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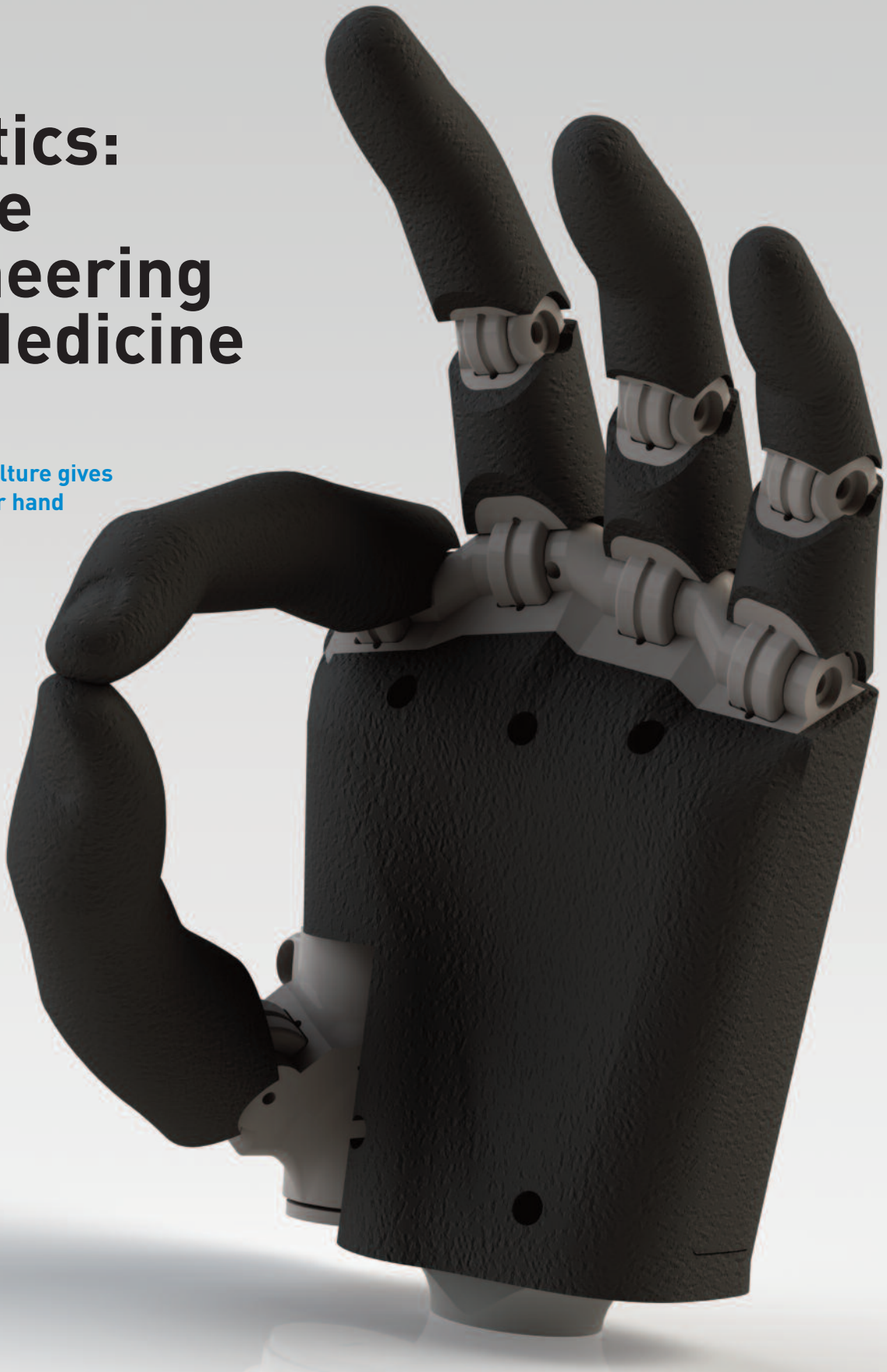
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Vanderbilt**Medicine**

SUMMER 2013

Robotics: Where Engineering and Medicine Meet

Collaborative culture gives
Vanderbilt upper hand
in robotics race



HERE'S LOOKING AT YOU



ANNE RAYNER

Happy members of the VUSM class of 2013 celebrate on Commencement Day.

VanderbiltMedicine

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:: on the cover

The unique culture of Vanderbilt University allows the Schools of Engineering and Medicine to collaborate on innovative technology that is improving the quality of patients' lives.



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

As we begin an exciting new academic year, we are facing unprecedented economic realities throughout academic medicine requiring transformation at every level. This new normal, with reductions in federal funding for education and research, is challenging all of us as we care for patients, train the next generation and conduct groundbreaking research.

Yet, times of stress are known to inspire stunning innovation at the most capable institutions. Vanderbilt is such a place.

A feature in this issue of *Vanderbilt Medicine* offers insights from Donald Brady, M.D., senior associate dean for Graduate Medical Education, about new ways Vanderbilt is tackling the most difficult challenges in health care education: preparing physicians for a new world. These clinicians will emerge from training into a health care environment far different from mine. While a passion for the physical and psychological needs of the individual patient will always be the central feature of their Vanderbilt training, their success will also depend far more on a facility with health care informatics, quality improvement methods and expertise at engaging the entire health care team.

Vanderbilt University Medical Center is training about 900 residents throughout its nearly 10 million square feet of facilities. Many are training in specialties and subspecialties that we seek as our first contact when we are injured or sick, such as internal medicine, pediatrics, emergency medicine, OB/GYN and surgery. Others are training in extraordinarily specialized areas such as pediatric neurosurgery or interventional radiology. In most cases these highly specialized programs are among very few in the nation, and are often the only training program in Tennessee. In all cases, the clinicians we train are not only destined to provide extraordinary care, but are also receiving the additional mentoring and exposure required to be leaders in academic medicine, the pharmaceutical industry, government and business.

As the country faces a national physician shortage in the face of an aging popu-

lation, federal support of all kinds for physician training is ironically on the decline. Nonetheless, at Vanderbilt we are redoubling the focus on our core mission: training the next generation of clinician leaders. Our most recent recruiting efforts are resonating with the national community. In July, more than half of our new residents joined us from top medical schools in regions outside the Southeast. Our new medical students, approximately 100 from more than 5,800 applicants, are truly an extraordinary group. Their grade point averages are among the top seven in the country, and their Medical College Admission Test scores rank in the top 10 among 140 medical schools. They come to us already groomed for leadership, as top college athletes, talented musicians and artists, accomplished authors and providers of unique and selfless service in the community and international health.

The novel curriculum—dubbed “Curriculum 2.0”—is the product of nearly three years of intense work on the part of our faculty, students and administrative leaders to design a learning experience that changes the game. Curriculum 2.0 embeds clinical care, research and didactic learning into the full four-year experience in a manner unprecedented in U.S. medical education. The American Medical Association awarded Vanderbilt one of only 11 prestigious \$1 million awards for educational innovation, from 119 applications, providing support for our new curricular innovations.

The new realities of health care and biomedical research funding present many challenges that Vanderbilt is rising to meet through innovative efforts to streamline our operations and focus sharply on core missions while maintaining dedication to our institutional culture and values.

Now more than ever, I see our culture of collaboration and innovation making Vanderbilt more visible as a beacon of leadership and hope in the stormy seas of U.S. health care. It will be a bumpy, but truly exciting ride. We invite you to join us! **VM**

VUSM receives prestigious AMA grant

The American Medical Association (AMA) has selected Vanderbilt University School of Medicine (VUSM) to receive a \$1 million grant as one of the nation's 11 top medical schools transforming medical education.

The grant, part of the AMA initiative "Accelerating Change in Medical Education," makes Vanderbilt the recipient of \$1 million over the next five years to take part in a consortium created to rapidly disseminate best practices in medical education across the country.

Bonnie Miller, M.D., senior associate dean for Health Sciences Education, said the announcement is evidence the innovations brought about by VUSM's new educational curriculum, Curriculum 2.0, are among the nation's most advanced.

For VUSM, Curriculum 2.0 represents the departure from a highly regarded, but traditional medical school curriculum to a complex, integrated, collaborative and flexible course schedule that includes less traditional lecture and more clinical and case-based experience.

"This is a validation that Curriculum 2.0 represents some of the most exciting and innovative ideas for medical education," Miller said. "It is just what the AMA is looking for. Through this grant, the AMA hopes to disseminate best practice to medical educators throughout the nation. We believe this funding and collaboration will allow us to accelerate the changes we hope to bring about with Curriculum 2.0, and to rigorously evaluate the curriculum's effectiveness."

Vanderbilt's grant submission outlined major changes included through Curriculum 2.0, such as embedding students at a single clinical site for the duration of their undergraduate medical education and competency-based assessments along with individualized learning goals and objectives. **VM**

- CAROLE BARTOO



DANIEL DUBOIS

Therapy helps regenerate child's undeveloped bones

Janelly Martinez-Amador had no visible bones on X-rays.

She was born with bones so fragile and thin that they were not detectable. Initially, doctors weren't sure she would survive her first birthday. At age 3, she had the gross motor skills of a newborn and a ventilator kept her alive. She was confined to a bed, unable to move even an arm or lift her head.

Janelly has a rare genetic disorder called hypophosphatasia (HPP), a metabolic disease that alters the development of bone and teeth and affects one in 100,000 babies born in the United States. An enzyme deficiency causes the bones to become soft because they can't absorb important minerals such as calcium and phosphorus, increasing the risks for pain, broken bones and bone deterioration.

"Imagine your child laying all the time in bed, not being able to lift herself, not being able to move herself, making sure she is not falling or tripping on things," her father, Salvadore Martinez, said through a Spanish interpreter.

Janelly, now 7, is developing bone with the help of an experimental drug therapy and her care team at the Monroe Carell Jr. Children's Hospital at Vanderbilt.

"If you saw her in 2009 and see her now, it's not the same Janelly," said her mother, Janet Amador.

Janelly is participating in a clinical trial to receive an enzyme-replacement drug therapy, asfotase alfa, for the life-threatening form of HPP. Michael Whyte, M.D., the lead investigator of the study and medical-science director of the Center for Metabolic Bone Disease and Molecular Research at Shriners Hospitals for Children in St. Louis, published results in the March 2012 *New England Journal of Medicine*.

Improvement continues each day, each week for Janelly.

"This is why we get into medicine in the first place: to truly make a difference in the life of a child," said Jill Simmons, M.D., her physician. "My goodness, to go from no bones to bones. That's the most impressive thing I have seen as a physician. It's incredible." **VM**

- CHRISTINA ECHEGARAY

VU expands surgical options for patients with aortic aneurysms

VUMC recently performed Tennessee's first fenestrated aortic stent graft surgery to repair an abdominal aortic aneurysm that was previously considered too close to the kidney for minimally invasive surgery.

Aortic aneurysms cause a bulging of the aorta, which provides critically needed blood to the body. Without treatment, these aneurysms are at risk of rupturing.

The state's first patient was discharged the next day. A follow-up visit showed his liver and kidney function, as well as his cholesterol levels, returned to normal.

Until now, 20 percent to 30 percent of patients with abdominal aortic aneurysms were told their only option was traditional, open surgery for fear the aneurysm was too close to the renal artery and could result in kidney failure. But open surgery comes with increased risks.

The new minimally invasive procedure applies a hand-sewn, custom graft to the dilated aorta to prevent it from rupturing. Using 3-D imaging, the grafts are tailor made for each patient's unique anatomy.

Each year, 5 percent to 7 percent of people over the age of 60 are diagnosed with abdominal aortic aneurysms, and 15,000 die from them. These aneurysms typically affect men 60 and older who have a family history of aortic aneurysms, have used tobacco, or have high blood pressure or atherosclerosis.

The procedure has been performed at only a handful of medical facilities throughout the United States, including Vanderbilt.

"This new procedure opens the door to more treatment options and less risk," said Jeffery Dattilo, M.D., associate professor of Vascular Surgery. **VM**

- MIMI ECKHARD



Blood test for autism could speed diagnosis

Vanderbilt University is part of a multi-site autism clinical study designed to evaluate the effectiveness of a blood test that aims to screen children for referral for autism spectrum disorder (ASD) evaluation earlier and more accurately.

"The best outcome would be a test that can be used to help identify children at risk who can then receive a definitive evaluation," said Vanderbilt site co-investigator Jeremy Veenstra-VanderWeele, M.D., associate professor of Psychiatry, Pediatrics and Pharmacology.

"We don't need another 10 studies that are in small samples saying this approach might be useful. We need one study that says, 'Yes, it is' or 'No, it's not' and this study is designed to do that."

Screening children for a possible ASD is currently an uncertain process, with pediatricians sometimes using symptom checklists but more often relying on clinical exams or parents' expression of concerns. In part as a result of inadequate screening, the average age of diagnosis of ASD is 4.5 years old, despite symptoms typically emerging before age 2.

"There is an ever growing body of research suggesting that appropriately intensive early intervention can dramatically shift outcomes for children with ASD," said Vanderbilt principal investigator Zachary Warren, Ph.D., associate professor of Pediatrics, Psychiatry and Special Education. "As a field we are really hoping to develop measures and systems of care that can accurately identify children with ASD at very young ages."

The 660-child, 20-site, clinical study in the United States and Canada is funded by the SynapDx Corp and also includes Boston Children's Hospital, Mount Sinai Hospital, Nationwide Children's Hospital and the University of California-Davis MIND Institute.

SynapDx's blood test measures differences in RNA gene expression to provide families with an ASD risk factor for their child to help clinicians make faster, more accurate referral decisions.

"It is a simple blood draw, and they are looking at gene expression changes in blood cells. In this case you are looking at white blood cells to see what genes are expressed at what level," Veenstra-VanderWeele said. "These changes won't be diagnostic, but they will allow a calculation of risk for an individual child." **VM**

- CRAIG BOERNER

Stars line up to bring patients' songs to life

Songs penned by patients of Monroe Carell Jr. Children's Hospital at Vanderbilt were released May 14 worldwide on a compilation CD featuring some of Nashville's top recording stars.

Artists Kix Brooks, Melinda Doolittle, the Fisk Jubilee Singers, Vince Gill, Amy Grant, Faith Hill, Alison Krauss, Maura O'Connell, Johnny Reid, SHEL and Phil Vassar breathed life into songs written by patients along with Vanderbilt music therapist Jenny Plume.

"Everybody Has A Story" is a selection of songs written by patients over the past six years, who were treated for a variety of chronic illnesses such as cancer and cystic fibrosis; two were heart transplant recipients, and one was hospitalized for pneumonia.

Each song was the result of a clinical music therapy session involving the patients and Plume who helped them shape their thoughts and feelings into lyrics and a melody. Some lyrics were crafted out of a story idea, and some were created by long discussions about the patients' feelings and situations. The song topics range from serious to fun and silly.

"Sometimes we wrote about a real-life experience, other times I would ask questions and the answers would make the lyrics, sometimes we used their poems," Plume said.

The CD benefits the Julian T. Fouce Music Therapy Fund, founded at Vanderbilt in 2007 by Tom and Maria Fouce in memory of their son, Julian, a great lover of music. Julian died in 2005 after a long battle with leukemia. **VM**

- ASHLEY CULVER

WEB LINK

Visit everybodyhasastorycd.com for more information, including a video chronicling the making of the CD with artist and patient interviews.



Singer Amy Grant, left, high-fives Gigi Pasley during the recording session for the song Pasley wrote that is part of the compilation CD released in May.

Study takes 'cool' approach to reducing heart attack damage

Vanderbilt Heart and Vascular Institute is participating in a clinical study to assess the safety and feasibility of rapidly lowering the body's temperature to reduce the amount of damage caused by a heart attack.

The randomized, controlled study, called VELOCITY, will enroll 60 patients who are suffering from a specific type of heart attack known as an ST-elevation myocardial infarction (STEMI). Vanderbilt Heart is one of several U.S. and Canadian medical centers participating in this investigational trial, which is sponsored by Velomedix Inc.

