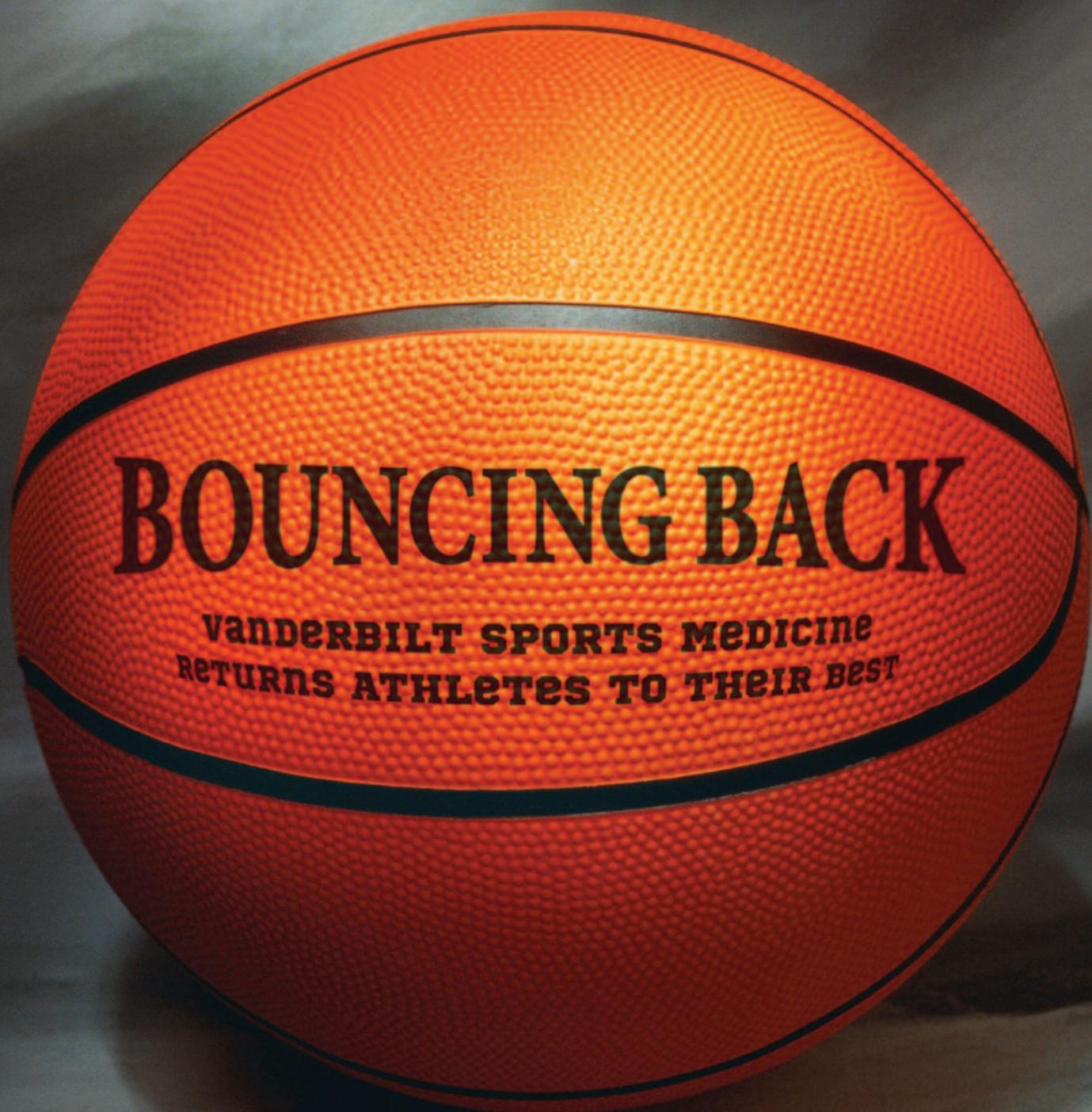


Vanderbilt **Medicine**

SUMMER 2012



HATS OFF!

Little Madeline Rose sits heads and shoulders above the Commencement crowd thanks to mom and new graduate, Leslie Meenderink, M.D. For more photos from May's Commencement, see the inside back cover.



ANNE RAYNER

VanderbiltMedicine

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Do you fancy yourself a photographer? If so, send us your best shot and we will choose one to publish in this space in each issue. Photos must be a minimum of 300 dpi and 4" x 6". Submit your digital photo to kathy.f.whitney@vanderbilt.edu.



:: on the cover

For 20 years, Vanderbilt's Sports Medicine division has cared for athletes of all ages, keeping them safe and getting them back to the game they love.



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VIDEO: Vanderbilt researcher studies autobiographical memory.

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ARTICLE: Nicotine may aid memory for some older adults: study.



JOE HOWELL

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

There could never be a more exciting time to be at Vanderbilt. While medicine in this country is undergoing a radical overhaul, we are boldly charting the course from a foundation of strength and timeless traditions. This issue of *Vanderbilt Medicine* will bring you timely information about people and programs bringing the nation exciting innovation in education, patient care and research.

The ability to lead at this critical time in our nation's history is built upon a foundation of extraordinary resources, and certainly the most important of these is our people. One of my primary responsibilities at VUMC is to help recruit the university's next generation of leaders – faculty, staff and students ever stronger and more diverse than their predecessors. To this end, we searched, recruited and appointed an unprecedented seven department chairs over the past year. These outstanding individuals will play a defining role in our future through the many faculty they will recruit, retain and develop, the students they will mentor, and the many new programs they will move us to create over the next decade. *(Please see the next page for details.)*

Suitable for fall, this issue's cover story is about our Sports Medicine division within the Department of Orthopaedics and Rehabilitation. Vanderbilt's program is a national leader in treating the diverse needs of athletes of

all ages from elementary school students through the professionals. The growing program has been awarded several highly-competitive peer-reviewed NIH clinical research awards, allowing our faculty, students and patients to experience and develop the most cutting-edge orthopaedic therapies.

Many other exciting developments, from the launch of a revolutionary medical school curriculum (Curriculum 2.0), to an innovative collaboration between the School of Medicine and the Owen Graduate School of Management, are profiled in this issue and are representative of the rich tapestry of daily life here at VUMC.

Finally, I encourage you to read the touching profile about one of Vanderbilt's most unique research partnerships with H.K. Derryberry. H.K. is a remarkable young man who possesses an exceptional autobiographical memory, thought to be the result of structural changes within his brain. His collaboration with our neuroscientists is revealing new insight into the mystery of working memory.

I hope you agree this issue offers a window into just a few of the many reasons the Vanderbilt University School of Medicine, nearly 140 years into its history, remains a rising star in American medicine. **VM**

VUMC WELCOMES NEW DEPARTMENT CHAIRS

BY JOHN HOWSER

Vanderbilt University Medical Center searched, recruited and appointed an unprecedented seven department chairs over the past year. Each was chosen for his broad academic accomplishments and substantive leadership experiences.

Walter Frontera, M.D., Ph.D., a member of the Institute of Medicine of the National Academy of Sciences and former Dean of Medicine at the University of Puerto Rico, has joined Vanderbilt to launch a new Department of Physical Medicine and Rehabilitation (PM&R). The founding chair of PM&R at Harvard, Frontera is a world leader in physiatry, the branch of medicine that deals with not only the prevention, diagnosis and treatment of disease and injury, but rehabilitation from resultant impairments and disabilities. The first academic department to be formed in VUMC in nearly half a century, PM&R will become the home for education and innovations in rehabilitation across a wide range of disciplines, transforming the lives of patients, young and old.

Sam Santoro, M.D., Ph.D., already a senior leader at VUMC as chair of Pathology, became chair of an expanded Department of Pathology, Microbiology and Immunology. He is the Dorothy Beryl and Theodore R. Austin Professor of Pathology. This new, larger department, merged from outstanding faculty and programs in the former departments of Pathology and Microbiology and Immunology, is ideally positioned with both the scale and faculty excellence for world leadership, leveraging the clinical and basic science in these highly synergistic disciplines.

Kevin Johnson, M.D., also a member of the Institute of Medicine, became chair of the Department of Biomedical Informatics, the largest and most prestigious department of its kind in the world. Johnson, a Cornelius Vanderbilt Professor and an innovator in the science of information technology, will play a critical role in helping tie together basic and clinical research activities across all departments and centers at Vanderbilt in ways certain to fundamentally transform biomedical science and health care.

Four additional chairs are joining Vanderbilt this academic year. Reed Omary, M.D., a research and clinical leader in interventional radiology and vice chair at Northwestern University, will become chair of Radiology and Radiological Sciences in the fall. John York, Ph.D., a Howard Hughes Investigator at Duke University and world leader in inositol phosphate signaling and bipolar disease, will lead the No. 1 NIH-rated Department of Biochemistry. Ian Macara, Ph.D., the Harrison Distinguished Professor at the University of Virginia and a world leading cancer biologist, will be chair of Cell and Developmental Biology, the basic science department that hosts one of Vanderbilt's largest Ph.D. programs in the biomedical sciences. Steven Webber,

MBChB, MRCP, chief of Pediatric Cardiology at the University of Pittsburgh, begins September as chair of Pediatrics and Pediatrician-in-Chief at the Monroe Carell Jr. Children's Hospital at Vanderbilt. Already No. 3 in the nation in NIH awards, the Department of Pediatrics will continue to experience a remarkable expansion as the Children's Hospital becomes ever more influential in child health throughout the region and nation. **vm**



WALTER FRONTERA,
M.D., Ph.D.



