dr. Collins is survived by his wife Elizabeth Cate Collins; his children: Robert Deaver Collins, Jr. (Rebecca); Richard Roos-Collins (Margit); Elizabeth Landress Collins (Steven); and William Drew Collins, (Janet); five grandchildren and one great-granddaughter.

Donations may be sent to the Vanderbilt Medical School Endowed Scholarship Program, Alive Hospice, American Rivers and West End United Methodist Church.

Boris Pavlin, M.D., '03, lives and works in Papua New Guinea as the Emerging Diseases Surveillance and Response Epidemiologist for the World Health Organization. He took this photo of a family using a traditional dugout canoe to travel down the Fly River in the Western Province.



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The Scholarship Initiative for Vanderbilt University School of Medicine

Whether he's tending sheep on his family's Oregon farm or studying with classmates, Josh Hollabaugh believes in community. When he was applying to medical schools, Vanderbilt's close-knit community stood out.

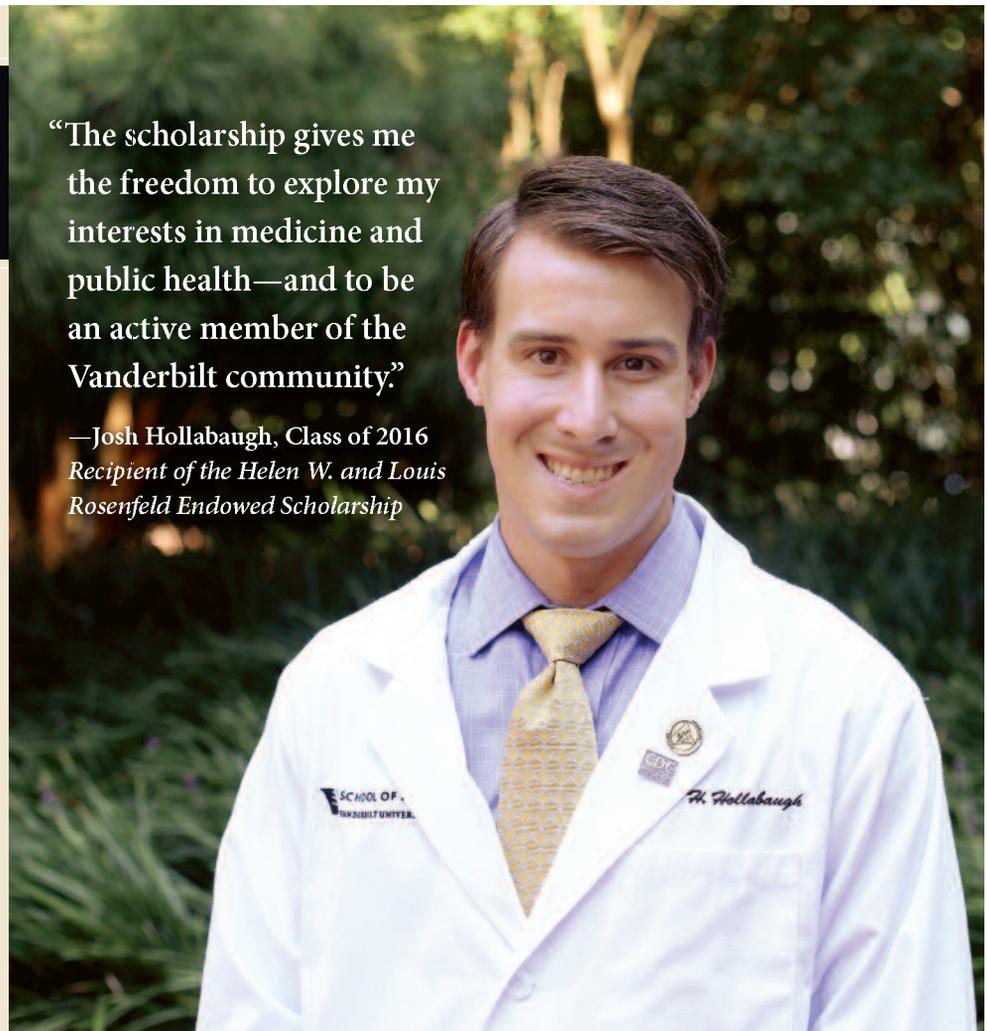
Hollabaugh knew Vanderbilt was the right community for him, but financing a medical education remained worrisome. His dream of choosing Vanderbilt was made possible by scholarship support.

"The scholarship was a huge determining factor in deciding to come to Vanderbilt," said Hollabaugh.

Scholarship support helps students like Hollabaugh thrive at Vanderbilt. The assistance it provides benefits him and the thousands of lives he will touch as a physician.

"The scholarship gives me the freedom to explore my interests in medicine and public health—and to be an active member of the Vanderbilt community."

—Josh Hollabaugh, Class of 2016
Recipient of the Helen W. and Louis
Rosenfeld Endowed Scholarship



To support the education of future physicians through scholarships, visit vanderbilthealth.org/MDscholarship or contact Mary Beth Thompson at (615) 322-8846 or mary.beth.thompson@vanderbilt.edu.