Participants in the study are randomized to one of two arms. Patients in the control arm receive percutaneous coronary intervention (PCI) without therapeutic hypothermia, which is the current standard treatment for STEMI. Patients in the treatment arm are rapidly cooled first to temperatures of less than 35°C using the Velomedix system just prior to receiving the same PCI treatment.

Three previous randomized controlled trials have shown that patients who are cooled to therapeutic temperatures before the standard treatment for STEMI have experienced a significant reduction in the extent of the heart attack.

To lower the body temperature, the physician inserts a catheter into the abdomen and then uses the Velomedix system to circulate a large volume of cold fluid in the peritoneal cavity.

Once the body temperature is successfully lowered, the physician opens the artery and puts in a stent.

"By quickly cooling the body before we open the blocked artery, we hope to prevent what is known as reperfusion injury," said John McPherson, M.D. **VM**

- KATHY WHITNEY

'Bionic eye' new option for retinitis pigmentosa patients

Vanderbilt University Medical Center is one of 12 sites in the United States to offer the first FDA-approved bionic eye for the treatment of retinitis pigmentosa (RP).

The Argus II Retinal Prosthesis System will be available to patients with late-stage RP, an inherited retinal degenerative disease. Ophthalmologists at the Vanderbilt Eye Institute (VEI) are eagerly anticipating the arrival of the innovative technology for patients who are functionally blind.

"To date, there has been no proven, effective treatment in preventing this disease or slowing it down. For patients who are blind, the ability to regain some vision, functionality and independence is astonishing," said Paul Sternberg Jr., M.D., George W. Hale Professor and chair of Ophthalmology and Visual Sciences and director of the VEI.

RP, which affects 100,000 people in the U.S., is a retinal degenerative disease characterized by progressive peripheral vision loss and night vision difficulties. It is caused by abnormalities of the rods and cones (receptors of vision) that can lead to peripheral and central vision loss.

"It is really amazing to see that patients, who previously were functionally blind, will be able to recognize objects, silhouettes, people and large letters. Patients living with RP have adapted to a non-seeing lifestyle. This is a life-changing treatment," said Anita Agarwal, M.D., associate professor of Ophthalmology at Vanderbilt.

Researchers have been working toward a treatment for nearly 25 years. The Argus II will be available at VEI in a few months.

Argus II includes a miniature video camera, a transmitter, eyeglasses, a video processing unit (VPU) and an implanted artificial retina. The device was created by Second Sight Medical Products Inc. **VM**

- JESSICA PASLEY



Mother's voice improves hospitalization and feeding in preemies

Premature babies who receive an interventional therapy combining mother's voice and a pacifier-activated music player learn to eat more efficiently and have their feeding tubes removed sooner than other preemies, according to a Monroe Carell Jr. Children's Hospital at Vanderbilt study.

The randomized clinical trial performed in the Neonatal Intensive Care Unit (NICU) at Children's Hospital tested 94 premature babies, pairing mother's voice singing a lullaby with a pacifier-activated music player with sensors and speakers.

The babies in the study were between 34-36 weeks gestation, in stable condition, and able to breathe on their own. The participating babies received the intervention for 15 minutes a day for five days. When they sucked correctly on their pacifier, they were rewarded by hearing their mother singing a lullaby. If they stopped sucking, the music stopped.

"A mother's voice is a powerful auditory cue," said study author Nathalie Maitre, M.D., Ph.D., assistant professor of Pediatrics. "Babies know and love their mother's voice. It has proven to be the perfect incentive to help motivate these babies."

Music therapist Olena Chorna, MM, MT-BC, NICU-MT, worked closely with the mothers, making them comfortable and teaching them the two study-approved lullabies, "Hush Little Baby" and "Snuggle Puppy," which are simple, repetitive and within one octave range. The songs were then recorded and connected to the pacifier-activated music player.

"The mothers were enthusiastic to join the study," Chorna said.

Full results are not published yet, but Maitre and Chorna have analyzed the data with the help of James C. Slaughter, Dr.P.H., assistant professor of Biostatistics. The study shows babies who receive the pacifier intervention were able to have their feeding tubes removed about a week earlier compared to babies who did not receive the intervention. The results also show evidence babies ate more frequently and developed a stronger sucking ability and did not show signs of stress during their pacifier sessions. **VM**

- ASHLEY CULVER

RECRUITMENTS BOLSTER PERSONALIZED MEDICINE INITIATIVE

BY NANCY HUMPHREY

VUMC's personalized medicine effort is getting a major boost with the recruitment of two physician-scientists from Australia who are increasing Vanderbilt's strength in translational immunology, the translation of basic immunological discoveries into clinically useful tools.

Simon Mallal, MBBS, and Elizabeth Phillips, M.D., joined the faculty earlier this year. They maintain partial appointments at the research-intensive Murdoch University in Perth, Australia, where they were previously located.

The couple are best known for having discovered the association between a genetic test (HLA-B*5701) and a life-threatening drug allergy to the anti-retroviral HIV drug abacavir in 2002. It required a collaborative global effort over six years to move the test into routine use in primary care practice around the world—the equivalent of designing a new drug.

Mallal, whose research to develop a vaccine for HIV-AIDS has received funding from the Bill and Melinda Gates Foundation, is the founding director of a new Center for Translational Immunology and Infectious Diseases. This new center is jointly sponsored by the Department of Medicine and the Department of Pathology, Microbiology and Immunology. It enhances programs in both microbial pathogenesis and immunology and closely integrates with other centers and programs in both departments and within Vanderbilt to move scientific advances to diagnostic and therapeutic application in a timely manner.

Mallal also serves as associate director for Immunogenetics within the newly established Vanderbilt Technologies for Advanced Genomics (VANTAGE) core.

Phillips is the director of Personalized Immunology within the Oates Institute for Experimental Therapeutics and will establish research in the area of personalized medicine of immunology and adverse drug reactions, work that will be enhanced by the establishment of a clinic specializing in patients with a history of hypersensitivity reactions.

"Their multi-center international trials are a model for how we identify the cause of a serious adverse drug event," said Nancy Brown, M.D., Hugh J. Morgan Professor of Medicine. "Having them join our faculty increases our bandwidth in terms of translational immunology and also advances our goals in personalized medicine."

Mallal said there are many reasons that he and Phillips find Vanderbilt a perfect fit for their talents.

"Vanderbilt is the mecca of personalized medicine, the place



Simon Mallal, MBBS, top, and Elizabeth Phillips, M.D.

that we have long come to look to for innovation and leadership from all corners of the world," Mallal said, adding that none of it would be possible without the "amazingly open and collaborative nature" of Vanderbilt and the broad support and engagement of the community.

Phillips said they believe Vanderbilt is "the world leader when it comes to the integration of pharmacogenomics and personalized medicine," noting the strength of the University's BioVU DNA repository and PREDICT (Pharmacogenomic Resource for Enhanced Decisions in Care and Treatment).

"I am very excited about the move and how it fits with my own research and clinical area. We hope to soon have more sophisticated screening strategies to predict which drugs will negatively interact

with the immune system to cause these types of severe reactions and exclude these drugs from development before their use in man."

Vanderbilt's personalized medicine program strives to be a leading international center in the transformation of medicine to focus on the individual. The mission includes support of discovery, translation and implementation science in the mechanisms of variable susceptibility to disease and drug responses to improve human health. This includes a focus on genomics as well as many other environmental and socio-cultural factors that drive susceptibility to disease and variable drug responses. **VM**

Groomed for Success

High energy neurosurgeon combines love of barns and brains

WRITTEN BY **LESLIE HILL**
PHOTOGRAPH BY **DANIEL DUBOIS**

Drive about 20 miles west of Nashville on I-40, wind around on some country roads, turn up the shady lane marked Aden Branch Farm, pass the two-room, pre-Civil War-era log cabin and pull up at the barn.

This is where Lola Chambless, M.D., '05, trades her blue cotton scrubs for jeans and cowboy boots. Where she puts down the scalpel and picks up supple leather reins. Where she leaves the sterile operating room for meadows, creeks and horse trails.

It's this balance (perhaps with a common thread of thrill-seeking behavior) that sits at the core of Lola Chambless. It allowed her to win a national equestrian title while staying at the top of her medical school class. It let her enjoy new motherhood during rigorous fellowship training in Australia. It spurred her to become the first female faculty member in the Vanderbilt Department of Neurological Surgery, and gives her a deeper relationship with patients.

Born to ride

It's a balance that runs thick in her blood. Chambless' great-grandfather, John Youmans, was dean of Vanderbilt University School of Medicine (VUSM) from 1950-1958 and was heavily involved in local equestrian activities. He was a master foxhunter with the Hillsboro Hounds and bred a two-time winner of the Iroquois Steeplechase.

"I never knew him; he died before I was born, but we have these strangely parallel lives," Chambless said.

Born in Birmingham, Ala., Chambless lived in Boston until her mother bought Aden Branch Farm in Fairview, Tenn., in 1992, when Chambless was 12. While her mother ran a boarding and breeding facility there, Chambless got serious about eventing, an equestrian sport involving three disciplines of dressage, cross-country and show jumping.

While taking every advanced placement science course she could in high school ("Total nerd!" Chambless says), she qualified to represent the United States at the North American Championships.

She continued riding and competing throughout undergraduate studies at Stanford and medical school at Vanderbilt, training at least four hours a day.

"I told myself at the beginning of medical school I wasn't going to keep doing it unless I could keep getting As. If my grades had ever fallen behind I would have stopped. It actually made me a much better student because on day one I was studying for the midterm that was six weeks away."

Chambless' parents divorced when she was young and she has no other siblings, so she and her mother traveled together to competitions, hauling a horse trailer.

"My mom would drive and I would study. I had people faxing me notes from class. I spent a lot of time studying in hotel rooms and in a pickup truck."

In fall 2002, during her second year of medical school, Chambless reached the pinnacle of her equestrian career, winning the U.S. Senior Championship during what she calls a "dream weekend."

"I went in hoping to be in top 10 of the amateurs, and all of a sudden I was in front of a field of 150 with a massive margin from the very beginning," she recalled.

"I had midterms the next week and was studying constantly. I had come to terms with the fact that this was my hobby and that made me much more relaxed on

my horse. I realized I do this because I love it not because I'm trying to qualify for something or be the next Olympian."

Chambless continued competing through her residency at Vanderbilt but tapered off once marriage, a new baby and a fellowship in Australia came along.

"First and foremost, galloping cross country is the most fun thing. I love the adrenaline rush. And it's impossible to be perfect at eventing. It's a constant effort of striving. Horses give you a huge amount of humility because they dump you all the time. The best rider lays in the dirt a fair amount of the time. It keeps you from taking yourself too seriously."

Lessons learned

Chambless always wanted to be a research scientist and was particularly interested in cancer biology. At Stanford, as most of her classmates were dropping out of the pre-med track, she realized she wanted to treat patients too.

She came to VUSM as a Canby Robinson Society Scholar, the recipient of a full-tuition scholarship for four years. During her second year of medical school, as she was at the height of her equestrian accomplishments, her interest in cancer hit much too close to home. Her mother was diagnosed with stage IIIB breast cancer.

"There would be days when I would be rounding on my own service and when we were done for the day, I would go down a floor to her room and wait for her attending to come by and tell us what was happening. It was a unique way to see medicine, and I think it really changed the way I practice with my patients."

When her mother died in 2004, Chambless took over the horse farm and was reinvigorated in her desire to treat cancer patients.

"I realized that the conversation you have with a family when you tell them their loved one is not going to survive is a conversation that is going to be one of the most important moments of their life. You have to look at it as a privilege to be part of that day of their life and try to

help that be a memory that doesn't haunt them. I'm really aware when I go and talk to these families that while this is just a little part of one day of my job, it is everything to them."

Jockeying for position

After 11 years at Vanderbilt through medical school and residency, Chambless knew it was time to branch out and spent six months in Australia studying under Charles Teo, MBBS, an international expert in minimally-invasive brain tumor surgery. A minimally-invasive approach reduces many risks and side-effects of open surgery and shortens recovery time, an important factor for cancer patients who will go on to chemotherapy or radiation.

"What I like about Lola is she's taking all of our knowledge up a notch," said Reid Thompson, M.D., William F. Meacham Professor of Neurological Surgery and chair of the department. "She's trying new things and represents that next generation. She's a breath of fresh air for our department. Somebody with that much energy is great. Plus, she's tough as nails."

Thompson said he was determined to find a place for Chambless on his faculty.

"I think there are stereotypes in medicine like in any field. Stereotypes in neurosurgery are male-dominated and not welcoming for women. The training is long and hard and some places have biases about being family-friendly. But one of the things I'm really proud of at Vanderbilt is we really do emphasize balance. You could say that sounds soft and aren't we supposed to be training residents? But first we're training doctors, and to be a really good doctor you need to have balance," Thompson said.

Chambless said she saw those stereotypes as she was searching for faculty positions.

"There are other places in this country that are much less welcoming to women in the field of neurosurgery. Unless you are a crusader you are going to be miserable, and that was never the sort of life I was considering for myself," she said.

"I knew that this was a place that treated female staff the same way they treat male staff, and I think it is important that residents have a female role model."

Her biggest obstacle is not her gender, but her youth. With girl-next-door looks and her hair in a ponytail, she's often not what patients expect to see in a brain tumor surgeon.

"In general, people get a certain level of comfort from an older physician. I'm learning how to get over that initial little obstacle and make sure they feel comfortable with me, deal with the fact that it's a little unex-

pected, and explain that I'm trained the same way any other neurosurgeon is."

Chambless is now building her practice and gets out to her farm to ride about once every two weeks. She also finds time to manage a tissue bank for brain tumor outcomes research, serve as assistant residency program director, help redesign the neurosurgery curriculum for medical students, and consult with the U.S. Equestrian and Polo Foundations on concussion and safety guidelines.

Always in search of balance, she is considering hang gliding as a new hobby. **VM**



LOLA CHAMBLESS, M.D.



ROBOTICS REVOLUTION

Schools of Engineering and Medicine Lead the Charge

In the foreseeable future, robots will be sticking steerable needles in your brain to remove blood clots; capsule robots will be crawling up your colon as a painless replacement for the colonoscopy; and ultra-miniaturized snake robots will remove tumors from your bladder and other body cavities.

“Bionic” prosthetic devices will help amputees regain the mobility that they have lost, and humanoid robots will help therapists working with autistic children to give them the skills they need to live productive lives.

These aren’t futuristic flights of fancy, but some of the research projects currently under way at Vanderbilt that are blazing the trail toward increased use of “smart” devices and robotics in surgery and a variety of other medical applications.

WRITTEN BY **DAVID SALISBURY**
PHOTOGRAPH BY **DANIEL DUBOIS**

Left: Jason Koger, using the artificial hand developed at Vanderbilt, lost both of his arms below the elbow when he came in contact with downed power lines while riding his ATV.

In recent years Vanderbilt has emerged as one of the primary centers in the country for basic research in medical robotics along with Johns Hopkins, Carleton University in Canada and Stanford.

“Today, we have a total of 25 investigators with \$25 million in research grants and robotics is an important part of our effort,” said Benoit Dawant, Ph.D., the Cornelius Vanderbilt Professor in Engineering who directs the Vanderbilt Initiative in Surgery and Engineering (ViSE) that was established in 2011 to foster collaborative research between doctors and engineers on campus.

In addition to creating new opportunities by the growing computational power and decreasing cost and size of

microelectronic devices, the gradual shift toward minimally invasive surgery is also paving the way for the introduction of medical robots. Although minimally invasive procedures frequently take longer than open surgery, patients tend to have quicker recovery times and less discomfort than with conventional surgery.

“Surgery is moving from the knife to the needle,” observed S. Duke Herrell III, M.D., a member of the ViSE steering committee and associate professor of Urologic Surgery.

As a result surgeons are becoming increasingly accustomed to relying on the images from miniature cameras and remotely controlled manipulators and this has made them more receptive to efforts to add robotics to the mix.