IAN MACARA, Ph.D.



REED OMARY, M.D.



STEVEN WEBBER, MBChB,
MRCP



JOHN YORK, Ph.D.



SAM SANTORO,
M.D., Ph.D.



KEVIN JOHNSON, M.D.

Common antibiotic found to pose increased heart risk

Vanderbilt researchers have discovered a rare, but important risk posed by the antibiotic azithromycin, commonly called a “Z-pack.”

The study found a 2.5-fold higher risk of death from cardiac arrhythmia in the first five days of taking azithromycin when compared with another common antibiotic or no antibiotics at all.

Wayne A. Ray, Ph.D., professor of Preventive Medicine, and C. Michael Stein, M.B., Ch.B., the Dan May Professor of Medicine and professor of Pharmacology, collaborated on the research published in the May 17 edition of the *New England Journal of Medicine*.

Azithromycin is one of the most popular treatments for bacterial sinus infections and bronchitis.

Although it was previously considered to carry little-to-no cardiac risk, the researchers noted well-documented reports in the published literature as FDA database reports linking azithromycin with serious arrhythmias. Based on this evidence, the Vanderbilt researchers sought to examine cardiovascular deaths in patients who were taking the antibiotic.

Tennessee Medicaid (TennCare) patient records were examined from 1992 to 2006.

About 348,000 recorded prescriptions of azithromycin were compared with millions of similar records from people who were not treated with antibiotics or were treated with other antibiotics.

The primary comparison was with amoxicillin, an antibiotic that is considered to be heart safe and is used in similar clinical circumstances as azithromycin. **VM**

- CAROLE BARTOO



Junior League gift boosts sickle cell, asthma fight

In a special event celebrating the Junior League of Nashville's 90th year of support to children's health in the Nashville community and its longstanding partnership with Vanderbilt University, the organization committed \$1.5 million to the Monroe Carell Jr. Children's Hospital at Vanderbilt to care for children with sickle cell disease and asthma.

The funds will help establish the Junior League Sickle Cell Disease and Asthma Program, a medical home model treatment facility to be located at the Matthew Walker Comprehensive Health Center in Nashville.

"The Junior League has been in partnership with Children's Hospital from the very beginning. This generous commitment will benefit the health of children throughout Middle Tennessee and is both gratifying and highly consistent with the organization's long-standing history for supporting high impact programs and services," said Jeff Balsler, M.D., Ph.D., vice chancellor for Health Affairs and dean of the Vanderbilt University School of Medicine.

The innovative medical home model brings together physicians, nurse practitioners and nurse case managers from Children's Hospital and Meharry Medical College to provide family-centered care to the community. With support services, educational resources and personalized care available under one roof, the program will help reduce health care costs and improve access for patients who require long-term treatment.

"The Junior League has an outstanding track record of caring for children, both in the Nashville community and here at Children's Hospital," said Luke Gregory, chief executive officer for Children's Hospital.

Michael DeBaun, M.D., MPH, J.C. Peterson Professor of Pediatric Pulmonology, professor of Pediatrics and director of the Vanderbilt-Meharry-Matthew Walker Center for Excellence in Sickle Cell Disease, said many children with sickle cell disease often struggle with asthma, and this community-based program will create one standard of care for children battling these chronic illnesses.

"We are extremely grateful for the unwavering support of the Junior League of Nashville," said DeBaun. "The funds will help provide a new paradigm of family-centered care for an underserved and deserving population of children." **VM**

- JEREMY RUSH

Shyness study examines how brain adapts to stimuli

Shyness may be the result of deficits in two areas of the brain, new research from Vanderbilt University finds.

Extremely shy or inhibited individuals are typically slow to acclimate to new people.

The study, recently published in the journal *Social Cognitive and Affective Neuroscience*, found that individuals who identified themselves as inhibited may experience habituation failure — or the inability to adapt to new stimuli — in the amygdala and the hippocampus regions of the brain.

The researchers used functional magnetic resonance imaging (fMRI) to examine adults with either an inhibited or uninhibited temperament. Study participants were shown pictures of unfamiliar faces multiple times.

Individuals with an uninhibited temperament demonstrated habituation in both the amygdala and hippocampus. Their brain response increased when the faces were new but declined as they became familiar.

In contrast, individuals with an inhibited temperament failed to habituate across repeated presentations of faces, meaning familiar faces triggered the same brain response as the unfamiliar.

“This failure to habituate provides a novel neural mechanism for understanding the shy and cautious behavior that is characteristic of inhibited individuals,” said Jennifer Urbano Blackford, Ph.D., assistant professor of Psychiatry and Psychology and lead author of the study.

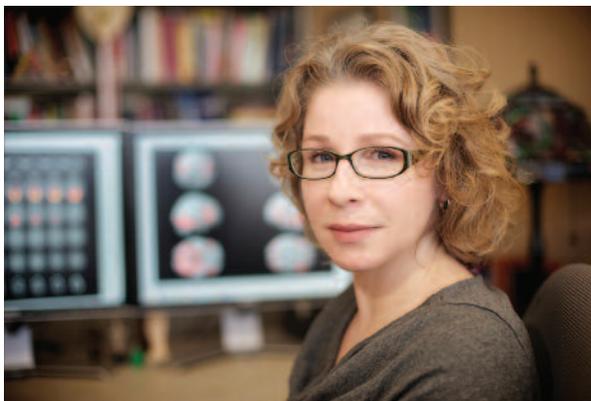
“Individuals who familiarize more slowly may find encounters with new people overwhelming and thus avoid new social experiences, whereas those who adjust more quickly may be more likely to seek novel social experiences.”

Blackford and colleagues think that this failure to habituate may be a key cause of social anxiety disorder, the persistent, chronic fear of a specific social situation. Social anxiety disorder is the second most common anxiety disorder and affects approximately one in 10 adults in the United States.

She is continuing her research by studying inhibited children to see if this brain deficit is present early in development.

Blackford conducted this research with Amil Allen, fourth-year Vanderbilt University School of Medicine student; Ronald Cowan, M.D., Ph.D., associate professor of Psychiatry; and Suzanne Avery, third-year Neuroscience doctoral student. **VM**

— JENNIFER WETZEL



Jennifer Urbano Blackford, Ph.D.

Chronic disease fight gets \$18 million boost

Vanderbilt University Medical Center and its affiliates have received preliminary notice of a three-year, \$18.8 million grant to improve chronic disease management for patients with high blood pressure, heart failure and diabetes.

The Health Care Innovation Award from the Centers for Medicare and Medicaid Services (CMS) is one of the largest federal research grants awarded to VUMC investigators. The funding will support the implementation and evaluation of MyHealthTeam (MHT), a model of team-based care that couples collaborative health care teams with health information technology in order to improve control of chronic conditions.

Specifically, the initiative aims to help patients improve control of their blood pressure and blood glucose, reduce hospital re-admissions, emergency room visits and reduce the cost of care.

The care management model is based on best practices from Vanderbilt Affiliate hospitals and the MyHealthTeam@Vanderbilt initiative. The new technologies to support care management are derived from a range of Vanderbilt clinical technologies that have been successfully applied across a spectrum of inpatient, outpatient and regional efforts designed to coordinate care.

Pioneering national studies and Vanderbilt experience show that better care management improves the health of patients with a range of chronic illnesses.

These improvements translate into fewer serious complications, including heart attack and stroke and fewer trips to the clinic, hospital and emergency room. This, in turn, lowers clinic wait times and improves access for other patients in need of acute care.

The investigators estimate the project will result in health care savings of \$38 million, including a savings of \$27 million to CMS. **VM**

— MELISSA STAMM

VU to investigate deep brain stimulation for depression

Vanderbilt University Medical Center is one of approximately 20 centers in a nationwide clinical study investigating the use of deep brain stimulation (DBS) as an intervention for patients with major depression.

BROADEN (BROdmann Area 25 DEep brain Neuromodulation) is the first randomized clinical research study to investigate DBS as an intervention for patients diagnosed with unipolar major depressive disorder (excluding bipolar disorder) who have not improved after multiple treatments.

DBS is a therapy that uses mild pulses of current to regulate specific areas of the brain, much like a pacemaker uses pulses of current to regulate the heart.

In this study, stimulation is being delivered to an area of the brain known as Brodmann Area 25, which is believed to function differently in people with major depression and appears to be overactive when people are profoundly sad and depressed.

Vanderbilt was chosen to participate in this study, which builds on the work of a research team from the University of Toronto led by Helen Mayberg and Andres Lozano, because of its extensive experience with various forms of neuromodulation and in treating psychiatric illness.

Patients enrolling in the study must be willing to transfer psychiatric care to Ronald Salomon, M.D., associate professor of Psychiatry and the principal investigator for the study at Vanderbilt, during the course of the 14-month study.

Once the study has been completed, patients will have the option to either participate in a long-term follow-up study, return to the care of their referring psychiatrist while maintaining DBS programming-related care with a BROADEN study center, or have the DBS system removed.

Participants must be between 21 and 70 years old, with the onset of the first episode before age 45, and currently be diagnosed with major depressive disorder. **VM**

- CRAIG BOERNER



Melanoma patient Debra Johnson is examined by Debbie Wallace, APRN, during a follow-up visit.

Melanoma drug nearly doubles survival rates

Investigators from Vanderbilt-Ingram Cancer Center and 12 other centers in the United States and Australia have found that a new drug for patients with metastatic melanoma nearly doubled median overall survival.

More than half of patients who were treated with the novel drug vemurafenib, known commercially as Zelboraf, responded to treatment and experienced an impressive median overall survival of nearly 16 months — far longer than the typical survival of just six to 10 months for patients whose melanoma has spread beyond the initial tumor site.

Results from the Phase II trial were published in the *New England Journal of Medicine*.

"This study confirms what we have discovered in our earlier trials. Many of our patients are exhibiting a strong, immediate response to this drug and some are living significantly longer, with manageable side effects," said Jeffrey Sosman, M.D., director of the Melanoma and Tumor Immunotherapy Program.

Approximately half of all patients with metastatic melanoma — the most deadly form of skin cancer — have a BRAF V600 mutation in their tumor. Vemurafenib is an FDA-approved oral drug which works as a kinase inhibitor of the BRAF V600 mutation.

While vemurafenib induced clinical responses in a significant number of BRAF-positive patients when it was approved last year, the initial clinical trials had not followed patients long enough to determine overall survival.

A total of 132 patients with stage IV, BRAF-positive melanoma were enrolled in the Phase II trial. All of the patients had received at least one form of systemic treatment before enrollment in the trial.

Forty-seven percent of patients had a partial response to the drug and 6 percent exhibited a complete response, for an overall response rate of 53 percent.

The study is the first to confirm the durability of the response. **VM**

- DAGNY STUART

GENETIC TESTING GUIDES PRESCRIPTIONS

BY BILL SNYDER

Since it was launched two years ago, a clinical decision-support program developed at Vanderbilt University Medical Center has tested more than 7,800 patients for genetic variations that affect responses to several commonly prescribed drugs.

Genetic variations affecting the anti-platelet drug clopidogrel (Plavix) and the cholesterol-lowering drug simvastatin (Zocor) currently are reported in patients' electronic health records, and doctors are notified if they prescribe either drug to patients with known genetic variants.

During the next year, variations that affect responses to several other drugs, including the anti-coagulant warfarin, will be added to electronic health records under the program, called PREDICT (Pharmacogenomic Resource for Enhanced Decisions in Care and Treatment).

While the impact of the program on clinical outcomes is not yet known, Josh Peterson, M.D., MPH, assistant professor of Medicine and Biomedical Informatics, estimated that genetic testing conducted to date has helped avoid severe gene-drug interactions in hundreds of patients.

A much larger data set will be required to "convince us and the rest of the world that this is the way to prescribe medicine," said Dan Roden, M.D., assistant vice chancellor for Personalized Medicine, during a "PREDICT Town Hall" held at the Medical Center in June.

The program's potential value is huge, said Joshua Denny, M.D., MS, assistant professor of Biomedical Informatics and Medicine. In a study of nearly 53,000 Vanderbilt outpatients, 65 percent had been prescribed drugs with known genetic interactions.

Using genetic testing to guide prescribing for these patients could avoid an estimated 383 severe adverse drug events over five years, he said.

In the case of clopidogrel, which is frequently given to prevent formation of blood clots after catheterization or stent procedures, about 20 percent of patients carry a specific genetic variation that prevents them from adequately responding to the drug. As a result, they're at higher risk for heart attack or stroke.

In 2 percent of patients who carry another genetic variation, simvastatin is associated with an increased risk of muscle toxicity and possible kidney damage.

In both cases, giving physicians genetic information in advance can help them determine whether their patients should be prescribed a different dose or drug.

Vanderbilt is "well-positioned" to pioneer this new way of prescribing medicine, Roden said, because of its strong, 49-year-old Clinical Pharmacology program and major investments in



biomedical informatics and genome science that have been made by the university since the 1980s.

In addition, Vanderbilt is the recipient of a Clinical and Translational Science Award (CTSA), which recently was renewed for another five years for \$46 million. The award, from the National Center for Advancing Translational Sciences of the National Institutes of Health, is the university's largest single government research grant.

The CTSA is administered by the Vanderbilt Institute for Clinical and Translational Research (VICTR), which, since the initial award in 2007, has built an efficient framework for conducting biomedical research in partnership with Nashville's Meharry Medical College.

"The CTSA program has been a national experiment to improve the pace and efficiency of clinical and translational research across the country," said Gordon Bernard, M.D., associate vice chancellor for Research and senior associate dean for Clinical Sciences. "We believe it has been successful."

Through its contributions to PREDICT and to BioVU, Vanderbilt's massive DNA databank, for example, VICTR has aided the university's emergence as a major player in personalized medicine. **VM**

WEB LINK

For more information, about PREDICT and VICTR, visit mc.vanderbilt.edu/predictpdx and mc.vanderbilt.edu/victr/pub.

Debt of Gratitude

Scholarship Allowed Alum to Pursue His Passion

WRITTEN BY JESSICA PASLEY
PHOTOGRAPH BY LISA HELFERT

“To whom much is given, much is expected...”
Luke 12:48. The phrase is commonly included in graduation and other ceremonial events. But for David Patterson, M.D.’85, the passage is more than that.

It’s an adage that was preached to him throughout his childhood and has become a tenet by which he lives.

Patterson grew up in a large family in the small town of Franklin, Ky., about 50 miles north of Nashville. The youngest of 20 children, he came to Vanderbilt University in 1977 with a definite career in mind. He wanted to be a physician. He just wasn’t sure how he was going to accomplish it.

“I grew up in a small, segregated, Southern town without black physicians,” Patterson said. “I became excited about the chance to join the profession, help patients solve problems and boost the minority health care numbers. Diversity is extremely important for the best educational outcomes.”

Upon graduating from Vanderbilt University in 1981 with a bachelor’s degree in Chemistry, Patterson was offered many choices for medical school. He opted to stay at Vanderbilt.

“It really worked out for the best,” said Patterson of his decision to remain in Nashville. “At first I thought it would be

wise for me to change environments so that I could get another experience, but at the end of the day, it was one of the best decisions.

“Generous scholarship support allowed me to choose Vanderbilt. Without it, I would not have been able to attend medical school.”

Patterson was one of 149 students awarded the Justin Potter Medical Scholarship while at VUSM. The four-year scholarship (available from 1964-1994) provided full tuition, a small stipend and the chance of a lifetime – he was able to leave medical school with very little debt.

According to Vanderbilt records, the average graduating debt for all VUSM students in 2012 is \$140,500. The freedom from such a heavy financial burden allowed Patterson to pursue his passion and not let his debt determine his medical path.

“People are looking at the amount of debt they will incur and how to tackle it the fastest so that they can get started with their lives,” Patterson explained. “All

Nationwide competition is strong for underrepresented in medicine (URM) students, highlighting the need for scholarship support. Vanderbilt considers diversity in the broadest sense:

- URM’s are those populations underrepresented in the medical profession relative to their numbers in the general population, like African Americans, Hispanics, Native Americans and other Pacific Islanders.
- Minorities include those groups underrepresented in the general population of the United States. This term would also include those in the URM group.
- Diversity includes all groups in the URM and minority categories as well as economic, rural, sexual orientation, regional and religious.
- The 2011 entering SOM class had 19 URM matriculants, or 18.2 percent of the incoming class.

of that plays a really big role in people’s decision-making processes.”

Patterson, an associate clinical professor of Medicine at both George Washington University Medical Center and Georgetown University Medical Center, has been a partner in an internal medicine practice in Washington, D.C. for 23 years.

Chosen by his peers as one of Washington’s Top Doctors by

Washington Magazine, he is currently president of the Vanderbilt Medical Alumni Association Board, where he served as a regional representative for four years before being named president-elect in 2008. He will complete his tenure as president this fall. He is also the 2012 School of Medicine Reunion chair.

“When I look at my successes, whatever they are, a huge portion comes from my education as an undergraduate and graduate student at Vanderbilt,” he said. “I often remind residents that I am one of the people who is lucky to get to do what I do. It is rewarding to go to work every day.

“Our jobs are important and we are given a tremendous responsibility – not only to our patients but to those who come after us.”

With the strong support and encouragement of his wife, Linda S. Young, BA’ 81, the pair established a scholarship in honor of Patterson’s parents to celebrate their lifelong commitment to education.

“My parents, neither of whom had the opportunity for much in the way of a formal education, preached to all of us that – to whom much has been given, much is expected in return,” said Patterson. “I strongly believe in that and that we stand on the proud shoulders of those who have gone before us, making a way for us so that someday we may provide strong shoulders for the next generation.”

The Alice and V.K. Patterson Scholarship provides financial support for deserving medical students at Vanderbilt, especially those who are underrepresented in medicine (URM).

“Both of our families strongly believe in education,” Young added. “Our hope is that the scholarship will help people who are really smart and ambitious, but cannot afford medical school, go on to become doctors.”

The Pattersons’ gift helped to kick-start the Scholarship Initiative for VUSM. The purpose of the initiative is to grow the scholarship endowment to allow students to choose Vanderbilt regardless



DAVID PATTERSON, M.D.

of financial circumstances. It also targets reducing the amount of student debt upon graduation.

“At this juncture, the scholarship effort at Vanderbilt is very important in helping our graduates be the best they can be without the crushing debt that many face,” said Patterson. “I am biased, but the education we offer here is second to none. We have to

figure out ways to help students dramatically lower and eliminate debt.