Making smart medical devices requires more than brilliant engineers and doctors. It also requires a culture of collaboration between the two groups which has become one of Vanderbilt’s hidden advantages.

“People here want to cooperate and

Benoit Dawant, Ph.D., left, and Michael Fitzpatrick, Ph.D.





Pete Konrad, M.D., Ph.D., places electrodes deep in the brain to treat movement disorders when drug therapies fail.

want to integrate. Most schools that have both engineering and medicine don't have the proximity that we have geographically or the willingness to go through artificial barriers," said Ron Eavey, M.D., the Guy M. Maness Professor and chair of Otolaryngology.

"Colleagues from other universities are amazed at the amount of access we have to the operating room," added Robert Galloway, Ph.D., professor of Biomedical Engineering, Neurological Surgery and Surgery.

COLLABORATION KEY TO COMMERCIALIZATION

The unique culture of cooperation, integration and accessibility that exists at Vanderbilt today between the Schools of Engineering and Medicine has been built up over the last 20 years by a cadre of physicians and engineers who saw the value of working together.

Michael Fitzpatrick, Ph.D., professor emeritus of Computer Science, is a senior member of this core group. After coming to Vanderbilt in 1982, he was approached by neurosurgeons George Allen, M.D., Ph.D., and the late Robert Maciunas, M.D. They had an idea for an improved method for properly matching the CT scans taken before an operation which show

the location of tumors that are invisible to the naked eye with the features of a patient's brain revealed during surgery. The process is called registration. Allen's idea was to replace the cumbersome cage, or frame, that was bolted onto the patient's head for this purpose with a set of small markers implanted directly into the skull.

Allen, now professor emeritus, convinced the Johnson & Johnson Company to bankroll the effort. They also recruited Galloway, who was a post-doc at the time. It took them seven years, 102 patents and about \$1.4 million of the company's money, but they finally developed a frameless system that could display the precise position of a surgical probe on the image of a brain scan shown on a computer screen.

At the last minute, however, there was a change in leadership at Johnson & Johnson and it dropped the project. "If they hadn't pulled out, the company could have been the leader in what is now a multibillion dollar a year industry," said Fitzpatrick.

Although he didn't make any money from his contributions, Fitzpatrick said that he is content. "It provided me with material for a number of papers. I got promoted to full tenure and the students who contributed have all gotten their degrees and gone on to successful careers."

Galloway continued working on the

technology, but his research took an unexpected turn after he developed a hernia. Following his operation, the surgeon, William Chapman, M.D., who is now at Washington University School of Medicine, asked, "Aren't you that brain guy?" When Galloway admitted that he was, Chapman explained that they didn't have a satisfactory way to register CT or MRI scans of the liver.

Galloway realized that the methods they developed for the brain wouldn't work with the liver so he came up with an alternative technique, called surface-based registration, that would work and modified a laser scanner so that it could map the surface of the liver when inserted through a trocar, a hollow cylinder that surgeons insert through the skin to provide access to internal organs.

To commercialize the technology Galloway and Chapman teamed up with Dawant, Alan Herline, M.D., Michael Miga, Ph.D., and Jim Stefansic, Ph.D., to set up the company Pathfinder Technologies. The techniques they developed have since become the state of care for liver surgery and they are now adapting it for the kidney.

Dawant, who is an expert in medical image processing, also struck up a collaboration with Pete Konrad, M.D., Ph.D., associate professor of Neurosurgery and



From left: Michael Goldfarb, Ph.D., and Robert Labadie, M.D., Ph.D.

Biomedical Engineering, to improve a new treatment for movement disorders called deep brain stimulation (DBS) that is used when drug therapies fail.

DBS involves inserting electrodes deep in the brain that can be highly effective at treating a number of movement disorders including dystonia and Parkinson's disease and obsessive-compulsive disease as well as neurological diseases such as depression.

Over the last 10 years, Dawant and Konrad successfully developed a new guidance system that uses computerized brain-mapping techniques to direct the implantation of the electrodes, which substantially reduces the time and cost of the operation.

Dawant and Konrad partnered with Pierre-Francoise D'Haese, research assistant professor of Electrical Engineering, to set up the company Neurotargeting LLC to

license and commercialize their system, which has now been used in more than 400 operations.

A REVERENCE FOR ROBOTICS

Meanwhile, in mechanical engineering, Michael Goldfarb, Ph.D., established the Center for Intelligent Mechatronics. Although his passion was the design of prosthetic devices, it wasn't until after the fighting began in Iraq and Afghanistan that federal funding became available so he could pursue his interest.

He has used this support to successfully develop a bionic arm powered by hydrogen peroxide, the first lower limb prosthetic with powered knee and ankle joints, an exceptionally dexterous artificial hand and a powered exoskeleton that allows people with paraplegia to stand and walk.

Goldfarb, the H. Fort Flowers Professor of Mechanical Engineering, also acted as a departmental champion for recruiting new members interested in medical robotics. In the last few years, the department has added three: Robert Webster, Ph.D., whose expertise involves surgical robotics and related devices that make surgery less invasive and more accurate; Nabil Simaan, Ph.D., who focuses on developing enabling robotic technologies for safe and intelligent surgical interventions including natural orifice surgery; and Pietro Valdastri, Ph.D., whose goal is to turn the science fiction vision of miniature capsule robots working inside the human body into reality.

At the same time, another center of activity emerged in otolaryngology where Robert Labadie, M.D., Ph.D., has been doing pioneering work in using robotics for ear surgery since 2001. In collaboration with Goldfarb, he performed the world's first mastoidectomy using an industrial robot on a cadaver skull.

"I got the idea when we were remodeling our house. When my contractor told me that he needed the exact dimensions of our new sink because the cut-out in the countertop was made by a robot, I realized that it was crazy for surgeons to still be cutting openings in the skull by hand," he said.

Since then Labadie has collaborated with Fitzpatrick and Dawant on developing a method for semi-automating the delicate surgery of placing electrodes into the cochlea of profoundly deaf patients to restore their hearing. Instead of completely removing the mastoid bone, their approach involves drilling through the mastoid. The procedure is currently undergoing clinical trials.

The collaboration between Vanderbilt engineers and doctors has now spread throughout three engineering departments—biomedical, electrical and computer science and mechanical—and 10 Medical Center departments—surgery, surgical oncology, neurosurgery, gastroenterology, otolaryngology, otology, cardiology, ophthalmology, urology and pathology. **VM**

The unique culture of cooperation, integration and accessibility that exists at Vanderbilt today between the Schools of Engineering and Medicine has been built up over the last 20 years by a cadre of physicians and engineers who saw the value of working together.

FIVE TO WATCH

CURRENT VANDERBILT PROJECTS THAT ARE CHANGING LIVES



1/CAPSULE ROBOTS

Jellyfish capsule robots that propel themselves with tiny fins; centipede capsules with 12 legs; capsules with tiny propellers; capsules that use a cell phone vibrator for locomotion. These are just some of the designs that Pietro Valdastri, Ph.D., has experimented with so far in his career.

Currently he is working closely with assistant professor of Medicine Keith Obstein, M.D., MPH, on the design that he thinks has the best chance for replacing the infamous colonoscopy: the magnetic air capsule (MAC), which he developed when he was at Scuola Superiore Sant'Anna in Italy before moving to Vanderbilt.

The MAC is equipped with all the capabilities of a traditional colonoscope—camera, LED lights, a channel for inserting tools needed to remove polyps, etc.—and is the size of the smallest colonoscope. Instead of being pushed through the colon, the capsule is pulled by a powerful

magnet outside the body controlled by a robot arm. In addition to the thin wires that connect the camera and lights, the capsule is hooked up to a small air tube. This provides it with an air cushion that allows it to glide smoothly. It also can be used to inflate the colon in case the capsule gets stuck or to uncover portions of the lining hidden from view. A special sensor on the capsule detects the strength and direction of the magnetic field which allows the operator to accurately track its location and orientation.

Each year colon cancer claims more than 600,000 lives worldwide, despite the fact that it can be treated with a 90 percent success rate when it is caught early enough. “We hope to increase the number of people who undergo routine screenings for colon cancer by decreasing the pain associated with the procedure. We also hope to improve its effectiveness,” said Valdastri, assistant professor of Mechanical Engineering.

2/STEERABLE NEEDLES

Last fall, Robert Webster, Ph.D., attended a conference in Italy where one of the speakers ran through his wish list of useful surgical devices. When the speaker described the system he would like to have to remove brain clots, Webster, assistant professor of Mechanical Engineering and Otolaryngology, couldn't help breaking out in a big smile. He had been developing just such a system for the previous four years.

Webster's design, which he calls active cannula, consists of a series of thin, nested tubes. Each tube has a different intrinsic curvature. By precisely rotating and extending these tubes, an operator can steer the tip in different directions, allowing it to follow a curving path through the body. The single needle system required for removing brain clots is much simpler than the multi-needle system he had been developing for transnasal surgery. When he told his collaborator, Kyle Weaver, M.D., about the new application, he was quite supportive.

“I think this can save a lot of lives. There are a tremendous number of intracerebral hemorrhages and the number is certain to increase as the population ages,” said Weaver, assistant professor of Neurological Surgery.



Robert Webster, Ph.D.



Michael Goldfarb, Ph.D., and Craig Hutto

3/BIONIC PROSTHESIS

Craig Hutto, 25, made the headlines in 2005 when he lost his leg in a dramatic shark attack on a Florida beach. Six years later, he was in the news again this time as a participant in the development of the first lower leg prosthesis with a powered knee and ankle joint.

“My normal leg is always

a step behind me, but the Vanderbilt leg is only a split-second behind,” Hutto said. In other words, the powered leg allows him to walk with a natural gait.

The advanced prosthesis was designed by Michael Goldfarb’s lab. It is a prime example of his argument that recent technological advances

have created an opportunity to design artificial limbs that are substantially smarter, more capable, more active and more interactive than those currently on the market.

In addition to the lower limb prosthesis, his research team has produced an artificial hand that can shift quickly between different grips and a

powered exoskeleton that not only allows people with paraplegia to stand and walk but is also compact enough to wear in a wheelchair. All three designs have been licensed by companies interested in producing and selling commercial versions.



4/ROBOTIC BLADDER SURGERY

The basic method that doctors use to treat bladder cancer hasn't changed much in the last 70 years, but Nabil Simaan, Ph.D., associate professor of Mechanical Engineering and Otolaryngology, working with Vanderbilt urologic surgeon Duke Herrell, M.D., and colleagues at Columbia University, intends to change the situation dramatically. His team has designed a miniaturized telerobotic platform specifically for this purpose.

The traditional method involves inserting a rigid tube called resectoscope through the urethra and into the bladder. The instrument provides access for an endoscope for observation and interchangeable

cauterizing tools used to obtain biopsy tissue and to resect small tumors in the bladder lining. However, the resectoscope's rigidity makes it difficult to reach all areas of the bladder. This difficulty is generally considered one of the reasons why bladder cancer is so persistent and requires continuing surveillance and repeat surgeries.

The new telerobotic system is designed specifically to overcome this limitation. Its business end is only 5.5 millimeters in diameter so it will fit through a standard resectoscope and consists of a segmented robot arm that can curve through 180 degrees like a snake, allowing it to point in every direction. At the

tip of the arm is a white light source, a fiber-optic scope for observation, a tiny forceps for gripping and an optical fiber laser for cauterization.

The bladder cancer system is a specialized version of a single port robotic surgery platform that Simaan developed while he was at Columbia before coming to Vanderbilt. It consists of two segmented robotic arms, pop-up camera and lights that can be inserted through a single, 15 millimeter incision. The Canadian company Titan Medical Inc. has licensed the design and is developing a commercial version for market release.

5/AUTISM ROBOT

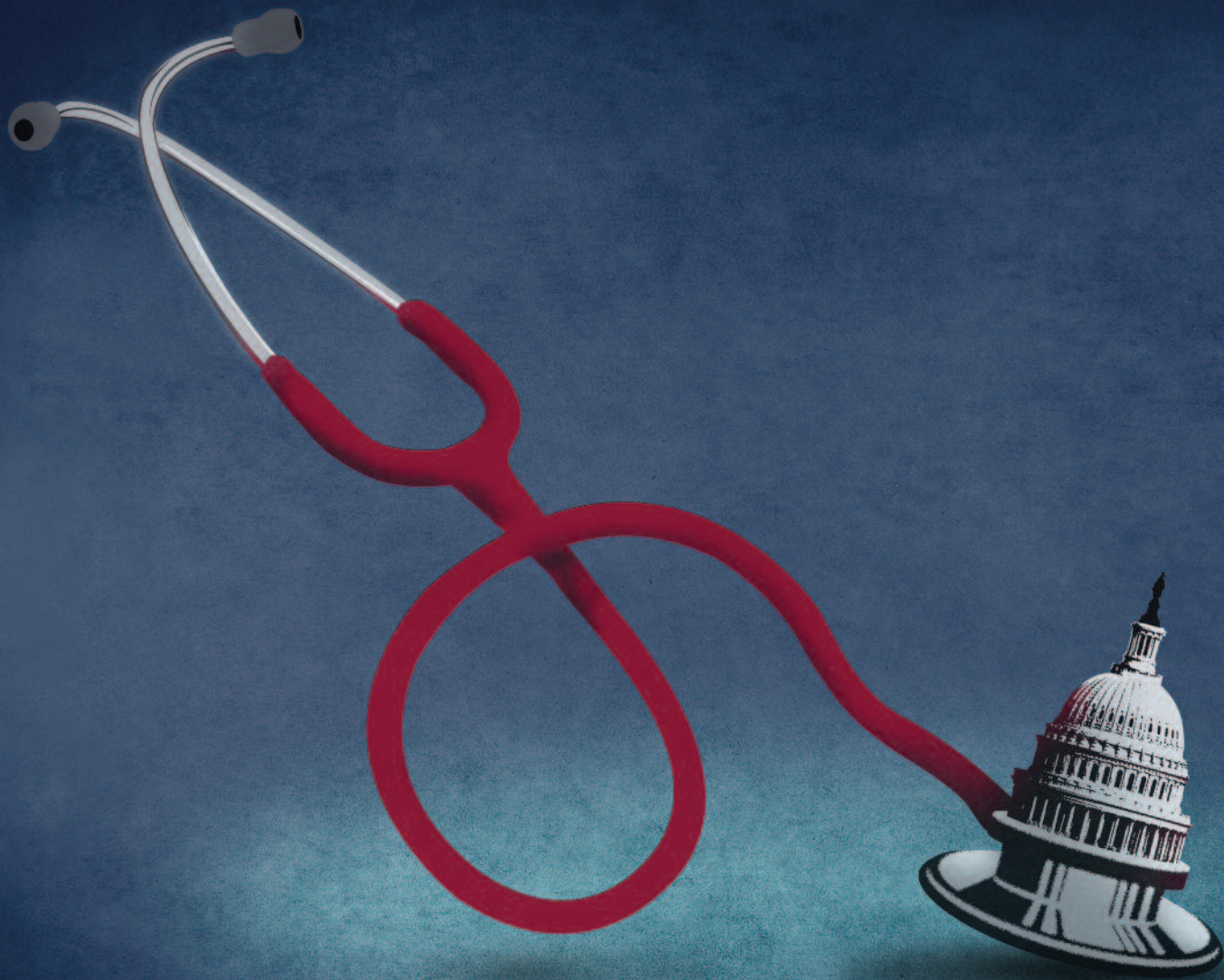
Aiden has a new friend: a 2-foot high robot called NAO.

Aiden is 3 and a half years old and has been diagnosed with autism spectrum disorder (ASD). He met NAO (pronounced "now") when he participated in a test that showed robots can be nearly as effective as human therapists in training young children like Aiden to develop the basic social skills that they need but have difficulty mastering.