“I hope that others are encouraged to participate in this scholarship effort at whatever level of giving seems appropriate. Every donation counts.” **VM**

WEB LINK

To learn more about VUSM’s Scholarship Initiative, please visit vanderbilthealth.org/MDscholarship.



Vanderbilt Commodore Christina Foggie suffered from a concussion and an ankle injury her freshman year, but thanks to the care she received from Vanderbilt Sports Medicine, she enters the 2012-2013 season in good health.

BOUNCING

BACK

VANDERBILT UNIVERSITY BASKETBALL PLAYER CHRISTINA FOGGIE, THE TOP SCORER, MALE OR FEMALE, AT HER NEW JERSEY HIGH SCHOOL AND THE TOP-RATED RECRUIT, CAME INTO HER FRESHMAN SEASON IN 2010 DOING ALL IT TOOK TO MAKE PLAYS, TAKING THE INEVITABLE BUMPS AND ELBOWS FROM HER OPPONENTS.

AT THE SIXTH GAME OF THE SEASON AT BOWLING GREEN STATE UNIVERSITY IN OHIO, THE COMMODORES TRAILED BY 12 AT THE HALF, BUT BROUGHT IT WITHIN THREE POINTS WITH 14 MINUTES TO GO. WITH NINE MINUTES TO GO, FOGGIE'S SEASON TOOK AN UNIMAGINABLE TURN.

WRITTEN BY **LESLIE HILL**
PHOTOGRAPH BY **JOE HOWELL**

HIT BY a SCREEN ON DEFENSE,

she fell to the hardwood and was knocked unconscious. As the packed court went silent, Vanderbilt athletic trainer Michele Loftis immediately rushed to assist Foggie, who appeared to have a seizure. Loftis called for a spine board as a precautionary measure.

Back in Nashville, Alex Diamond, D.O., MPH, assistant professor of Orthopaedic Surgery and Rehabilitation and Pediatrics and the women's basketball team physician, knew it was bad news when he saw Loftis' phone number appear on his cell phone. As Loftis rode in the ambulance with Foggie, Diamond called ahead to the hospital to request tests and scans, and then consulted with physicians as the results came in.

With the possibility of spine fracture or brain bleed, the concussion diagnosis was a relief but still had major implications for Foggie, both as an athlete and a scholar. The Vanderbilt Sports Medicine division would play a key role in returning her to the court and the classroom.

Striking a Balance

The Vanderbilt Sports Medicine division and its team of physicians, nurses, athletic trainers and physical therapists care not just for college athletes like Foggie, but for anyone seeking an active lifestyle, from ultra-marathoners to backyard gardeners. Knee and shoulder injuries are the most common, but treatment is also given for injured ankles, hips, hands, necks, backs and concussions.

Safety is the No. 1 concern, but must be balanced with not holding a player back unnecessarily, says Alex Diamond, MPH, D.O., the Vanderbilt women's basketball team physician.

With six clinics throughout Middle Tennessee and Western Kentucky, Vanderbilt Sports Medicine reaches a large portion of the general population. They also care for all high school athletes in Davidson and Williamson counties, Vanderbilt and Belmont University athletes, the Nashville Sounds baseball team and Nashville Predators hockey team.

"We're busy. We start most days of the week with educational conferences, see patients in the clinic during the day and then cover sports teams in the evening and on weekends. We're a very busy practice, but it makes us good and makes us one of the leading Sports Medicine divisions in the country," Diamond said.

Sports Medicine is about finding the balance between ensuring athletes' health and letting them do what they love.

"Safety is our first concern no matter who you are or what team you're on," Diamond said, "but we don't want to make the opposite mistake of being too conservative and holding players back.

This is their passion and what they've worked their whole life for. It's a balancing act to know what is best for them."

One of the most important new resources is the Vanderbilt Sports Concussion Center, a joint venture between the Vanderbilt Orthopaedics Institute and Vanderbilt Neurosciences Institute, to give the same state-of-the-art concussion care to all athletes, from grade school to the pros.

A return from a concussion is a deliberately slow process because coming back too fast can worsen symptoms, and another concussion before the brain is healed can be devastating.

"A brain injury is like any other injury in that it needs time to heal," Diamond said. "An athlete first has to tolerate school and regular life, and then we'll slowly step them back into activity."

For Foggie, this meant sitting on the sidelines. Her concussion was just the first of several incidents in a year plagued by injury. With another concussion in



JOHN RUSSELL

SPORTS CONCUSSION CENTER

Pre-concussion baseline tests available to community athletes

January during practice and an ankle that kept locking up, trainer Michele Loftis constantly had her eye on Foggie.

“She’s one of those kids you joke about keeping in a bubble. I always saw her after practice with something wrong,” Loftis said. “It was hard to see her on the sidelines because I could tell she wanted to be in. She’s a tough kid.”

Indeed, ‘aggressive’ is a commonly used word to describe Foggie, who felt the after effects of her injury for several months. “I wasn’t sure if I would ever get back to normal, not just for sports but for everyday life. I played the rest of the season but never felt right,” she said.

In the off-season last summer, Foggie’s headaches and short-term memory loss finally lifted and she had arthroscopic surgery to clear some scar tissue in her ankle that had built up from repeated sprains, the non-invasive procedure requiring just a few days of rehab.

Finally feeling healthy going into her sophomore season last fall, Foggie was determined to play in every game but never expected the amazing success she would have. She led the Southeastern Conference in scoring, averaging 17.9 points per game and was named First Team All-SEC by the Associated Press.

Game Changer

The 20-year history of Vanderbilt Sports Medicine is a story of growth. When Kurt Spindler, M.D., director of Vanderbilt Sports Medicine, arrived in 1991, he was just the second faculty member in the department with about 1,100 annual patient visits. Today there are 14 faculty, more than 40,000 annual visits and \$1.5 million in research funding.

The Sports Medicine field has also changed rapidly, with technical innovations keeping more athletes in the game. In the 1980s, an ACL tear was a career-ending injury, but today, with advances in minimally-invasive arthroscopic surgery, athletes are back in a matter of months.

Spindler, Kenneth D. Schermerhorn Professor of Orthopaedics and

The pre-concussion baseline testing for community recreational athletes includes a computerized assessment of factors including reaction time, memory and attention span.

The Vanderbilt Sports Concussion Center is now offering pre-concussion baseline testing to all community recreational athletes, in advance of many high-impact seasonal sports resuming this fall.

Testing includes the computerized ImPACT (Immediate Post-Concussion Assessment and Cognitive Testing) test, a balance assessment and an individual neurologic history.

“This gives our physicians a snapshot of your baseline brain function,” said Andrew Gregory, M.D., associate professor of Orthopaedic Surgery and Rehabilitation. “Then if you have a concussion, we can compare your current function to know when you are back at that baseline and it is safe to return to activity.

“It allows us to compare your brain function directly to you, not to an average of people across the country. Each concussion should be handled on an individual basis, and you want that level of personalization to know when your brain has healed,” Gregory said.

This was previously only offered to high school, college and professional athletes on teams covered by Vanderbilt Sports Medicine, but is now being made available to any adults and adolescents ages 12 and older.

“This is geared toward anyone in recreational sports, but especially contact sports like football, hockey, rugby and soccer, and it is important to have the test done before there is an injury,” Gregory said.

The ImPACT test is a 20-minute computerized test of factors including reaction time, memory and attention span.

It also gathers data on a patient’s physical char-

acteristics, concussion history and neurological profile, including history of disorders that can affect recovery from concussion such as learning disabilities, attention deficit disorder, dyslexia and autism.

One exercise asks participants to remember a word list and recall those words later. Another requires participants to press a certain key depending on the shape shown on screen.

Testing is offered at three clinic locations: The Vanderbilt Orthopaedic Institute on Vanderbilt’s main campus, the Vanderbilt Bone and Joint Clinic in Franklin, and Vanderbilt Orthopaedics at Mt. Juliet.

Call the Vanderbilt Sports Concussion Center hotline at 875-VSCC to schedule an appointment. Out of pocket cost is \$50 for the test.

- LESLIE HILL

Rehabilitation, points to arthroscopy and the MRI as major game-changers in the specialty.

“Arthroscopy dramatically changed Sports Medicine because you could get into the joint and get to the issue with lower morbidity, which means the patient gets back faster,” he said. “The MRI has

allowed us to appreciate damage that we couldn’t detect on plain X-rays or even on physical exam. Physical exam of patients can lead you in the right direction, but especially in the shoulder, it’s not reliable to differentiate between which anatomic structure is torn. MRI lets you be positive about the injury.”



JOE HOWELL

Under the direction of Kurt Spindler, M.D., the Sports Medicine division has 40,000 annual visits and \$1.5 million in research funding.

that values research and innovation.

“One of the things we’re most proud of is we have trained a lot of the future NIH researchers and received the highest research awards,” Spindler said. “If you asked everybody in the country who is the best in clinical outcomes sports medicine research, I think we would be named in everyone’s pool.”

There are four major multi-center clinical studies currently under way, three of which are NIH-funded (see sidebar on next page).

“These studies are designed to guide clinical practice, and there are no equal studies to these in the world,” Spindler said. “They set up predictive models, so if your son or daughter tears their ACL and you want to know their prognosis after it gets fixed, we can predict that. It really is individualized or personalized medicine.”

The Trusted Trainers

Michelle Johnson, A.T.C., often feels like a second mom to the hundreds of athletes she cares for at John Overton High School. As the school’s sole athletic trainer, she spends every afternoon rehabilitating injured students, taping ankles and icing sore shoulders. During games, she paces the sidelines, ready to offer medical care or motivation.

Athletic trainers like Johnson, employed by Vanderbilt Sports Medicine, are stationed at every public high school in Davidson and Williamson counties and some private schools – 27 in all – at no cost to the school district.

“Less than half of the high schools in America have athletic trainers, and we’re fortunate that Vanderbilt is willing to provide that community support,” said Mitch Bellamy, A.T.C., assistant director of Sports Medicine. “Today’s kids are all bigger, stronger and faster, and the collisions

But Spindler says Sports Medicine physicians always have to respect the biological clock.

“There is a timeframe for healing of tissues, whether it’s muscle, tendon or bone. People want a quick fix but things don’t always heal quickly. We just put everything in position to heal, and it’s up to biology to do the rest.”

Spindler experienced first-hand the limits of the early years of Sports Medicine when he tore a muscle during a high school football game in 1975, and it

led to swelling that cut off a nerve in his leg. He asked his orthopaedic surgeon what he needed to do to play football again, and when he completed those steps, the doctor still said he couldn’t play.

“I was 17 years old, pretty wild at that age, and my father thought I was going to strangle the doctor, but I was calm. I said, ‘Thank you, I’ll send you my clippings.’”

Spindler decided to make a career of keeping athletes on the field and has built a Sports Medicine division at Vanderbilt

“THERE IS A TIMEFRAME FOR HEALING OF TISSUES, WHETHER IT’S MUSCLE, TENDON OR BONE. PEOPLE WANT A QUICK FIX BUT THINGS DON’T ALWAYS HEAL QUICKLY. WE JUST PUT EVERYTHING IN POSITION TO HEAL, AND IT’S UP TO BIOLOGY TO DO THE REST.”

THE OSTEOARTHRITIS EPIDEMIC

As the massive Baby Boom generation advances in age they're marching forward on increasingly creaky knees, and every crack, click and pop is an audible reminder of the growing impact that treating osteoarthritis will have on the U.S. health care system for decades to come.

Osteoarthritis, degenerative arthritis and the joint replacements that sometimes follow, already constitute a top 5 health expenditure, estimated at nearly \$14 billion per year by the Agency for Healthcare Research and Quality. Currently, more than 20 million people in the United States need non-operative management for osteoarthritis, and nearly 1 million will have joint replacement surgery.

Those figures are expected to double over the next 20 years.

"There is an onslaught coming of people who are going to need joint replacements," said Kurt Spindler, M.D., Kenneth D. Schermerhorn Professor of Orthopaedic Surgery and Rehabilitation at Vanderbilt.

"No matter what we do, joint replacements are going to go up, and we need to meet these needs by increasing capacity and better managing outcomes earlier on."

As with many chronic conditions, prevention and early diagnosis are the keys to improving osteoarthritis-related outcomes and reducing or delaying the number of surgical procedures, such as arthroscopic ligament, cartilage and meniscus repair as well as joint replacements.

It's here where Vanderbilt truly shines, thanks to its leadership in several multi-center prevention and treatment studies and the institution's commitment to evidence-based medicine.

- The Multicenter Orthopaedic Outcomes Network (MOON), led by Spindler, is a longitudinal study of 2,500 patients who have had anterior cruciate ligament (ACL) reconstruction to identify predictors of successful reconstruction.

According to Spindler, these patients offer a good study model, as the changes seen in the knee following ACL injury mimic the changes seen in degenerative arthritis, only they occur much more rapidly. Also, knee trauma is a primary risk factor for developing arthritis later in life.

- Vanderbilt is also taking part in the NIH-sponsored MeTeOR trial, which involves eight centers and is led by Jeffrey Katz, M.D., co-director of the Brigham Spine Center at Brigham and Women's Hospital in Boston. This study is examining the benefits of arthroscopic surgery vs. rehabilitation for people over age 45 who have both arthritis and a tear of the meniscus.

Spindler said the results of this study, due out within the next year, will play a role in determining Medicare reimbursement rates for knee arthroscopy in the future.

- Frank Harrell, Ph.D., chair of Vanderbilt's Department of Biostatistics, has developed a statistical model to predict outcomes following ACL surgery. Using characteristics such as age, body mass index, smoking history, mechanism of injury and activity level, Harrell's model can predict — for individual patients — the risk of reinjuring the knee as well as future levels of knee pain.

"Everyone thinks personalized medicine is looking at your genome to figure out what's going on," Spindler said. "That's true, but it's also about statistical modeling based on patient characteristics. There will be people six years after an ACL injury who have no arthritis and no pain, and we'll leave them alone."

"Let's identify the people who are going to have pain, are going to have arthritis and let's figure out how to modify their risk factors. This statistical modeling is what physicians need to make decisions based on the individual patient, which is what personalized medicine is all about," Spindler said.

— DOUG CAMPBELL

are more violent. There's no question we're seeing more injuries and those injuries can affect them for the rest of their lives."

There are about 3.5 million injuries each year in the United States to children 14 and under playing sports, and high school athletes have about 2 million injuries per year. About 8 percent of children drop out of sports each year because of an injury, missing out on the valuable

lessons of teamwork, confidence, achieving goals and dealing with setbacks. As athletes specialize in one sport at ever younger ages, overuse injuries are more and more common.

Johnson is there to keep them on the field. Because she sees the students every day, she knows when to tell them to walk it off and she can observe how they're recovering after a concussion. She also knows when to joke playfully about a

player's mistake or when to have a more serious talk to get their head back in the game.

"Years ago we didn't have this luxury," said Overton High School head baseball coach Mike Morrison, "and it's hard to believe how we functioned without it. If a kid says he doesn't feel quite right, it's easy to say who he should go see. She's available anytime, and it's great to have someone who can diagnose and knows what to do."

REMEMBERING CRAIG FERRELL, M.D.



As the world's elite athletes gathered at the 2012 Summer Olympics, there was a profound sense of loss among the U.S. equestrian team.

Craig Ferrell, M.D., medical chairman for the Fédération Équestre Internationale (FEI), the world governing body for equestrian sports, and the physician for the U.S. Olympic equestrian team, died May 29 at Vanderbilt University Hospital

as a result of injuries sustained when he fell from his horse while playing polo.

Dr. Ferrell was professor of Clinical Orthopaedic Surgery and Rehabilitation at Vanderbilt University Medical Center, board certified in Orthopaedic Surgery and a member of the American Orthopaedic Society for Sports Medicine. He was a founder of the Bone and Joint Clinic in Franklin, Tenn., which became Vanderbilt Bone and Joint in 2009. He had planned to travel with the U.S. equestrian team to London for the 2012 Summer Olympics. Partnering with Riders4Helmets, he championed widespread helmet use in equestrian sports.

In April he received the Tennessee Medical Association's Distinguished Service Award, given annually since 1963 to exemplary members of the association for notable achievements.

The TMA cited Ferrell's "substantial efforts in raising the bar in equestrian safety and his unwavering support for adults with special needs."

In his 30-year relationship with Olympic swimming and equestrian sports, Dr. Ferrell traveled the globe caring for the world's most elite athletes. He competed as a collegiate swimmer at the University of Notre Dame and naturally gravitated to caring for swimmers, beginning his relationship with the U.S. Swimming Team at their training camp in 1979. Working his way through the ranks, he became a team physician for the 1996 Olympics in Atlanta.

"The coolest experience was running down the ramp with all those Olympians and coming into the opening ceremonies. I felt very patriotic and part of something big," he said in a *VUMC Reporter* profile.

Dr. Ferrell was part of several committees to make athletics safer, especially in high-risk equestrian sports. He championed a rule that went into effect before the Beijing Olympics, banning riders from continuing competition if they fall off their horse.

After the Atlanta games, Dr. Ferrell continued as chair of U.S. Swimming Sports Medicine, but took on team physician duties for equestrian sports as well. Ferrell and his wife, Lorraine, were experienced riders and the other Olympic physicians were afraid of horses, so the fit was obvious. Ferrell cared solely for equestrian athletes at the Sydney, Athens and Beijing Olympics.

Dr. Ferrell is survived by his wife, Lorraine, sons Aaron (Tanya) and Jonathan, and two grandchildren, Kate Ferrell and Michael Cannon Ferrell, born in May.

- LESLIE HILL

Coaches don't have a clue about sports medicine. We just say 'put some ice on it.'"

Johnson's players have her cell phone number, know where her training room is and are quick with high fives and hugs whenever they see her. They know she is available to them at all times.

After ensuring the safety of the athletes, her next most important role is to communicate with parents. At the high school level, they make all the calls about whether their child participates, and Johnson ensures they have all the information they need.

Community outreach is a primary mission of Vanderbilt Sports Medicine. Athletic trainers like Michelle Johnson are stationed at every public high school in Davidson and Williamson counties.



A GOOD CALL

At the collegiate level at Vanderbilt, the Sports Medicine athletic trainers and physicians are given sole discretion about whether players participate.