The initial impetus for the project came when Nilanjan Sarkar, Ph.D., learned that his cousin's son had been diagnosed with ASD. He teamed up with Zachary Warren, Ph.D., and Julie Crittendon, Ph.D., at the Treatment and Research Institute for Autism Spectrum Disorders at Vanderbilt's Kennedy Center to find out if the children's intrinsic interest in robots could be used to train them. So they designed an interactive system around a commercial robot and tested its effectiveness with a dozen 2- to 5-year-old children, half diagnosed with ASD, and found that they responded to the robot almost as well as they did to a human therapist.

"A therapist does many things that robots can't do," said Sarkar, professor of Mechanical Engineering. "But a robot-centered system could provide much of the repeated practice that is essential to learning." In this fashion, robots could play a crucial role in responding to the "public health emergency" created by the rapid growth in the number of children being diagnosed with ASD, which has jumped by 78 percent in just four years.





The Sequestration Era

VUSM's Donald Brady, M.D., discusses its potential impact on graduate medical education

WRITTEN BY **KATHY WHITNEY**

ILLUSTRATION BY **JOHN BLACKHAM/ILLUSTRATION SOURCE**

Efforts by the federal government to control the nation's spiraling budget deficit, including sequestration that took effect on March 1, have created the potential for significant impact to Medicare's long-standing support for graduate medical education (GME) and could limit the ability of the nation's academic medical centers to care for patients and train the next generation of physicians, says Donald Brady, M.D., senior associate dean of Graduate Medical Education for Vanderbilt University School of Medicine (VUSM).

According to the Association of American Medical Colleges' Center for Workforce Studies, there will be a shortage of 45,000 primary care physicians and 46,000 surgeons and medical specialists in the next decade, exacerbating concerns over the future of GME funding and the nation's ability to train enough physicians to care for an aging population.

Recently, Brady and Christina West, assistant vice chancellor for Federal Relations in Vanderbilt University's Office of Federal Relations, visited the offices of a majority of Tennessee's congressional delegation in Washington, D.C., sharing a detailed GME cost analysis.

How did you describe the value of GME to Tennessee's congressional staffers?

GME is the time in which your doctor learns to become your doctor. Residents and fellows have to complete an accredited training program to become eligible to sit for the certification exam in their specialties. Hospitals, medical centers and even the lay public expect and, in most cases require, their doctors to be certified in their fields.

In addition, GME contributes significantly to VUSM and VUMC. GME provides us the opportunity to train the next generation of physicians who will succeed us. Residents are an integral component of our efforts to provide the highest quality care to our patients, both through service delivery and quality improvement; they are at the front line of patient care. They provide teaching and mentoring for our medical students. Vanderbilt is deeply committed to training the next generation of physicians, as noted by the fact that we are more than 200 positions over our Center for Medicare and Medicaid Services (CMS) cap (the limit on the number of federally-funded residency positions, an overage for which Vanderbilt receives no federal reimbursement).

How is Vanderbilt's GME program currently funded?

We did a major cost analysis last year, looking at GME revenue and expenses

during fiscal year 2011. Most people do not realize that Vanderbilt invests more than \$115 million each year in direct, non-billable expenses for GME. And this figure doesn't include factoring in the time required for faculty to provide clinical supervision. To help cover costs in 2011, Vanderbilt received \$37.5 million in direct graduate medical education payments from CMS, support designed to help compensate academic medical centers for residency education costs, including \$14.3 million in reimbursement from TennCare, Tennessee's state-managed Medicaid program. In addition, we received \$36.5 million in indirect payment, designed to partially compensate academic medical centers for higher patient care costs due to the presence of teaching programs, from Medicare and Medicare Advantage. Even with this support, Vanderbilt is making an unreimbursed investment of more than \$40 million toward GME. So, GME is underfunded from the very start. Direct and indirect medical education reimbursement combined don't cover the core, direct non-billable GME costs, even before factoring in cuts to GME funding through sequestration or other deficit-reduction measures.

What might GME funding look like if reductions are enacted?

We don't know the specifics yet, but reductions are likely inevitable. It could be

as small as the nation's academic medical centers absorbing a 2 percent annual cut in Medicare currently afforded through sequestration. At the other extreme, there are proposals on the table to cut billions from GME on a national basis. Almost every time a new proposal is put forth to reduce federal expenses, GME is part of the legislation. We are in an environment where there is a constant threat GME funding will be reduced or taken away. Any reductions to funding will mean that Vanderbilt's unreimbursed dollar investment in GME will have to grow to maintain even our current efforts to train tomorrow's physicians.

How will funding reductions impact Vanderbilt's GME program?

This is unknown right now. However, the greater the reduction the more likely we will have to make hard decisions on whether to eliminate certain programs altogether or to keep the same number of programs but decrease their size. Do we eliminate some of the subspecialty fellowships where there may only be one or two fellows in it, like geriatrics or stroke? The ramifications for our state (and nation) could be huge. Tennessee's population is aging, and we offer the only geriatric training program in the state. Stroke is the fourth leading cause of death in Tennessee, and the state has the fifth highest rate of stroke deaths in the U.S. We have one of only two stroke fellowships in the state and the only neuroradiology and vascular radiology fellowships in Tennessee. I could say the same for our pain medicine fellowship, the only one in the state, given the great need in Tennessee for specialists trained in the proper prescribing of narcotics and given that Tennessee is second in the nation in per capita prescription of opioids.

It's just as painful to consider decreasing the size of our primary care disciplines. We train 43 percent of all the pediatricians and 33 percent of all the general surgeons in the state, and we have one of only two medicine-pediatric programs in Tennessee. Of course, we could choose to maintain GME

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Vanderbilt is making an unreimbursed investment of more than \$40 million toward GME.”

at its current capacity even with reduced funding, but that would force the Medical Center to make cuts in other areas to make up for the lost revenue, which is a no more tenable situation than other choices.

What steps are we are taking to prepare for possible funding reductions to GME?

Christina West and I visited the staff in the majority of Tennessee’s congressional offices. It was an excellent interaction because they really wanted to know what was going on. They appreciated that we had detailed information to provide them and that we were looking at the cost and investment that was being made for GME. We had a good dialogue about why investing in the training of physicians is incredibly important and what the consequences might be of any reductions to the current

funding structure. I also know that Vice Chancellor and Dean Jeff Balser has been stressing this same message in his discussions with legislators and other leaders in Washington and has been instrumental in coordinating leaders of other academic medical centers in conveying a similar message. This is one of the primary advocacy issues before Vanderbilt’s Office of Federal Relations as they interact with federal policymakers.

What is Vanderbilt’s outlook?

I think the first thing to stress is that Vanderbilt remains committed to GME. Residents and clinical fellows are integral to our tripartite mission of patient care, education and research. The hope is there will be no cuts at all, maybe even some consideration for loosening the current

GME cap, as the nation is graduating more and more medical students to fill forecasted physician shortages across the board. Currently, however, the GME cap is a bottleneck due to the limited number of funded positions. Without improved funding sources, that bottleneck is likely to remain tight. The best of the worst-case scenarios would be that we limit any reductions as much as possible. In the meantime, our programs go on as usual. We realize we will probably be adjusting to a new era, but we have not cut the size of any of our residency programs. Once we make the decision we are going to train someone, we do everything in our power to make sure we are training them in the best possible way to make them the best doctor they can be. This is one of our core missions: to train the next generation of physicians and physician leaders, so we’re going to do everything we can to ensure our core mission is not compromised. **VM**



Donald Brady, M.D.

A Class Act

Jeanette Norden's retirement leaves a void that will be difficult to fill

The retirement of Jeanette Norden, Ph.D., professor of Cell and Developmental Biology, after more than 40 years, will mark the passing of an era.

Norden, the course director of Neurosciences/ Neuroanatomy (renamed Brain and Behavior) at the Vanderbilt University School of Medicine, is commonly cited as one of the school's most effective and influential educators. School administrators and students alike say her departure will be a significant loss.

"Jeanette has been an exemplar for all of our faculty members who strive for excellence in their teaching. She has been ultimately concerned with the welfare of our students and their future patients," said Bonnie Miller, M.D., senior associate dean for Health Sciences Education.

Norden, who also serves as academic adviser for second-year students, was selected three times for the Shovel Award, given by members of the fourth-year class to a faculty member who has had a positive and meaningful influence on their lives and education. She received numerous other teaching awards at Vanderbilt, including: the Jack Davies Award for Teaching Excellence in the Basic Sciences (which she won eight times), and the Outstanding Teacher of the

Year Award (four times). In 2011 the Vanderbilt Brain Institute and Center for Neuroscience at Vanderbilt established an annual Jeanette J. Norden Outreach Lectureship in her honor.

"When she teaches, there is a sense that she has a lot of people that matter to her and she encourages us to have meaningful relationships. She commonly brings patients to class as part of the teaching, and then she has us all write thank you notes afterward. Whenever I have to present or teach I think about how she would do it and try to model after her," said Billy Sullivan, M.D., a member of the class of 2013.

Scott Rodgers, M.D., '94, was taught by Norden and recalls she always taught her class without aid of PowerPoint presentations or electronics of any sort, and that is part of her success.

"She loves to tell stories about patients and is one of the few people with the natural teaching talent to engage people for a four-hour block. But more than that, she wants students to maintain a level of compassion. She is one of those stabilizing forces who understands students came here because they want to connect with patients," said Rodgers, associate dean for Medical Student Affairs.

Derek Riebau, M.D., who has taught with Norden for the last nine years, calls

her the most dedicated and effective teacher he has known.

"It has been an absolute privilege and honor to work with her and learn from her. Her love of the students and their future patients is unmatched. She never rests on her laurels or accomplishments as a recognized teacher of excellence, but continuously critiques her own material and lecture content to make sure that the next lecture she gives is more relevant and informative than the last. She works tirelessly to offer the best opportunities for her students to learn because she has a genuine recognition that their future patients' lives and well-beings are at stake," Riebau said.

Norden was awarded the John Chapman Award for Transformative Innovations in Medical Education in 2010, and in 2012 the Arnold P. Gold Foundation Leonard Tow Humanism in

Medicine Award given to a faculty member judged to be exemplary in their compassion and sensitivity and for exhibiting the highest standard of humanism in medicine.

Norden said as an educator, she has always tried to keep her focus on the students and feels it has been an honor to teach them about the brain and about how to apply their knowledge to the diagnosis and treatment of patients who suffer from neurological disease.

"I have cared for and loved the students. This is what has guided my teaching. I have also tried to model by my relationship with them, as the kind of relationship I want them to have with their patients. I shall miss teaching them about the most awesome structure in the human body." **VM**

— CAROLE BARTOO



JOE HOWELL

Rooted in Compassion

Shade Tree Clinic Keeps Pace with Changing Health Care Landscape

WRITTEN BY **CAROLE BARTOO**
PHOTOGRAPH BY **DANIEL DUBOIS**

For most of her adult life, Tina Stephens was a chronic user of the most expensive form of health care: the emergency room. Before age 50 she didn't have insurance for preventive care and developed uncontrolled emphysema and high blood pressure—along with a serious mistrust of health care providers.

“I would call a doctor and even if I told them I had no insurance, they would say ‘Come in.’ But once I got there, I wouldn't even make it past the receptionist,” Stephens said. “It would bring me to tears that I had to go to the emergency room because I couldn't get into a doctor's office. It didn't matter what kind of shape I was in; they didn't want to help.”

Stephens is just the kind of patient that health care reform and the Patient Protection and Affordable Care Act (ACA) are designed to address. The ACA goes into full effect Jan. 1, 2014, offering more affordable health coverage to millions of previously uninsured Americans. But there is great concern about whether the system is prepared to meet the need.



Tina Stephens

Stephens doesn't have to wait until the first of the year to have her health care needs met. She found the Shade Tree Clinic, Vanderbilt's medical student-run clinic for the uninsured located in East Nashville. It's where the next generation of medical providers is learning a new model of care, and where Vanderbilt faculty can put a new theory of experiential teaching and learning into action. The hope is the future care providers may turn things

around for patients like Stephens, and perhaps the system as a whole.

Patient-centered medical home

Rising second-year medical student Kelly Wolenberg volunteers twice a week at Shade Tree, working under physician supervision to start patients like Stephens on the right medications. She also works on important details, like whether patients have a ride to the clinic for appointments, or if they are having trouble paying for their medicines.

"Because of Shade Tree I think about the social and insurance situation and how that will impact their care," Wolenberg said.

At Shade Tree, patients who have few resources, and little knowledge about how to navigate the complex health care system, are carefully guided toward better health. Care is modeled after the interdisciplinary

Second-year medical student Kelly Wolenberg serves as the student director of social work at the Shade Tree Clinic.



LAUREN HOLLAND

Patient-Centered Medical Home for primary care, widely considered the model of the future for primary care.

An interdisciplinary patient-centered medical home refers to a primary care provider offering coordinated care throughout a patient's lifetime as part of a team. Patients take an active role in decision-making about their health. The primary care provider serves as the manager of care, working closely with other qualified health care professionals from multiple disciplines to provide treatment of acute and chronic illness, specialty care when needed, patient education and social services among other things. The goal is clear and coordinated communication between the care providers and the patient to make sure everyone is fully informed about what is going on.

For example, at Shade Tree, an onsite pharmacy student fields questions about medications; medical students research and develop patient education; and nurse practitioner students work to provide prenatal care and referrals for pregnant patients. A new medical/legal partnership with law students offers legal assistance, and licensed social worker Shannon Jordan helps a team of 10 students address complex social needs.

"If the health care system is confusing to us, you know it's confusing to our patients. Then you throw in housing problems, addictions, criminal problems, domestic violence, untreated mental health; it all is so complicated. We teach students to recognize what else is needed for our patients and try to teach the students to function as an interdisciplinary team," Jordan said.

Outgoing social work team director, Cooper Lloyd, a rising third-year medical student, said the lessons she is learning at Shade Tree early in her medical training are shaping her future practice.

"It's been valuable to learn about the limitations and opportunities of the system. I don't think all doctors right now are very tuned in to what insurance patients have and what is covered. Our

TEAMWORK MAY BE KEY TO COST CONTROL

As millions of previously uninsured Americans gain access to health insurance through the Affordable Care Act (ACA), there is vigorous debate about how such an expensive program can achieve improved quality of care while reducing costs. Health Policy researcher John Graves, Ph.D., assistant professor of Preventive Medicine, says the goal of the ACA has never been to control costs, but it is a necessary first step to push toward new models of care that will.

"The goal is to reorient the system toward stability of coverage so we don't have 50 million people at any point and time churning in and out of the system when they change or lose a job. If that stability exists, all of the organizations involved in health care have a chance of succeeding in controlling quality and cost," Graves said.

Many physicians' groups say the interdisciplinary Patient-Centered Medical Home model offers the best chance to turn the emphasis from acute care of ill patients to preventive care for healthier ones. Yet patient-centered medical homes are difficult to find. A Commonwealth Fund International survey found 41 percent of U.S. physician practices function without any non-physician staff to help manage the care of their patients, and only 35 percent of physicians said improved teamwork and communication are very effective ways to improve quality of care.

"We want to get better value for what we put in. We want to pay for the right things and not the wrong things," said Graves. "As a result, there is a tremendous amount of effort on the provider side to try to prove value of these new models through demonstration projects."

United Neighborhood Health Services (UNHS), one of the largest providers of primary care to uninsured and TennCare patients in Nashville, recently received Joint Commission status as a Patient-Centered Medical Home. UNHS CEO, Mary Bufwack, Ph.D., said the population they serve is unaccustomed to preventive care. She hopes demonstration projects will show patients benefit from services like social work and case management to foster engagement.

One encouraging sign that change is on its way, she says, is the number of new physicians coming out of programs like Vanderbilt's who already expect to be part of an interdisciplinary team.

"It's patient-centered and not provider-centered and new physicians trained in this model understand and value this," Bufwack said.

- CAROLE BARTOO

decisions as providers need to reflect what will be available to patients," said Lloyd.

Living at the edge

The students are learning critical lessons as millions of Americans finally gain health coverage and enter the "big system," as the insured health care system is called by one of Shade Tree's Medical directors, Robert Miller, M.D. He and co-director, Michael Fowler, M.D., said few primary care practices today are prepared to advocate for the large number of disengaged and disenfranchised patients who will be entering the system. (Tennessee will decide by the end of summer whether to

expand TennCare, the state's Medicaid program.)

"Getting a medication to someone in a homeless shelter, or getting them to clinic from a shelter isn't always that easy. But it's all part of medicine. That's what drives people like Mike and me, is teaching that advocacy," said Miller, associate professor of Allergy, Pulmonary and Critical Care Medicine.

Fowler says for people who live close to the edges of society, the ACA comes not a moment too soon.

"So many people like Tina Stephens have no insurance coverage, and we take care of a ton of patients who are working

uninsured. They work hard, they work full time, or nearly full time, but if they get sick they lose everything they own,” said Fowler, assistant professor of Medicine in the Division of Endocrinology, Diabetes and Metabolism.

According to the Centers for Disease Control and Prevention, one in three people are in a family that is experiencing financial burden from medical care, and one in 10 are in a family with medical bills they are unable to pay.

For Tina Stephens financial catastrophe came when a short stay at a local hospital generated thousands of dollars in bills she could not pay.

“In 2011 our hot water tank caught fire while I was asleep and I couldn’t wake up. My dogs kept barking to get me out, and the house was full of smoke. I had carbon monoxide poisoning,” Stephens recalled.

Shade Tree students and volunteers quickly helped Stephens apply for disability and TennCare Medicaid health insurance. She was accepted into the program and her medical bills were covered retroactively. The only catch was that with insurance coverage, Stephens would have to leave Shade Tree for a regular primary care practice.

“It’s not easy to transition from a clinic like ours. To some extent it’s easy to ask for assistance for people who have no insurance, but not so easy for those who do have access. For example, many primary care offices don’t take TennCare. That’s a challenge,” Miller said.

Shepherding patients

The students have a list of nearly 100 newly insured patients who, like Stephens, are being transitioned from Shade Tree into regular primary care practices. In order to usher patients into the “big system” systematically, and with great care, Lloyd organized what is called the TennCare Transitions task force.

Wolenberg, current student director of social work, and classmates MariaSanta Mangione and Emily Kramer work to



LAUREN HOLLAND



LAUREN HOLLAND

VUSM students founded Shade Tree Clinic and continue to run it with faculty support.

find primary care providers who accept TennCare or Medicare and are accessible for patients. Then students create individualized plans for each patient to allow for continuity of as many services as possible.

“Tina Stephens is in our smoking cessation program, which is really important for her. If they’ve been benefiting from seeing social work and patient health education, we keep that in mind,” Wolenberg said.

“We believe we have been providing good care, but ultimately they will be better off with one primary care provider and active health insurance to cover any future, unexpected hospitalizations,” Lloyd said.

They helped Stephens find a doctor at United Neighborhood Health Services (UNHS). The UNHS clinics recently received Patient-Centered Medical Home status through the Joint Commission. It is a great solution for Stephens, but she says she will miss being cared for at Shade Tree.

“I knew with Shade Tree that’s what they did, help you and try to get you on insurance. It makes room for another person to come on in to Shade Tree. I have a stepson with seizures who has gone down (to Shade Tree) and he’s getting help now,” Stephens said.

Outside these walls: the future

Wolenberg, Lloyd and their student colleagues continue to witness the benefits and challenges of the system. They say they greatly value learning how to function as part of an interdisciplinary team, and they are excited to have the opportunity to work on real-world problems and develop critical thinking skills. But they realize Shade Tree Clinic’s ability to provide supportive and nurturing care is only possible because of support from the University, the Medical Center and community volunteers, grants, donations and fundraising events. It’s what lies outside the clinic’s walls that concerns them.

“I am not sure if the primary care providers will be there by the time all our patients get coverage. We are already finding

THE CLINIC CLASSROOM

Kim Lomis, M.D., associate dean for Undergraduate Medical Education, says Vanderbilt’s experience with Shade Tree Clinic has demonstrated the power of learning in a relevant setting and has revealed the potential for students to contribute in meaningful ways to the care of patients. It serves as an important source of information and inspiration as the dynamic teaching and learning revision, Curriculum 2.0, came into full effect for Vanderbilt University School of Medicine in July.

The former model of education as a process of transferring knowledge from teacher to student has largely been replaced with flexible, collaborative and experiential learning. Patient care begins in the first year of training and continues through all four years of medical education, with an emphasis on understanding systems of care.

Lomis says the goal is to create physician-leaders well prepared to creatively assess and impact the health care system, ultimately improving the care of patients.

“Vanderbilt’s culture of continuous improvement allows us to identify opportunities for innovation. Our combination of technological prowess, a collaborative environment and a dedicated faculty uniquely positions Vanderbilt to create the teaching and learning system of the future,” Lomis said.

The basic tenants of Curriculum 2.0 are:

- Embrace innovation and improvement by focusing as much on how students learn as what they learn.
- Fully integrate learning with patient care by incorporating clinical experience earlier, and by explicitly revisiting core concepts throughout training.
- Rapidly translate discovery into practice by fostering the skills needed for life-long learning and evidence-based care.
- Support professional growth by providing frequent, meaningful feedback, creating personalized learning plans and offering flexible learning opportunities.
- Create physician leaders through a focus on curiosity, critical thinking, discovery and collaboration.

— CAROLE BARTOO

it difficult to find primary care providers because many don’t take TennCare. I hope it gets to the point where more people can tap into social services, dental care and eyeglasses. I hope all these things will be easier,” Wolenberg said.

VUSM instructors say these concerns are exactly what their students need to experience. They are learning to be the leaders of tomorrow, the people who will have the chance to change how health care is delivered and paid for.

“Older physicians may be rolling their eyes at what is to come. They don’t see solutions, but students say ‘Here’s the

need, here are the resources, we’ll find a way.’ That’s satisfying for us,” Miller said.

Miller and Fowler say as they watch students work through these difficult problems at Shade Tree, they see a hopeful future.

“And they are much more adaptable to a new system than older physicians,” Fowler adds. “The students learn the new rules quicker and they develop a sense of professionalism earlier than they would because they are learning how to advocate and protect at an earlier stage. That gives me great hope.” **VM**



A SHINING LIGHT

ASPIRNAUT PROGRAM
GUIDES STUDENTS TO
EDUCATIONAL OPPORTUNITIES
BEYOND POVERTY

For thousands of years pipelines have been constructed in various parts of the world when there's a critical need to convey water.

A Vanderbilt-based pipeline, founded seven years ago, is fulfilling a critical need of another type—bringing the support of a research university and professionals in science, technology, engineering and math (STEM) to rural teachers, students and school districts. The Aspirnaut program targets STEM achievement in students beginning in elementary school and continues through post-graduate training. The hypothesis is that achievement in STEM increases the odds of a student's entry into a STEM profession.

Julie K. Hudson, M.D., assistant vice chancellor for Health Affairs at VUMC and the program's director and co-founder, says the Aspirnaut program's K-20 STEM pipeline has many points of entry.

WRITTEN BY **NANCY HUMPHREY**
PHOTOGRAPH BY **JOHN RUSSELL**

“

A student

could engage in grades K-3, grades 3-5, middle school, high school, college, graduate school and beyond or anywhere along the way. And early engagement of students with STEM is key.”

Hudson and her husband, Billy Hudson, Ph.D., run the Aspirnaut program, housed at Vanderbilt University Medical Center (VUMC) and funded through a combination of donations, cost-sharing with partner schools and grants. Aspirnaut currently focuses on two major programmatic efforts: weekly live and interactive videoconferences of hands-on inquiry-based STEM labs, conducted by Vanderbilt undergraduate and graduate students, post-doctoral researchers and faculty for students in rural Arkansas, Maine, Montana and Tennessee; and summer research internships at Vanderbilt for rural high school students, and diverse undergraduate and graduate students.

According to the World Economic Forum, the United States is ranked 48th out of 133 developed and developing nations in the quality of mathematics and science education. There’s also a shortage of workers in STEM careers, and rural students are a largely untapped pool of talent that can be brought into the STEM workplace, the Hudsons believe. Twenty percent of K-12 students live in rural areas.

The kidneys at a fifth-grade level

About 15 third- to fifth-grade students from rural Maine listen intently as Billy Hudson, Ph.D., stands in a lab on a bleak February day at VUMC talking about the kidneys and the toll that diabetes takes on them.

Hudson, an internationally recognized kidney research scientist, tells them how much blood flows through the kidneys each day—each kidney about the size of a standard computer mouse. He asks the students if they know someone with diabetes and talks about how the kidney filtration system is affected in a person with disease.

“You know those orange barrels on the highway?” the white-haired professor asks the students. “They hold about 50 gallons each. About 10 of those barrels of blood flow through your kidneys every day.” He pauses for effect. Nobody says a word.

Then Hudson introduces his lecture companion, Roy Zent, M.D., Ph.D., a Vanderbilt nephrologist, and asks the students if they know what a doctor who specializes in kidney disease is called. “A kidneyologist?” one of the students asks. Hudson and Zent, both wearing white coats, laugh and so do the rural Hancock, Maine, students who are seated at their classroom desks watching Hudson and Zent on a TV monitor.

Videoconferencing sessions are organized as themed sets spanning several weeks. The units start with very fundamental concepts and foundational knowledge. “We then build on that framework toward higher concepts and real-life applications of that science—all in the context of hands-on activities,” Julie Hudson said. “In a few weeks’ time, we’ve connected the dots from fundamental knowledge to solving real-world problems.”

Options beyond poverty

The Aspirnaut program is the brainchild of Billy Hudson, a survivor of child

abuse and poverty who grew up in rural south central Arkansas. His mission is to “shine a light” to show students there are options beyond poverty and poor living situations.

Hudson, the Elliot V. Newman Professor of Medicine, Biochemistry and Pathology, and director of the Center for Matrix Biology at Vanderbilt University, helped discover the molecular underpinnings of autoimmune and hereditary kidney diseases. He’s also an entrepreneur who co-founded two biotech companies to bring a potential treatment for diabetic kidney disease he helped to market.

In 2005, not content to rest on their laurels, the Hudsons chose to help other students in his struggling community become doctors and dentists, veterinarians, scientists and engineers.

Initially a three-year pilot project, the Aspirnaut program equipped school buses with broadband Internet access via cell-phone towers, laptops and flat-screen TVs, —a mobile one-room schoolhouse—so that students could complete online STEM courses or watch STEM-related content designed around their school’s curriculum while riding on long bus routes.

The program evolved to include a summer research program at Vanderbilt University where more than 35 high school, undergraduate and graduate students are paid a stipend and receive room and board to work in research laboratories at Vanderbilt and experience discovery science. This summer will be the summer research program’s fifth. Aspirnaut also has an affiliation with Berea College in Berea, Ky., Tennessee State University in Nashville, and the United South and Eastern Tribes, Inc. (USET), headquartered in Nashville.

The summer research program is a 40-hour-a-week “immersion experience” for the students who come after Memorial Day and live on campus for up to 10

weeks. “It’s not just about the ‘how-to’s’ but also the ‘whys’ or ‘big questions’ being tackled in the lab,” Hudson said. “The students join a scientific team. The intent is that the students rapidly gain enough skill to become contributing members of the team and accelerate the ongoing progress of science in that lab. They will also learn a considerable amount of basic science along the way. The students are challenged to think critically and creatively.”

In addition to lab work, all students have individual career planning sessions and

Julie Hudson, M.D., and Billy Hudson, Ph.D., want to engage students in a love of math and science through the Aspirnaut Program.

weekly roundtable luncheons and late afternoon discussions with key campus faculty. High school interns participate in ACT prep, meet with Vanderbilt financial aid and admissions counselors about the college application process, and experience firsthand living on a college campus in the dorm. “While we would love to recruit all of the research interns to Vanderbilt, we work hard to demystify the college application and funding process in general,” she said.

Vanderbilt via video

Many of the students who participate in the summer research program go back to their communities to help with Aspirnaut videoconferencing during the school year,

which has doubled from five sites participating in 2010-2011 to 15 this year.

Aaron Fidler, a Berea College graduate and Vanderbilt graduate student from Ashland, Ky., has worked with the Aspirnaut program from its beginning when he participated as an undergraduate student doing summer research.

Fidler, who assists with elementary and middle school videoconferencing curriculum development and mentors high school and undergraduate students for the summer research internships, leads at least two of the videoconferences each month during the school year.

“They’re going through a lot of things in life,” he said of the students,



DANIEL DUBOIS

DANIEL DUBOIS

JOHN RUSSELL

“and it takes a little more to get them excited. We want to motivate students, keep the excitement in science, and also advance the learning. It’s so rewarding when you see the light bulb go off, and you literally can see it.”

Videoconferencing is tailored to each teacher’s curriculum and follows the STEM framework established by each state. “The classroom teacher is a pivotal partner and directs which labs are included in the schedule. They’re truly partners about what they wish to see happen,” Julie Hudson said.

Most elementary and middle school teachers have a degree in education, not in science, math, engineering or technology, she said. “Classroom teachers have my highest admiration. They have many points of accountability, and often, with minimal resources. In regard to STEM curriculum, we who work in major research universities are challenged to keep up with the rapidly evolving generation of new knowledge. How could a classroom teacher realistically be expected to do the same? The practical solution is not to re-train teachers, but it is to partner the content and experiential expertise of university STEM professionals with the classroom

The summer research program is an “immersion experience” for the students who live on campus for up to 10 weeks and become contributing members of a lab team.

expertise of the teacher. The weekly videoconferences achieve this partnership. Moreover, the STEM students and professionals are not only experts in the scientific material they are teaching but also communicate firsthand about educational pathways, career opportunities, and the rewards and the excitement of discovery.”

A secondary benefit is professional development for teachers. “The program, almost vicariously, administers onsite professional development every day we’re in the classroom,” Hudson said.

Reachable dreams

Siblings Jeremiah and Sarah Beth Ellis, of Omaha, Ark., are Aspirnaut program success stories. Jeremiah, who participated in the summer program for several years and received his bachelor’s degree in industrial technology last year from Berea College, is one of the first Aspirnaut participants to graduate from college. He and Sarah Beth, a sophomore at Berea, are two of 16 children (some adopted) raised by Joe and Kitty Ellis. Both in their 60s, Joe is a retired truck driver and Kitty, a high school library worker who has battled lung cancer. Jeremiah, who participated in the summer research program for several years, Sarah Beth, and six siblings were in foster care when the Ellises adopted all of them.

“Jeremiah works hard and is going places,” said Sarah Beth, who participated in the summer internship in 2011 working

with Vanderbilt veterinarian Kelly Boyd, DVM. She hopes to become a veterinarian working with large animals. “Dr. Billy and Dr. Julie have made my dream reachable,” she said. “I’ve known for a long time that I wanted to be a veterinarian. I just wasn’t sure how it would happen. Without the Aspirnaut program I could have gone either way.”

Cody Stothers, another Aspirnaut success story, is a rising Vanderbilt University senior from Sheridan, Ark., “population 4,500 on a good day.” He became involved early on in the Aspirnaut program as a school bus rider on the laptop-equipped buses, and then as a summer research program participant. He currently works as a resident assistant, supervising new participants during the summer and also leads a couple of videoconferencing sessions during the school year. And late last year he became the first Aspirnaut student accepted into medical school. Accepted through early admission to Vanderbilt University School of Medicine, he will pursue a medical degree beginning in fall 2014.

Stothers, born in the prison where his mother was incarcerated, was raised by his disabled grandmother, who gets by on about \$9,500 a year from her government disability pension. “My grandmother got a call from prison when I was born, saying they were going to put me into foster care if she couldn’t take me. She said yes, which was obviously awesome for me, but



JOHN RUSSELL



JOHN RUSSELL

Vanderbilt student Cody Stothers, right, from rural Arkansas, is the first Aspirnaut student accepted into medical school.

a burden for her. She worked her whole life and her jobs weren't super well-paying and didn't have a lot of benefits. She never graduated from high school. She didn't have an easy life and taking over the responsibility of a child was hard, but she chose to and I'm thankful. She's always been the most supportive person in my life. She made me realize I could do anything if I tried hard enough."