“We feel very fortunate that we’re at a place that has this outstanding medical center that has a great specialty in sports medicine, and it’s just a few steps away from our athletic department,” said David Williams, vice chancellor for University Affairs and director of Athletics. “I feel as comfortable as I can sending our students out onto the field because I know the people we have in Sports Medicine are the best in the business and they’re going to make the best decisions for the child.”

At all levels, from high school to college to professional, Diamond says athletic trainers are a key part of the equation.

“They’re like a Swiss army knife. They can handle pretty much everything you throw out at them. They also know the athletes, from being there every day, and there’s a great dynamic of back and forth between physicians and athletic trainers. It’s a two-way street and an open door and we constantly are talking and updating. We trust each other, so that allows us to take better care of our athletes.”

Christina Foggie heads into her junior year and the 2012-2013 season in good health and high spirits. She said she couldn’t have done it without Loftis and Diamond and the Vanderbilt Sports Medicine program.

“I’ve spent so much time with Michele and Dr. D., and I love them because they have all our best interests at heart. They did a great job getting me back to health and keeping me in every game. It’s about health first, rather than wins,” she said. **vm**

A new smartphone application for coaches puts an athletic trainer, a personal assistant and a meteorologist all in the palm of their hands.

The free iPhone and Android app, called CoachSmart, is the ultimate resource for coaches, offering real-time information on heat index and lightning strikes, frequently asked sports medicine and safety questions, and a group contact feature.

A collaboration between Vanderbilt Sports Medicine, the Medical Center’s Strategic Marketing Department and the Monroe Carell Jr. Children’s Hospital at Vanderbilt, the app is an extension of Vanderbilt Sports Medicine’s expertise.

“We have Vanderbilt athletic trainers stationed at 27 high schools in Davidson and Williamson Counties, but we wanted a way to reach sports teams where we do not provide care, such as youth leagues and schools in other counties,” said Alex Diamond, D.O., assistant professor of Orthopaedic Surgery and Rehabilitation.

“We wanted to create a resource for coaches that would enable them to address safety concerns even if a certified athletic trainer was not on site.”

CoachSmart features:

- The Home Screen gives current temperature, humidity, heat index and lightning strike information.
- The Map Screen is based on the user’s GPS location. One map shows lightning strikes within 25 miles, while another uses information from nearby weather stations to post current conditions, including heat index and wind chill.
- The Contacts function allows the user to compile team members’ contact information and send a message to the entire team with the touch of a button.
- The Resources section includes information that athletic trainers commonly dispense, such as hydration tips, injury prevention, concussion guidelines, and when to go to the emergency room. The resources will be continuously updated as more information is needed or guidelines change.

In a survey of local coaches during the development of the app, the most requested feature was a lightning warning. If lightning strikes nearby, the app sends an alert to the phone and the resource section provides information on what to do.

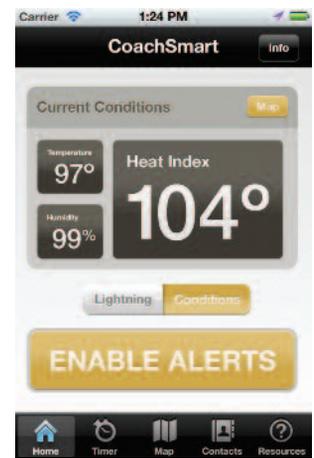
“Our coaches said they could feel when it was too hot to play, but they were concerned with severe weather, specifically lightning. Lightning can strike without warning, and that is one of their biggest fears,” said Mitch Bellamy, A.T.C., assistant director of Sports Medicine.

CoachSmart has included the Tennessee Secondary School Athletic Association (TSSAA) heat index guidelines.

“Even though the app lists TSSAA rules, all the information is based on the phone’s current location and can be used by anyone, anywhere. Heat index changes mile-to-mile and lightning can strike with no warning, so it’s important to have that exact information,” Bellamy said.

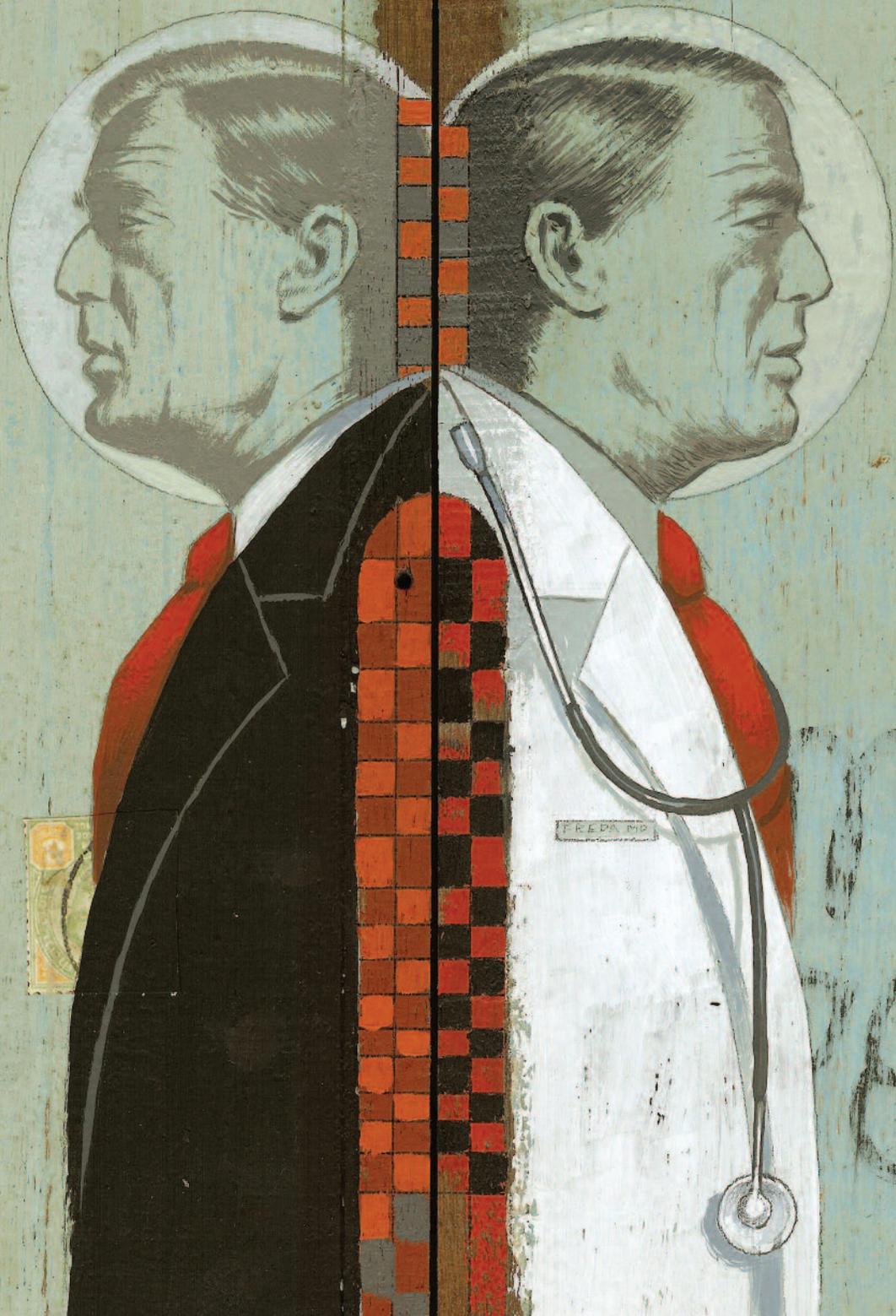
“We’ve targeted coaches with this app, but it is a great tool for anyone involved in outdoor activities – fishing, camping, cycling, golf. It’s our way of helping keep everyone safe outside.”

– LESLIE HILL



WEB LINK

To view a video about Vanderbilt’s multidisciplinary Sports Concussion Center, please visit mc.vanderbilt.edu/vanderbiltmedicine.





Owen Graduate School and VUMC partner to combine clinical understanding and business acumen

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C. Wright Pinson earned his MBA in 1976 as a young engineer at IBM, and when he later embarked on a career in academic surgery and began submitting studies to medical journals, he was told by a senior faculty member that it would be best if he never included his MBA in his list of credentials.

Health care has changed since then.

Clinicians with business skills today are recruited for the top spots in academic medicine. The deepening Vanderbilt Owen Graduate School of Management-VUMC relationship is a sign of the times.

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WRITTEN BY PAUL GOVERN
ILLUSTRATION BY ANTHONY FREDA

“The issues that we face in the delivery of health care are at a critical turning point,”

said Pinson, deputy vice chancellor for Health Affairs and CEO of the Vanderbilt Health System (MD '80). “This business is going to change based on the shift in available funding. This will create extraordinary pressures that will require discontinuous, innovative solutions. The people engaged in finding those solutions will have a tremendous opportunity to make a monumental and valuable contribution to our society.”

Tim Vogus, Ph.D., is one of those people. He is an assistant professor at Owen, but is often found walking the halls of the Vanderbilt Heart and Vascular

Tim Vogus, Ph.D., helped design a safety and quality curriculum for staff and faculty at VUMC.

Institute, where he surveys employees, helps design new safety practices, and provides consultation services to the leadership team.

Standing at the intersection where health care and business meet, Vogus studies organizational culture as a foundation for health care safety and reliability. He uses employee surveys to gain views into that world.

“What a culture survey ideally can do is give you a leading indicator of outcomes. If our culture is problematic, that’s probably an indicator that we may be yet to experience some bad errors.”

According to Vogus, the study of safety lapses is too narrow a basis for improvement. “Culture gives a better sense of what the true underlying causes

for something are. But culture is not static, it’s not, ‘OK, we’ve got a great culture, we’re done.’ Culture needs to be re-accomplished and re-enacted over and over again.”

A Model Relationship

Addressing the health care cost crisis, while also improving quality and safety, will require a combination of clinical understanding and business acumen, and it has accordingly become common for VUMC physicians and staff to enroll at Owen, and for Owen faculty and students to do work at the Medical Center.

A vibrant strategic interplay has developed between these two components of the University, fostered by Pinson and Larry Van Horn, Ph.D., associate professor of Management and executive director of Health Affairs at Owen. Pinson lectures at Owen, where he holds a secondary faculty appointment, while Van Horn teaches in the Master of Public Health program at the School of Medicine.

“What we do here is a unique relationship in the world of business school-medical center combinations. You would be hard pressed to find another program with richer, deeper, more productive relationships between the business school and the medical center than what you’ll find here,” Van Horn said.

Owen takes full advantage of Nashville’s being a health care industry headquarters. According to Van Horn, approximately 30 percent of Owen graduates go into health care, and he estimates this to be the highest ratio among all U.S. graduate schools of business.



WEB LINK
Tim Vogus, Ph.D., discusses hospital safety. To view this video, please visit mc.vanderbilt.edu/vanderbiltmedicine.

The Bottom Line

Van Horn studies the economics of health care.

“I’m about cost — money, economics, finances. I would argue that’s the No. 1 challenge facing our industry. Health care is \$2.6 trillion of spend, one out of every six or eight Americans is working in health care, 50 percent of health care is financed through government payers, and we’re running out of money. We’ve got some big challenges. I think having more and more physicians who understand the economics, the business side, and how that is going to have to evolve and change, is a win. So I think there are some fundamentals that support this relationship [between Owen and VUMC] being a warm one,” Van Horn said.

Titus Daniels, M.D., MPH, M.M.H.C., has two iMacs sitting side-by-side on his desk, their displays linked to allow easier viewing of chunky spreadsheets detailing the individual performance of clinical faculty. In January Daniels became vice chair for Clinical Affairs in the Department of Medicine, a job that includes a focus on financial performance. In 2010, a couple of leaders at VUMC prompted him to enroll at Owen.

“We need to be able to maintain our financial standing — which really is about our clinical operations — in order to ensure that we have tools and infrastructure and processes necessary to support high-quality patient care,” Daniels said. “The training available from Owen helps solidify a formality in the thought process and the approach to problems, to ensure that we’re looking at delivering high-quality care while also understanding that we have to be fiscally responsible in how we do that.”

Statistician Bruce Cooil, Ph.D., M.S., the Dean Samuel B. and Evelyn R. Richmond Professor of Management at Owen, has used statistical modeling to aid diagnosis and treatment of coronary artery disease, and to predict cost and length of stay for various other types of patients. Cooil has recently been working with the Children’s Transformational Health Care Center at VUMC, testing the relevance of



SUSAN URRY



DANIEL DUBOIS

A vibrant strategic interplay between Owen and VUMC has been fostered by C. Wright Pinson, MBA, M.D., left, and Larry Van Horn, Ph.D.

various patient data for measuring operating room (OR) efficiency.

“Bruce is assisting us in developing a model for true OR efficiency — something that we feel is very different from utilization,” said Tammy Wingo, Ph.D., MBA, director of business analytics at

Monroe Carell Jr. Children’s Hospital and a former student of Cooil’s in the executive MBA program at Owen. “These developed metrics will serve as a window into the patient experience across the continuum of care, and therefore, can help us to improve our processes so that we not

ELEMENTS OF THE OWEN AND VUMC PARTNERSHIP



Beyond the back-and-forth consulting and lecturing, there are multiple levels to the Owen-VUMC relationship.

- In 2008 Larry Van Horn, Ph.D., and C. Wright Pinson, MBA, M.D., launched the Master of Management in Health Care (MMHC), a one-year part-time program (one night per week, one week-end per month) enrolling some 30 students per year, including equal numbers of physicians, clinical managers and non-clinical managers/ staff. Employers sponsor most of the students.

Two-thirds of the current class is employed at VUMC, and several VUMC leaders lecture in the program. Along with their course work — health care accounting, marketing, economics, etc. — students complete real-world consulting projects for sponsoring employers. It’s perennially Owen’s top program for student satisfaction.

- Owen’s first-year health care MBA students spend a week observing patient care at VUMC, in places such as the operating room, the emergency room and the neonatal ICU.

- VUMC has eight administrative internship slots per year for Owen students.
- Vanderbilt is seeking to grow its joint M.D.-MBA program, which has maintained an enrollment of two to four students.
- Owen offers the nation’s only courses in transplant administration for MBA students, led by VUMC Transplant Center administrator Ed Zavala, MBA.



JOE HOWELL



HEALTH CARE IMMERSION WEEK



Experiential learning has long been a point of pride for the Owen Graduate School of Management. Case competitions, extracurricular club activities and in-class simulations are just a few of the opportunities afforded students throughout the academic year. Each fall, though, students can go a step further by signing up for an intensive hands-on experience in one of several disciplines. Immersion Week, as it's known, gives students a competitive edge by exposing them to real-world situations outside a traditional classroom setting.

Larry Van Horn, Ph.D., associate professor of Management and Executive Director of Health Affairs, and Scarlett Gilfus, Program Coordinator for Health Care, organized the health care immer-

sion course for students pursuing Health Care MBAs. The course examined the real world of U.S. health care delivery through the perspectives of physicians, nurses, patients, scientists and administrators.

"The Health Care Immersion is a valuable start to the Vanderbilt Health Care MBA program. It leverages our unique position in Nashville as the nation's hub of health care delivery. During the week, students gain many different perspectives on the challenges facing the health care delivery system and leave with a better context for the business education that follows," Van Horn said.

On day one, students changed into scrubs and headed into the operating rooms at Vanderbilt University Medical

Center, where they stood next to doctors and nurses and watched surgeries being performed. Other activities included visits to the LifeFlight Operations Center, which manages Vanderbilt's critical-care helicopter service, and the Mass Spectrometry Research Center, which provides laboratory support for researchers across the University.

"It was a one-of-a-kind experience that prepared us for the rest of our curriculum at Vanderbilt," says Garrick Berberich, an MBA candidate for 2013. "We got to see all aspects of the health care industry and discuss the front-line interactions between providers and patients."

- SETH ROBERTSON



only become more efficient, but also deliver the highest quality patient care possible.”

Robin Steaban, R.N., VUMC associate chief nursing officer and chief administrative officer at the Vanderbilt Heart and Vascular Institute, receives weekly consultations from Owen’s Vogus. “He has helped us understand the science of safety and how to translate it into operations,” she said.

While most research on high-reliability operations — nuclear power, air traffic control, aircraft carriers — dwells on organizational structure, Vogus looks instead at interpersonal processes. “If you and I are working together on a nursing unit, what is it that we’re doing together, both in interactions and behaviorally, to make it highly reliable? That’s really the focus of my research and that’s what I’ve been studying and assessing with VHVI and others.”

Vogus and an Owen colleague, associate professor Ranga Ramanujam, Ph.D., helped design a safety and quality curriculum for staff and faculty at VUMC (including the new year-long Vanderbilt Patient Safety and Quality Pioneer Program). Ramanujam, who studies how organizational structure and processes affect health care outcomes, says safety and reliability are about much more than front-line engagement and vigilance — they’re also about fostering collaboration and communication. And to make any headway, safety and reliability need to be seen as a priority at all levels of the organization. “Safety isn’t just about being safe, it’s about a broader set of managerial capabilities,” he said.

A Real-World View

Former industrial engineer Danny Bonn, M.M.H.C., is an administrative director with Vanderbilt Medical Group. He says a major strength of Owen’s M.M.H.C. is the way it combines evening lectures by Owen faculty with weekend lectures by people working in health care. “It gives you the real-world view of how health care looks at economics, marketing,

GAINING A NEW PERSPECTIVE

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Time spent at Owen Graduate School of Management changed the thinking of Mark Kelley, M.D., M.M.H.C., chief of the Division of Surgical Oncology and Endocrine Surgery at Vanderbilt.

“I think a lot of us in the program were looking for a magic set of knowledge that would allow us to circumvent the barriers that we encounter trying to get things done at Vanderbilt. I started to realize that some of those barriers were inherent in working at a complex institution, and that they were going to be present in any place like this, so you just have to learn how to manage them better.

“Sometimes the biggest barrier is you, not knowing how to approach things in a way that’s going to be positive and achieve your goals. All of us are presented with challenges, and you naturally try to convince people to do what you think will work best, to make a strong argument for your case, thinking you’ll win everyone over. But you realize that’s not going to work. The only thing you can really change is the way you approach things.

“That’s actually been very useful to me. The knowledge gained from the core courses has been useful, but the leadership development component of the program gave me insight about things that I could do differently to be more effective,” Kelley said.

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accounting and so on. We were able to be informed of a lot of different things in a short period of time.”

Before entering Owen, Shellian Elliott, M.A., M.M.H.C., was an organizational learning specialist at VUMC. Today she manages the General Surgery Clinic, the Colorectal Surgery Clinic and the Burn Clinic. “My earlier background was in counseling and psychology. In my current role I’m looking at budgets and decisions that impact the bottom line, as well as working with people,” she said. “Where I am now is more balanced than my old training mode.”