Stothers said that paying for college on his own was not an option. "My plan was always to try hard and try to get a scholarship," he said. And he did—a full ride to Vanderbilt.

Planting a seed of hope

Although individual success stories warm their hearts, Julie and Billy Hudson believe helping more than 2,000 students in multiple states isn't enough. And there's already more demand for videoconferencing than the Aspirnaut program can provide. They continue to hope the Aspirnaut program will serve as a model for other universities to start similar endeavors and that the videoconferencing model will become a template for other research universities to replicate. "Our colleagues here and at other universities don't have time to develop programs from the ground up," Julie Hudson said. "We have spent seven years developing a model that could be replicated. Here's a template."

She said it's easy to get overwhelmed when you fully realize the extent of the need. So it's important to stay focused. "We won't solve all problems, but we could potentially impact many more students if the model is replicated," she said.

Jeremiah Ellis said the Hudsons have helped him obtain confidence and experience. "They're both brilliant people who are very much down to earth. They care for people—those with potential and desire, with a passion to learn, but without the opportunity.

JOHN RUSSELL



"They've helped me look at life differently, to see the challenges and understand that you're not supposed to know everything, that you just have to push through and learn it."

And that's what it's all about, says Billy Hudson—planting a seed of hope and hoping the student takes it from there.

"Brainpower is distributed randomly. It doesn't go by who you are, and how much money you have, or the color of

your skin, or what religion. A lot of kids out there are isolated in rural America, and they're special people who can contribute to society. I want to shine a light on those people.

"If kids know that others, like me, have overcome these circumstances, and they can identify with any part of it, it might give them hope. I know what it's like not to have hope." **VM**



Chief resident Walter Schratt, M.D., center, shares a light moment with his younger colleagues.

Hail to the chief!

WRITTEN BY **MIMI ECKHARD**
PHOTOGRAPH BY **JOE HOWELL**

On June 30, Walter Schratt, M.D., 53, completed his chief residency as the Department of Surgery's oldest resident.

It wasn't a second career that garnered him this distinction, but rather a second continent—the United States—that he wanted to call home.

His journey started in 1988 when life took an unexpected turn in the Deep South.

While on a research fellowship at the University of Alabama, Birmingham, the newly graduated doctor from Southern Bavaria met his wife Anne, who was studying at UAB to be a teacher.

Not speaking a word of German, Anne joined Schratt in Germany and the two began their lives together—he as a general surgeon and she as the mother of their soon-to-be three children.

But their ties to the United States were never far behind. In 2006, their oldest daughter,

Katherina, participated in a student exchange program in Gainesville, Fla., moving in with her aunt.

"I think we always knew we'd come back to the U.S. This just set the wheels into motion," said Schratt, who moved the rest of his family to Gainesville in 2007 while he set out to obtain a U.S. residency training spot, a requirement despite the fact that he had already completed a residency in Heidelberg, Germany, and had been practicing medicine since the 1990s.

The plan was that on weekends off, he would drive back to Florida to be with his family, depending on how close he could find a residency spot. So, he sold the family home and practice in Germany, took time off to take the necessary exams, and began applying for residency openings in the U.S.

But what they thought would only take two years, took a bit longer.

Though the American Board of Surgery did approve three years of his training in Germany, Schratt still had to compete for

coveted spots in the final fourth and fifth years of residency. Unfortunately, competition was stiff, and vacancies usually went to those much younger.

So, with his 50th birthday approaching, Schratt, an accomplished German surgeon, did the unthinkable.

He took a first-year residency internship at Vanderbilt University Medical Center, joining the ranks of students who had just graduated from medical school.

It was a gamble that paid off. With his first year of U.S. residency under his belt and recommendations coming from as high as the executive secretary of the American Board of Surgery, Schratt landed a fourth-year residency spot at Vanderbilt in 2011.

“It can be difficult starting a residency in the middle of a program, not knowing the culture, the people or the systems. So, it actually worked in Dr. Schratt’s favor to start in a year-one position,” said John L. Tarpley, M.D., professor of Surgery and Anesthesiology and program director for the General Surgery Residency Program. “His fourth and fifth years went much more smoothly because he started in the trenches and knew what to expect.”

Schratt agreed, but jokingly added, “Yes, but six months would have been enough.”

Despite the set-back, Schratt quickly became a favorite among residents, patients and doctors, alike.

“I learned more from Walter than he learned from me, and not just about surgery,” said Kyla P. Terhune, M.D., assistant professor of Surgery and Anesthesiology and associate program director. “It takes a special person with vision beyond the ordinary to start over and do so with grace, humility and quiet strength.”

Not surprisingly, these very same qualities were cherished by patients, as well. “Dr. Schratt always spoke softly, looked them in the eye and told the truth,” said Tarpley. “It’s why on the few times he had off, we’d frequently hear, ‘Where’s my German doctor?’”

In July Schratt returned to Florida with his family and is in private practice. **VM**

Todd Callahan, M.D., left, discusses a patient’s case with first-year resident Rachel Apple, M.D., Rosette Chakkalalal, M.D., and resident Derek Wade Russell, M.D., in the residents’ lounge.



Residents’ reduced hours don’t impact care, education: study

Restructuring work hours for first-year medical residents to accommodate a 2011 duty hour limit of no more than 16 shift hours substantially increases patient handovers, but doesn’t significantly affect efficiency and quality of care among medical inpatients, a Vanderbilt University Medical Center study has found.

A separate Vanderbilt research report also shows that the reduced duty hours don’t negatively affect the quality of the intern’s education.

The patient care study, published in *JAMA Internal Medicine* on April 1, was led by Neesha Choma, M.D., MPH, assistant professor of Medicine.

It compared a group of patients from July–December 2010, prior to the new 16-hour rule, with patients seen from July–December 2011, after the new regulation from the Accreditation Council for Graduate Medical Education (ACGME) took effect. Patient handovers are defined as instances when one provider hands over the care of the patient to another provider (in this case, resident to resident).

For the eight Department of Medicine teams studied, each shift is a well-defined 13-hour period. The day team comes in at 6:30 a.m. and leaves at 7:30 p.m., at the latest. The night shift comes in at 6:30 p.m. and leaves the next morning at 7:30 a.m.

The study looked at about 4,000 adult non-intensive care unit patients on eight Vanderbilt University Hospital services, and tracked observed-to-expected mortality, adverse events, length of stay, 30-day hospital readmission, and also the number of rapid response team calls and code calls (escalations in care). They performed a rapid assessment, looking at about six months of data before and after the changes.

“This was a first look to assess whether the residents’ duty hour changes resulted in any unintended consequences. We found that despite this major restructuring, ultimately there was no adverse effect on patient care, which was reassuring,” said Sunil Kripalani, M.D., M.Sc., associate professor of Medicine and another study author. “As time goes on, we’ll want to re-evaluate with a larger group of patients.” **VM**

— NANCY HUMPHREY

:: medical center giving

INSPIRED BY PATIENTS, GOLDNERS SUPPORT SCHOLARSHIP INITIATIVE

In more than 50 years of clinical practice and teaching at Vanderbilt University Medical Center, Fred Goldner Jr., M.D., '48, trained countless medical students and residents who learned flawless diagnostic skills from the Vanderbilt-educated Nashville native.

But Goldner learned from them too.

Years later, pieces of wisdom that he learned from students, colleagues, his patients and their families have been published in a book, "Practice, Practice, Practice: Slices of Life from a Career in Medicine." The book draws from Goldner's collection of notes that were initially written on 300 pieces of paper and stuffed in his shirt or coat pocket—kept separately from his patient files.

The proceeds from the book will benefit the Fred Goldner, M.D. Scholarship that Goldner and his wife, Martha, established with a contribution of \$100,000. The Goldners' gift is part of the Scholarship Initiative for Vanderbilt University School of Medicine, an effort to increase the scholarship endowment.

"Medical education is extraordinarily dear and whatever help we can give is worthwhile. Remembering why I went into medicine in the first place makes me want to support the next generation of physicians," Goldner said.

Goldner joined Vanderbilt's clinical faculty in 1961. His Vanderbilt roots run even deeper, he says. In the 1930s, as an Eagle Scout, he served as an usher at Vanderbilt football games, and since then has become a longtime Vanderbilt basketball fan (as well as an avid Boston Red Sox fan).

The Goldners' son, Arthur, who died in 1988, was a 1983 graduate of VUSM. They have three surviving children and five grandchildren, and say that supporting scholarships for Vanderbilt medical students comes from their heart. "Since we have a child living in Costa Rica, we'd

like special consideration to be given to any scholarship applicant from that country. We see the need to support physician education from many angles," said Martha Goldner.

Goldner said his book could have focused on diagnosis and treatment available during his practice, "but what I wanted to write about is what my patients taught me. In many ways, the experiences of these 300 pieces of paper had made me hope that the people who read the book and certainly my children would be open to surprises every day. I realized I had the privilege of doing that, and I would hope for that privilege for everyone."

In his book, Goldner discusses everything from home remedies taught to him by his patients to the "everlasting hurt" of losing a son and the "disturbing effect" that racism and segregation had on him in the 1950s and 1960s.

Goldner discusses segregation in hospitals and doctors' waiting rooms and how he and his wife participated in sit-ins to end racial segregation at lunch counters in downtown Nashville in the 1970s. The integration of his waiting room was one of the first in the area. Goldner said that every day of his internal medicine practice was new and stimulating.

"Every day I'd be surprised. It could be a sad or a disappointing surprise, but it was a surprise. But mostly I was inspired by my patients, how they handled situations, how they responded to a diagnosis, what their families had to do," he said.

"The book was sort of a delightful idea," Martha Goldner said, "about what he learned in medicine and how he was able to serve people through medicine."

The Scholarship Initiative has a straightforward purpose: to grow the scholarship endowment so that every student accepted can choose Vanderbilt without concern for burdensome debt.

"Vanderbilt now competes head-to-head with the nation's most elite medical schools for the world's finest students, but some of those students are forced to choose other schools with more robust scholarship endowments. We are very

passionate about trying to raise more money for student scholarships, and we are very grateful to people like Fred and Martha Goldner who are so graciously giving to our Scholarship Initiative," said Jeff Balser, M.D., Ph.D., vice chancellor for Health Affairs and dean of VUSM.

The Scholarship Initiative is 60 percent of the way toward reaching its first three-year goal of \$10 million. Twenty-two students have received support from scholarships established during the effort.

"A doctor gets finished with medical school and is in so much debt paying off tuition. It just seems like this is an obstruction to his or her education," Goldner said.

For more information on Goldner's book or on the Scholarship Initiative, please call (615) 936-0230.

— NANCY HUMPHREY

Martha and Fred Goldner, M.D., '48.



DEDICATED TO MAKING A DIFFERENCE

During a tour 30 years ago of what is now the Vanderbilt Bill Wilkerson Center, Tom Flood witnessed an extraordinary event.

“What I saw and what I heard that day made a tremendous impression on me. I was so touched by my experience,” Flood said.

What Flood saw from the parent observation room was the impact of early intervention with children who have a variety of communication disorders such as hearing, speech and language problems.

A 2-year-old boy was led into the room that was full of children playing. Flood recalled how the boy’s eyes brightened upon entering the room. The toddler sat and watched another child playing with building blocks and began to mimic her.

“As he was taking the blocks, the little girl said to him ‘that’s mine,’” recalled Flood. “Then the little boy looked up at the little girl and said, ‘mine.’”

“It was the first time the boy had spoken. ‘Mine’ was his first word. His parents were standing right next to me at the one-way mirror and they burst into tears. Right then, I knew this was a place I would love to support.”

What began as a visit to learn more about the center for his company’s charitable giving program has grown into a life-long relationship with Vanderbilt.

Flood, who retired as the chief financial officer for Tractor Supply Company, continues his relationship with the Vanderbilt Bill Wilkerson Center today, having joined the advisory board in 1998. He was instrumental in the merger of the Bill Wilkerson Center with Vanderbilt in 1997 and has served as chair since 2002.

He joined the Canby Robinson Society Board to learn more about Vanderbilt’s medical education mission and goals in an effort to better assist in the growth and progress of the Vanderbilt Bill Wilkerson Center, more specifically the Mama Lere Hearing School, which teaches children with hearing loss to listen, read,



Tom and Vickie Flood visit with students of the Mama Lere Hearing School.

sing and talk while providing training for hearing and speech graduate students. It is this program that impacted Flood the most.

Flood’s passion for the Vanderbilt Bill Wilkerson Center is shared by his wife, Vickie. The Chicago natives moved to Tennessee 1979 and became connected with the center soon after. They have made transformational gifts to the Department of Hearing and Speech Sciences to help ensure the center’s progress.

“Giving is such a simple concept,” said Vickie Flood. “And more importantly,

we have taught our own children that it is possible to give without recognition. It’s really all about the joy in doing it and seeing the end result.

“That is the legacy we want to leave—instilling the gift of involvement and the importance of making a difference.”

Tom Flood agrees.

“It’s not just about the bricks and mortar,” he said. “It’s about the people and making an impact. It’s about what is going on inside the building.”

- JESSICA PASLEY

VANDERBILT BILL WILKERSON CENTER QUICK FACTS

- In 1949, Wesley Wilkerson, M.D., an ear, nose and throat physician in Nashville, created the Tennessee Hearing and Speech Foundation where children with hearing loss could learn to speak and communicate.
- In 1951, the Foundation opened a clinic named after Wilkerson’s son, Bill, as a memorial and tribute to the Wilkerson family.
- In 1966, the Bill Wilkerson Center launched an early intervention program for children with hearing loss. The program’s success as a parent-teaching model prompted plans for a permanent facility.
- In 1972, a model home training program for teaching parents how to work with their children who had hearing loss was established. Funded by the Justin and Valere Potter Foundation, the facility was named the Mama Lere Home after the affectionate term used for Valere Potter by her children and grandchildren.
- Upon moving into its new facility in Medical Center East in 2005, the Mama Lere Hearing School was established.
- In 1997, the Bill Wilkerson Center merged with VUMC. Known as the Vanderbilt Bill Wilkerson Center for Otolaryngology and Communication Sciences, the center was designed to enable medical practitioners, speech-language pathologists, teachers of the deaf and hard-of-hearing, audiologists, and rehabilitation therapists to work side by side to meet the needs of the community it serves.
- The center, led by Roland Eavey, M.D., and Anne Marie Tharpe, Ph.D., is internationally known for its graduate programs in Audiology and Speech Language Pathology and is ranked No.1 and No. 3, respectively, by the 2013 *U.S. News and World Report*.

A HEART FOR GIVING TO SUPPORT INNOVATION

In matters of giving, venture capitalist Robby van Roijen recommends following your heart, the same course he took in establishing Vanderbilt's first endowed fund in cardiac innovation.

"The thing I like about giving to Vanderbilt is that the money is actually going to producing something that will eventually make the world a healthier place," said van Roijen, founder and principal of Orlando-based TOX Financial.

His heart led him to Vanderbilt initially when his Orlando physician detected a faulty mitral valve. As the condition worsened, Robert Boswell, M.D., who trained at Vanderbilt, sent van Roijen for further testing to Benjamin F. Byrd III, M.D., a Vanderbilt professor of Medicine who specializes in echocardiography and adult congenital heart disease.

Byrd soon determined that van Roijen needed surgery to repair the valve. The

repair was performed more than five years ago by Michael R. Petracek, M.D., interim chair of Vanderbilt's Department of Cardiac Surgery.

Since the surgery, van Roijen, 74, a former Marine, swims a quarter of a mile every day, getting in longer swims on the weekends.

Before setting up the Robert van Roijen Discovery Science Fund, his previous philanthropy provided support for Michael Bestawros, M.D., to develop a prototype device to detect arrhythmias and atrial fibrillation and for Susan Eagle, M.D., associate professor of Clinical Anesthesiology, to develop a software application to display echocardiogram data on a smartphone or tablet.

While this is an exciting time for biomedical research, and cardiology research in particular, much more work is needed to leverage new technologies and translate new insights into patient care, said Thomas Wang, M.D., director of the Division of Cardiovascular Medicine.

"The generous support from Mr. van Roijen comes at an extremely important time," according to Wang. "The federal budget crunch and other economic uncertainties have led to significant reductions in the amount of funding available for basic, clinical and translational research. This is coming at a time when genomic and molecular technologies are opening new fields of investigation and presenting critical opportunities to advance our understanding of cardiovascular disease."

A key leader on Vanderbilt University Medical Center's Heart Advisory Council, van Roijen said he is "extremely intrigued" by innovations in medical research at Vanderbilt, especially with DNA.

"I like new inventions and venture capital," he said. "Giving money to Vanderbilt for new techniques and new procedures really appeals to me."

You might say it comes from the heart.

- JENNIFER JOHNSTON

ENDOWED CHAIRS

Thirteen Vanderbilt University School of Medicine faculty members named to endowed chairs were honored for outstanding academic achievements in the Spring during celebrations at the Student Life Center.

- William O. Cooper, M.D., Cornelius Vanderbilt Professor in Pediatrics
- Sergio Fazio, M.D., Ph.D., Cornelius Vanderbilt Professor in Medicine
- Haydar A. Frangoul, M.D., Carolyn Perot Rathjen Professor
- Kevin B. Johnson, M.D., Cornelius Vanderbilt Professor in Biomedical Informatics
- MacRae F. Linton, M.D., Dr. Stephen Schillig, Jr. and Mary Schillig Professor in Medicine
- Steven A. Webber, M.B.Ch.B., James C. Overall Professor in Pediatrics

- Ariel Y. Deutch, Ph.D., James G. Blakemore Professor in Psychiatry
- Fred S. Lamb, M.D., Ph.D., Cornelius Vanderbilt Professor in Pediatrics
- Kevin G. Osteen, Ph.D., Pierre Soupart Professor in Obstetrics and Gynecology
- Keith T. Wilson, M.D., Thomas F. Frist Sr. Professor in Medicine
- Roy Zent, Ph.D., Thomas F. Frist Sr. Professor in Medicine
- Carl W. Zimmerman, M.D., Frances and John C. Burch Professor in Obstetrics and Gynecology

In addition to honoring the chair holders, Richard McCarty, provost and vice chancellor for academic affairs, thanked the donors "past and present" who made the endowed chairs possible. "We celebrate today new

investment, as well the growth in previous investments, legacies if you will," he said.

"Because of the incredible management of our endowment by a number of vice chancellors for investments, we now have the pleasure of taking one chair and splitting it into two," McCarty said. "That has been something that has allowed for this increase in honors for our most distinguished faculty."

In August 2010, Chancellor Nicholas S. Zeppos announced a major university initiative to recruit and retain outstanding scholars and teachers.

As part of the initiative, he said the University would increase by 60 the number of endowed chair holders within two years.

FAMILY'S GENEROSITY SUPPORTS CANCER RESEARCH

Billy Webb knows every nook and cranny of Vanderbilt.

He knows the name of the young woman who sells him a no-whip iced mocha in the Courtyard Café on treatment days, the ladies who check him in at the front desk and the nurse who comes around to check his vitals.

Vanderbilt has been a huge part of his life, and not just since he was diagnosed with cancer. Billy was born in the hospital and studied at the University, following in the steps of his father, Jimmy, who played Vandy football and later served on the Board of Trust before his death from lung cancer in 2009.

Billy marched in his dress whites with the Naval ROTC unit as a student, and his Phi Delta Theta fraternity brothers are lifelong friends who rallied around him when he was diagnosed with multiple myeloma in 2010 and during an earlier cancer surgery in 2008. (He currently is in remission.) He's cheered on the Commodore football team through bad times and good.

Billy's son, William Vann Bartlett Webb Jr., was a student at Vanderbilt when he was diagnosed with a rare form of neuroendocrine cancer. He died 10 months later at age 21. Vann could have received treatment anywhere, his father said, but he wanted to be at his hometown hospital with extraordinary physicians like Jordan Berlin, M.D., Ingram Professor of Cancer Research.

The family established a discovery fund in memory of Vann, who still holds high school track records at Montgomery Bell Academy in Nashville. Support from that fund helped fuel a \$35,000 start-up grant for cancer research that eventually led to a \$900,000 grant from the National Institutes of Health. More recently, the family endowed the Nancy and William Webb Cancer Research Fund.



JOHN RUSSELL

Billy and Nancy Webb (BA '74) established a discovery fund in memory of their son, Vann.

"This type of funding drives novel research and creative ideas at an academic research institution and can lead to the type of innovation that helps us discover better treatments that can lead to longer and better quality lives for cancer patients," Berlin said.

Webb is passionate about funding research that he hopes one day will lead to cures and promote discovery of new medicines and treatments that ultimately will improve the quality of life for patients with cancer and their families.

"It's extremely rare these days that someone hasn't had cancer in the family of one sort or another," he said. "My view, having experienced the quality and benefit of treatment here firsthand, is that rather than giving to a more generic bucket, I'd like to help Vanderbilt continue to grow as a world-leading research and medical institution."

Jennifer Pietenpol, Ph.D., Vanderbilt-Ingram Cancer Center director and B.F. Byrd Jr. Professor of Oncology, said that support from funds like these is vital to collaborative, transformative cancer research.

"We draw on the strengths of the entire University, from the College of Arts and Science to basic and clinical departments in the medical school," she said. "The research funding from the Nancy and William Webb endowment allows us to continue to advance our science to the Clinic for more personalized therapies and cures for patients suffering from cancer. I can't thank the Webb family enough for their continuing support of the entire University and its mission."

Giving back to a familiar place that has seen him through good times and bad matters to Webb.

"I would love more than anything to see cancer treatment and cures progress," said Webb, "but even more, I would love to see it happen at my own school and in my own hometown."

- JENNIFER JOHNSTON



ANN H. PRICE, M.D.
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Dear Vanderbilt University Medical Alumni,

Congratulations VUSM Class of 2013

The Vanderbilt Medical Alumni Association (VMAA) proudly welcomed the newest members of our medical alumni family, the VUSM Class of 2013, at a Faculty Appreciation/ "Almost Alumni" Luncheon on May 8. I know each of you joins me in celebrating their present achievements as we now begin to eagerly anticipate learning of their success in future Alumni News/"Worthy of Note" sections of *Vanderbilt Medicine* magazine.

VMAA Host Program

More than 300 alumni now participate in our VMAA Host Program. Your willingness to participate in this program and provide support to our fourth-year class as they attend residency interviews is greatly appreciated. The interview cycle for the VUSM Class of 2014 will begin soon. To learn more about this program, please see medschool.vanderbilt.edu/alumni/hostprogram and to sign up to be a Host Program participant.

VMAA Open House in conjunction with VU Reunion 2013

Reunion 2012 was a huge success, thanks in large measure to a record number of Vanderbilt Medical Alumni participants. While we will not have a medical reunion in 2013, the VMAA cordially invites all those coming to campus for VU's undergraduate homecoming to join us for our VMAA Open House, Friday, Oct. 4, 2 - 4 p.m., Light Hall Student Lounge, 3rd Floor. Clifton Meador, M.D., '55, will join us and sign complimentary copies of his latest book, *Medical Detective Stories*, for the first 100 attendees.

VUSM Reunion 2014

Our next biennial VUSM Reunion is scheduled for the fall of 2014 in conjunction with VU's Homecoming festivities. We will advise all our special anniversary class members (classes ending in 3,4, 8, 9; Quinq Classes '64 and '65; and Quinq Plus classes 1963 and earlier) as soon as a date is available. For the first time in many reunion cycles, we will celebrate our class parties on Friday evening. Please see our website, www.medschool.vanderbilt.edu/alumni, for a preliminary Reunion 2014 schedule.

VMAA Board Welcomes New Member

The VMAA Board welcomed Amanda Meyer as the new Graduate Student representative in May 2013. Amanda is currently working on a Ph.D., in Molecular Physiology and Biophysics with an expected graduation date of 2015.

VMAA Recent Events

We extend a special note of appreciation to Drs. Jill (MD '96, VMAA Regional Representative) and George (MD '96) Hutton, who graciously served as our hosts for a Houston-area regional dinner on June 6. In addition, the VMAA has hosted spring events for our Vanderbilt Meacham (Neurological Surgery), Friesinger (Cardiology), Roentgen (Radiation Oncology), Luton (Psychiatry), and Orthopaedic Societies. We have also assisted with the 2013 Post-Doctoral Fellows Poster Symposium, our BRET Program's Ph.D. Qualifying celebration and supported our students' annual 5K Shade Tree Trot. We enjoyed a busy summer highlighted by the welcome picnic for our new Vanderbilt Medical House Staff in June.

Worthy of Note News

It is always great to hear from you. Please submit your "Worthy of Note" news for our next edition of *Vanderbilt Medicine* magazine. Send your news and photographs to medalum@vanderbilt.edu.

We hope to hear from you soon.

Best Wishes,

Ann H. Price

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

Phyllis Davidson Corbitt, M.D., '52, HS '52, retired from family practice in Wilmore, Ky., in February.

William Fleet, M.D., '58, and his family have a Vanderbilt connection that spans more than 60 years: brother-in-law, **Gordon Petty, M.D.**, '50; nephew, **Mike Maggart, M.D.**, '78; son, **William Fleet III, M.D.**, '90; and great-nephew, **Michael Maggart**, VUSM Class of '15.

Gerald Stone, M.D., '57, placed the Doctor of Medicine hood over his grandson David Clay (VU '09) during his graduation from the Ohio State School of Medicine. Stone and his wife, Lois, also attended the wedding of Clay and Nicole Poulin in Cincinnati.

60s

King Holmes, M.D., HS '64, received the 2013 Gairdner Global Health Award for his scientific contributions to the field of sexually transmitted diseases. Holmes is head of the University of Washington's Department of Global Health.

Richard Johnston Jr., M.D., '61, HS '63, received the Godfrey Oakley award, given to those who have made significant contributions in the field of birth defects, during the National Birth Defects Prevention Network annual meeting in Atlanta. Johnston is serving in his second year as a community member and adviser to the Medical Center Affairs committee of the Vanderbilt University Board of Trust.

Harold Moses, M.D., '62, HS '65, FAC, professor of Medicine and Pathology, acting chair of Cancer

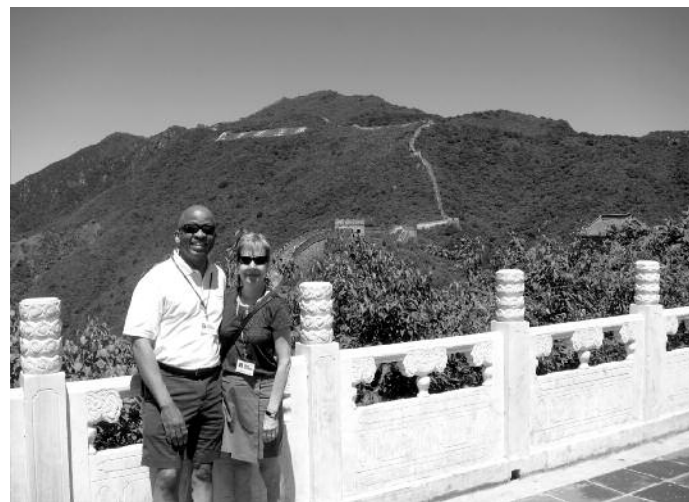
Biology and director emeritus of Vanderbilt-Ingram Cancer Center, has received the 10th annual American Association for Cancer Research Award for Lifetime Achievement in Cancer Research.

70s

Samuel Brody, M.D., '77, HS '80, has written the book "Voice of Experience: Stories about Health Care and the Elderly," in collaboration with his wife, Jane Brody, R.N., MSN, '79.

Stephen Hines, M.D., '77, HS '80, became certified in hospice and palliative care medicine by the American Board of Internal Medicine in December 2012. He continues his full-time faculty position in the internal medicine residency program at Methodist Dallas Medical Center and works part time as a team physician for VITAS Innovative Hospice.

John Neblett, M.D., '77, HS '83, was the featured physician spotlight in the *West Tennessee Medical News* in March. He is practicing in Jackson, Tenn., as



David Patterson, M.D., '85, (BA '81) and his wife, **Linda Young (BA '81)**, recently traveled through China on the VUAA/VMAA-sponsored trip.

part of West Tennessee Neuroscience and Spine, with a focus on adult neurosurgery.

Thomas Nygaard, M.D., '78, has been named chief medical officer of Centra Health. Nygaard was previously the chief operating officer of the Centra Medical Group (CMG), and transitioned to this new role on June 1.

Keith Nolop, M.D., '79, HS '84, FE '88, has been named chief medical officer for Kite Pharma, Inc., a clinical stage biotechnology company focused on developing engineered autologous T cell therapy (eACT) products for cancer. Nolop was previously senior vice president of development and chief medical officer at Plexxikon.

Michael Trueblood, M.D., '73, HS '76, recently retired from his orthopaedic surgery practice at Saint Francis Medical Center in Cape Girardeau, Mo.

Victoria Vetter, M.D., HS '75, a pediatric cardiologist, was awarded the prestigious Edward S. Cooper, M.D. Award at the American Heart Association of Southern Pennsylvania's annual Heart Ball. She is the first female and first pediatric cardiologist to receive this award.

80s

John Anderson, M.D., '86, HS '89, has been named president, Medicine & Science, for the American Diabetes Association.

Daniel Burch, M.D., '84, HS '87, MBA, was appointed as a new therapeutic area head for



Gary Hoffman, M.D., '78, recently returned from Guatemala on a surgical mission with son, Jordan, a second-year general surgery resident at Emory University, and a team of 90 people. Over the course of nine days, they performed 120 operations. Hoffman has also been nominated as a Southern California SuperDoctor for the second consecutive year, nominated by his peers in recognition of his contributions to the field of colorectal surgery.



Roanne Selinger, M.D., '98, and her husband Todd Patrick welcomed son Ryker Samuel Carey on Jan. 7. He joins big sister, Hayden, 4. Selinger is a gastroenterologist practicing in Bellevue, Wash.



Yaw Sarpong, M.D., '08, right, is pursuing an MBA in health care at George Washington University and is doing medical consulting while developing medical technology with Doctors on Demand. He is married to Carlene Pride-Sarpong.

Pharmaceutical Product Development LLC. He is a pharmaceutical and biotech research and development executive with 20 years of experience in general management, global drug development, global medical affairs and business development.

Kevin Churchwell, M.D., '87, FAC '10, has been named chief operating officer and executive vice president of Health Affairs at Boston Children's Hospital, effective Aug. 5. Churchwell was previously the CEO of Nemours/Alfred I. duPont Hospital for Children in Wilmington, Del. In his new dual role, he will have responsibilities for clinical and operating functions across Children's Hospital.

Patrice Colbert, M.D., '88, is a full-time pediatrician at St. Luke's Pediatric Care Center in St. Louis. She has four children, including one attending Vanderbilt. She has also been voted a Top Doc in the St. Louis area by Castle Connolly and is a Top Ladies of Distinction award recipient.

Michael Diamond, M.D., '81, HS '85, associate chair for the Department of Obstetrics and Gynecology at Wayne State

University School of Medicine, has been named chair of the Department of Obstetrics and Gynecology at the Medical College of Georgia and inaugural vice president for Clinical and Translational Sciences at Georgia Health Sciences University.

Billy Hutchings, M.D., '82, earned his doctorate in theology from Christian Life School of Theology in 2010.

Landon King, M.D., '87, has been appointed the Johns Hopkins School of Medicine's executive vice dean. He is also the David Marine Professor of Medicine and Biological Chemistry, director of the Division of Pulmonary and Critical Care Medicine, and vice dean for research.

Paul Kountz Jr., M.D., '84, Ph.D., '84, was inducted as a fellow in the American College of Radiology (ACR) at a formal convocation ceremony during the recent ACR Annual Meeting in May.

Richard Johnston, M.D., '85, was named chief of the Division of Orthopaedic Surgery at Missouri Baptist Medical Center.

Willie Ross, MPH, M.D., '87, was awarded the Samuel Goldstein Leadership Prize for teaching at Washington University.

Valerie Short, M.D., '85, works part-time at Jackson Hinds Comprehensive Health. She is pursuing a Master of Public Health degree in Health Education at the University of Southern Mississippi.

Mark Werner, M.D., '84, HS '88, has been selected president and chairman of the board for the American College of Physician Executives (ACPE). His one-year term as president began during the 2013 ACPE Annual Meeting in New York.



Gabriela Andrade, M.D., '12, and her husband, Brady Fish, welcomed son Evan Prentiss, who was born on April 27.

90s

Ahmed Badr, M.D., HS '97, FE '99, was named chair of the Department of Anesthesiology at West Penn Allegheny Health System, effective June 1. He was previously at the Texas Tech University Health Sciences Center.

Juli Horton, M.D., HS '90, FE '93, joined TriStar Centennial Medical Center as chair of the board of trustees. Horton is an infectious disease physician at TriStar in Nashville.

Dora Hughes, M.D., '96, joined the firm of Sidley Austin LLP as senior policy adviser in its government strategies group in Washington, D.C.

Scott Murkin, M.D., '92, is board chair for Hospice of Randolph County in Asheboro, N.C., having recently received certification in hospice and palliative care medicine.

Robert Steele, M.D., '93, was named president of Mercy Hospital in Springfield, Mo. Steele, who has been a practicing pediatrician for 15 years, is the

first physician in Mercy's history to step into the role of hospital president.

2000-

Muyibat Adelani, M.D., '08, is finishing his chief residency in orthopaedic surgery at Washington University in St. Louis. He will then become a fellow and clinical instructor in orthopaedic surgery at Stanford University.

Jose Alvarado, M.D., '09, HS '12, FAC, completed his general pediatrics residency at Vanderbilt in 2012. He splits his time between Nashville and Salisbury, Md., where he is the owner of a pediatric private practice that was his father's. He married **Maria Maguire, M.D., '10, HS '13**, in October 2010. Maguire will be starting a Master of Public Policy at Princeton University in July.



Daniel Koehler, M.D., '12, and his wife, **Susan**, welcomed a daughter, **Madeline Mae**, on May 1. Koehler completed his intern year in orthopaedic surgery at the University of Iowa while Susan keeps busy as a full-time mom and part-time pediatric physical therapist.

Gustav Blomquist IV, M.D., '04, and his wife, **Lisa**, welcomed daughter, **Liv Elizabeth**, on Nov. 30, 2012. She joins big brothers, **Gus** and **Lars**.

Jonathan Chrispin, M.D., '09, finished the Osler Internal Medicine residency program at Johns Hopkins in June 2012. He is in his first year of a cardiology fellowship at Johns Hopkins with a career plan to go into academic electrophysiology. He got married during his intern year to **Kimberly Gerdes** and they are expecting their first child in July.

Joseph Craft, M.D., HS '01, is the president-elect of the St. Louis Metropolitan Medical Society (SLMMS). With more than 1,200 physician members, SLMMS is the oldest medical society west of the Mississippi and predates the founding of the American Medical Association.

Jasminka Criley, M.D., HS '95, is present-elect and meeting chair for the California-Hawaii Society of General Internal Medicine.

Denis Foretia, M.D., '08, and his wife, **Lenora**, have set up a charitable foundation to spearhead their community work in Cameroon. The Denis and Lenora Foretia Foundation seeks to catalyze Africa's economic transformation by focusing on public health, small business and entrepreneurship, science and technology and the implementation of progressive policies.

Derek Feussner, M.D., HS '13, a resident in internal medicine, and **Ansley Sade** were married on Feb. 9, in Charleston, S.C.

Atia Jordan, M.D., '09, FE '13, completed a pediatric residency at Cincinnati Children's Hospital in June 2012 and finished her fellowship in sleep medicine at Vanderbilt in June.

Michelle Shepard Kiger, M.D., '11, married **William Kiger** on Aug. 12, 2012, at Lake Tahoe. They are eagerly waiting to hear where her



Meera Reddy, M.D., '13, and **Jesse Wright, M.D., '13** were married on April 20 in Nashville with both a Christian ceremony and a Hindu ceremony in the Music City Walk of Fame park.

first Air Force assignment will take them in June 2014.

Monika Kiripolsky, M.D., '04, completed a medicine/critical care internship at the University of California-Irvine, a dermatology and dermatologic surgery residency at the University of Illinois-Chicago, and a fellowship in cosmetic laser surgery. She recently joined **Obagi Skin Health Institute of Beverly Hills**.

Jason Mann, M.D., '08, Ph.D., '06, is the managing director of a new emerging market health care fund in Hong Kong, where he lives with his wife, **Natalie**.

Emily Neely, M.D., HS '06, is a board-certified endocrinologist at Saint Thomas Hospital in Nashville.

Mario Nieto, M.D., '08, is finishing a cardiovascular anesthesia fellowship at Texas Heart, and his wife **Kirsten Nieto, M.D., '08**, is finishing her chief residency year in internal medicine at Baylor College of Medicine. They both moved to Austin to private practice jobs in July.

Victoria Porter, M.D., '07, and **Paterne Sissinto, M.D.**, plan to marry in September. Porter is completing a fellowship in child and adolescent psychiatry at the University of Maryland Hospital in Baltimore.

Airron Richardson, M.D., '04, MBA '05, is the associate medical director of emergency medicine at the Methodist Hospitals in Gary, Ind., and Merrillville, Ind. He was selected as managing partner of Northwest Emergency Associates in January.

Nicholas Taraska, M.D., '06, joined the staff of Eastern Nephrology Associates and is caring for patients at the practice's Greenville, N.C., office.

Rachel Toney, M.D., HS '06, is engaged to **Jason Pettie**. Toney practices with Atlanta Gastroenterology Associates.

Ernest Ewers, M.D., '48, HS '54, FAC '09, died June 10. He was 88. He was preceded in death by his daughter, Deborah. He is survived by his wife, Marge; a son, William; and two grandchildren. Dr. Ewers, the son of medical missionaries, was born in China, finished high school in Somerset, Ky., and attended Emory University and Vanderbilt University. He served in the U.S. Navy and Marine Corps during WWII and the Korean War. Dr. Ewers was a professor emeritus of Clinical Medicine at VUSM, and served on the Medical School Board of Trustees for more than 30 years. One of the founders of the Canby Robinson Society, he served as its president from 1981-1983. He practiced internal medicine and cardiology for more than 60 years in Nashville.

Frank Bauer Jr., MD '48, died May 31. He was 88. Dr. Bauer is survived by his children, Julia, Cinde, David and Michael; six grandchildren and two great-grandchildren.

Bennett Caughran, M.D., '53, HS '58, died Jan. 23. He was preceded in death by his wife, Phyllis. He is survived by children, Becky, Philip and Fred; and five grandchildren.

Eugene Davidson, M.D., '56, FE '60, died Nov. 21, 2012. He was 81. He is survived by his wife, Judith; children, E. Taylor, Anne, Elizabeth and Helen; and six grandchildren.

Royce Dawson, M.D., '52, HS '58, died Dec. 2, 2012. He was 87. He is survived by his wife, Lucy; children, John, Lucy and Mary; four grandchildren and one great-grandchild.

William Dow, M.D., '71, HS '75, died Dec. 4, 2012. He was 66. He is survived by his partner, Ms. Daryl Walker.

Lewis Elliston, M.D., HS '75, FE '76, died Nov. 25, 2012. He was 69. He is survived by his wife, Julia; children, Carl, David, Mike, Paul and Danielle; and many nieces, nephews and grandchildren.

Roberta Friedman, Ph.D., '83, FE '85, died March 23. She was 56. She is survived by her husband, Paul; and children, Zach, Max and Benny.

James Green, M.D., '62, HS '68, died Jan. 12. He was 76. He is survived by his wife, Elisabeth; chil-

dren, Margaret, Bradford, Elisabeth; and four grandchildren.

James Growdon, Jr., M.D., '69, HS '73, FAC '00, died May 22. He is survived by his wife, Laura; children, Robert, James and Robyn; and five grandchildren.

William Hall, M.D., '48, died Sept. 8, 2012. He was 88. He is survived by family, friends, neighbors and colleagues.

Joseph Johnson, M.D., '43, died Dec. 1, 2012. He was 93. He was preceded in death by his wife, Alice. He is survived by children, Pete, Martha, David, Edwin and Marion; and 10 grandchildren.

Milnor Jones, M.D., '48, died Feb. 19. He was 87. He is survived by his wife, Miriam; children, Miriam, Camille and Jonathan; and five grandchildren.

John Kesterson, M.D., '43, HS '49, died Jan. 27. He was 94. He was preceded in death by his wife, Martha, and is survived by his children, Martha and Karen.

Verne Lanier Jr., M.D., '66, HS '71, died Jan. 24. He was 73. He is survived by his wife, Dean; children, Cecile, Melissa and Renee; and six grandchildren.

Gene Lasater, M.D., '48, died March 30. He was 88. He is survived by children Carole, Randy, Eric, Gene and J. Scott; eight grandchildren and four great-grandchildren.

Sheng Kai Lin, M.D., FE '88, died Feb. 21. He was 64. He is survived by his siblings, Sheng Hsien, Jan Cheng-Yu, Cheng Horng, Shenchuan, Shen-Shiou, Tzee-Yuan and many nieces and nephews.

Warren Lonergan, M.D., '40, died Feb. 26. He was 97. He was preceded in death by his wife, Allene, and is survived by children, Lynn, Douglas, Diane and Todd; and seven grandchildren.

James McComb, M.D., '74, died March 9. He was 64. He is survived by his wife of 42 years, JoAnne; and children, Andy and Erin.

Michael Moore, M.D., '89, died April 24. He was 50. He is survived by his wife, Gina; and children, Madeline, Zachary, Jack and Sarah.

Hoke Nash Jr., M.D., '54, died Dec. 11, 2012. He was 82. He is survived

by his wife, Sara; children, Kathryn, Andrew and Amy; and eight grandchildren.

Robert Ray, M.D., '55, died March 25. He was 83. He is survived by his wife, Hilda; children, Robert, William, Joseph and Elena; and five grandchildren.

John Schimmel, M.D., '73, died March 1. He was 66. He is survived by his wife, Connie; children, Ruth, Jay and Rob; and one grandchild.

John Thomison Sr., M.D., '44, HS '52, died April 21. He was 92. He was preceded in death by his wife, Elva, and is survived by children, John, Robert, Mary Ann and Elva; and five grandchildren.

David Wheeler, M.D., '85, died Nov. 26, 2012. He was 53. He is survived by his wife, Mindy; and children Sally and Samuel.



Joseph C. Ross, M.D., '54, died June 22, after a lengthy illness. He was 86.

Dr. Ross, who was professor of Medicine, Emeritus, and associate vice chancellor for Health Affairs, Emeritus, played a key role in many Medical Center initiatives during his years of service, including the establishment of the Department of Emergency Medicine and LifeFlight.

He was also the driving force behind banning smoking at VUMC, which became effective in 1989, and often served as a media spokesman for the Medical Center.

Dr. Ross earned an undergraduate degree at the University of Kentucky and graduated from Vanderbilt University School of Medicine in 1954. He focused his career on pulmonary disease, was a resident in Medicine at Duke and began his career in academic medicine at Indiana University, where he participated in research that helped lead to the Surgeon General's warning about smoking and health in the 1960s. He was internationally prominent in his specialty, and was elected president of the American College of Chest Physicians in 1978.

He served as medical director and chair of the Department of Medicine at the Medical University of South Carolina before returning to Vanderbilt in 1981 as professor of Medicine. He was persuaded by then Vice Chancellor Roscoe R. Robinson, M.D., to enter Medical Center Administration in 1982, where he served until gaining emeritus status in 1998.

Dr. Ross is survived by his wife of 61 years, Isabelle; children, Laura, Sharon, Jennifer, Mary and Jeff; and by 12 grandchildren and seven great-grandchildren.



Commencement 2013

1. Rishi Naik, M.D., Baldeep Pabla, M.D., Devin Patel, M.D., Ravi Patel, M.D., and Neil Bansal, M.D.

2. Van Nguyen, M.D., and family members

3. Suzanne Fox Alfano, M.D., and Lewis Lefkowitz, M.D., professor of Preventive Medicine, Emeritus

PHOTOS BY ANNE RAYNER

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Vanderbilt Medical Alumni Association Board of Directors

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The Scholarship Initiative for Vanderbilt University School of Medicine

The compassionate support modeled by the Vanderbilt medical community has left its mark on Michael Casner.

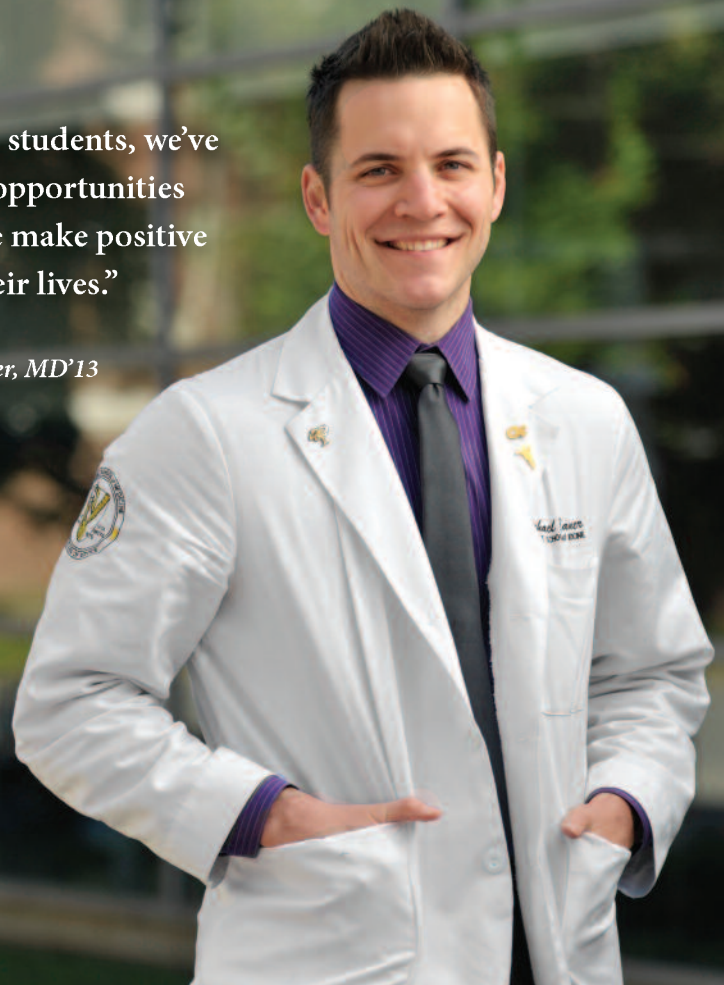
Casner, president of the Class of 2013, led the *Finish Together, Finish for Boston* effort at the Nashville marathon, encouraging runners to cross the finish line hand in hand. A marathoner himself, Casner, along with many of his classmates, thought this was an important display of unity.

As Casner enters an emergency medicine residency this summer, he remembers “the drive that so many of my classmates have to make a difference.”

Scholarship support helps students like Casner become leaders at Vanderbilt.

“As Vanderbilt students, we’ve had so many opportunities to help people make positive changes in their lives.”

— *Michael Casner, MD’13*



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.