We asked some Owen faculty members and their former students what may be in store for providers and health systems.

“What’s ahead is increased public scrutiny about errors and reliability,” said Owen’s Ramanujam. “What we’re going to see is much more attention to thinking about the process of delivery very systematically. Even if an organization is very reliable today, the reality is they will increasingly face a shrinking margin for error, so what seems safe enough today may not seem safe enough tomorrow. That would mean you would need to keep coming up with ways to become more and more reliable.”

VUMC’s Daniels said provider accountability will increase across the

board, an increased role for primary care will be a keystone of reform, and highly compensated, procedure-based clinicians stand to be most impacted as payers discontinue fee-for-service in favor of global payments.

VUMC’s Mark Kelley, M.D., who earned the Master of Management in Health Care degree from Owen, looks for major changes, as well.

“We all believe there needs to be fundamental reform across the board. The tricky question is, is the right way to do that moving toward a government-run single payer system, or is it a system that’s still a private system but with a very different set of incentives for the providers and for the patients?

“Everybody still wants everything for not so much money, and many people think the people delivering health care are the problem. There needs to be a readjustment of expectations on both sides, and I’m just not sure everyone is ready for that.

“At least we’re probably more prepared to deal with change once we’ve been through a program like Owen. You can learn to adapt, and try to figure out where the opportunities are.” **VM**



H.K. Derryberry and his grandmother, Pearl

The Amazing Life

and memory

of H.K. Derryberry

In the summer of 1990, Mary* was 19 years old, six months pregnant, sitting on a cooler of beer, watching her boyfriend and his friends cut hay in Maury County, Tenn. When they left the fields after the sun went down, her boyfriend was driving with the radio up loud. Mary said something, and as he turned to hear her better, he lost control of the vehicle. It spun and went backward down an embankment, buckling against a tree and tossing Mary out the open window.

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

**Editor's note: Mary's last name has been omitted at the request of her family.*

She

was flown to Vanderbilt with massive head injuries and would not survive. The boyfriend had only minor injuries and joined their mothers in the waiting room as a doctor posed this question: “Do you want us to take the baby or let him go with her?”

The boyfriend and his mother, Pearl, had no say in the matter, but Mary’s mother said, “Take him. Salvage what you can,” and Pearl says she is forever grateful for that decision to save the life of her grandson, H.K. Derryberry. The little boy was given his father and mother’s middle initials, shortened to H.K.

But there were no guarantees for a baby born at 27 weeks and weighing just over 2 pounds in 1990. H.K. was in the neonatal intensive care unit for 96 days. A severe brain hemorrhage likely caused his cerebral palsy, and the prematurity kept his retinas from forming, resulting in congenital blindness.

“I made a bargain with God in the NICU. I said you save him and I’ll spend the rest of my life trying to make his life better,” Pearl said, a promise she has kept, becoming H.K.’s primary caretaker and advocate, a father, mother and grandmother in one.

Born with a Gift

What happened to H.K.’s brain as he fought for survival left him with deficits but may also have bestowed an amazing gift: perfect memory of everything that has ever happened to him. Especially amazing

considering there is so much in his life most of us would want to forget.

Now 22, he can remember that time he ate spinach alfredo before watching *Star Search* on March 19, 2003.

That it was 70 degrees when he won second place in the 60-meter dash during the Junior Blind Olympics on Oct. 13, 1999.

That episode of *Everybody Loves Raymond*, when Ray and Debra went golfing together and got in a big fight, that he watched after having physical therapy on Sept. 22, 2003.

That Dec. 26, 2004, was not only the date of the devastating Indian Ocean

tsunami but also the day Vanderbilt football player Kwane Doster was killed. Oh, and in 2006, that was the same day Gerald Ford died.

He knows the date of every blood donation he made since turning 18, proven by pulling out his Red Cross donor card with the perfectly correct dates entered in little squares on the back.

His single grandmother raised him as his alcoholic father drifted in and out of his life. He was held back in school, after the intelligence of a blind boy with braces on his legs and a stunted right arm was questioned. He spent many weekends sitting at a table at Mrs. Winner’s Chicken & Biscuits, quietly listening to talk radio or gospel, as his grandmother worked the register.

Then two men entered his life – first a local businessman, then a budding memory researcher – and both believe H.K. has a lot to teach us.

An Unlikely Friendship

It’s a day Jim Bradford remembers as “sometime in the fall in probably 1999.” H.K. remembers that day as “Saturday, Oct. 16, 1999. It was 55 degrees that day.”

It’s the day Bradford had finished up his usual tennis game and was headed for a cup of coffee at the Brentwood, Tenn., Starbucks but veered into Mrs. Winner’s Chicken & Biscuits instead. Inside, the only person was a 9-year-old, 53-pound boy with an overgrown haircut and missing baby teeth. He asked a cashier about the boy and was told, “That’s H.K. He’s our sweetheart.”

Bradford thinks he probably offended the cashier with the look on his face when he was told H.K. sits there while his grandmother works, but “I was thinking my kids couldn’t have sat still like that for 10 minutes. It touched me. I had never reached out to people with disabilities before, but my eyes teared up and my chin quivered a little and I walked over and introduced myself,” Bradford said.

At age 9, H.K. couldn’t really carry on a full conversation and just asked question

H.K. at age 11





Nashville businessman Jim Bradford has been a friend and mentor to H.K. Derryberry for the past 13 years since he noticed the young boy sitting alone at a table at Mrs. Winner's Chicken and Biscuits.

after question. Bradford answered a few and then got out quick.

"I didn't want to answer all those questions, but all week I thought about him sitting there in that restaurant. I went back the next Saturday and he started up with the same sequence of questions."

Bradford, an executive at Unifirst with a wife and two grown daughters, started going to Mrs. Winner's every weekend he was in town to spend an hour with H.K. Eventually he asked Pearl if she trusted him enough to take H.K. someplace, and they went to run a few errands.

Today H.K. spends almost every weekend at the Bradford residence, and the pair hold court at Chick-fil-A at 6 p.m. every Thursday night. When they walk in, it's like a celebrity has entered the building. All the cashiers wave and call out greetings; the manager, who gave H.K. 52 coupons for Christmas – one for every week in 2012 – comes out to say hello. People know H.K. will be there and come just to eat with him. H.K. is unforgettable and he certainly remembers all of them.

When H.K. meets new people, he always asks their birthday and tells them on which day of the week they were born. iPhones are pulled out to confirm, and a smile of amazement forms on their faces.

"In a typical weekend, he tells me 12 or 14 things that happened in the past," Bradford said. "I stopped looking it up because he's always right."

Pearl says Bradford is the father and grandfather H.K. never had. H.K. calls him his mentor and always addresses him as "Mr. Bradford." They act like an old-fashioned comedy duo, Bradford setting up the joke and H.K. delivering the punch line, often accompanied by an excited giggle.

"One time we were looking for something in the grocery store, going up and down the aisles with the basket. And H.K. said..."

When H.K. meets new people, he always asks their birthday and tells them on which day of the week they were born. iPhones are pulled out to confirm, and a smile of amazement forms on their faces.

Right on cue H.K. comes in: "This is the blind leading the blind!"

"My wife and I are empty-nesters, and we include H.K. in 90 percent of everything we do," Bradford said. "He's a kid you just can't help but love. We have a special relationship that's wonderful for me. I've seen him develop in skills and have been able to introduce him to folks, and he's allowed me to do a lot of things."

They've sat in the private boxes at Tennessee Titans games and on Alan Jackson's tour bus. He has taken the controls of a friend's private plane, and sat in the chair of Nashville's mayor, Karl Dean. One year, H.K. got 590 birthday cards and they had to put a bucket on the front porch for the mailman's delivery.

H.K. graduated in June with his high school diploma from Tennessee School for the Blind. He plans to take some online courses through Hadley School for the Blind, but his dream is to be a motivational speaker. Bradford has already arranged some engagements for H.K. with the Rotary Club and at local schools, and they are working up a routine together. The theme is overcoming the odds and staying positive, two lessons H.K. knows better than anyone.

"I want people to know how important it is to have a positive attitude. When things don't work out, it can really get you down, but you have to stay positive," he said.

Studying H.K.'s Brain

Much of what we know about the brain today has come from exceptional cases. There's Phineas Gage, the 1850s railroad worker who survived a metal rod through the brain, his resulting change in personality giving doctors the idea that different parts of the brain had different functions.

Then there's H.M., or Henry Molaison, the most-cited case in all medical literature. In the 1950s, parts of his brain, the hippocampus and amygdala, were removed in an attempt to curb severe epileptic seizures. That part was successful, but H.M. lost the ability to create new memories, pointing to the hippocampus and amygdala as important structures for memory.

Pearl says H.K.'s memory was apparent from an early age. On their frequent trips to the doctor, he could recite his answers to medical history questions from age 5. Despite his blindness, he knew exactly where he was along the drive from their East Nashville home to Tennessee School for the Blind.

Then in 2001, when H.K. was 11 years old, Pearl heard him talking to himself in the other room: "In 1996, I had heel cord surgery and it was Valentine's Day," he said. Pearl got out her calendar to confirm the date. She asked about other

Brandon Ally, Ph.D., said studying H.K.'s autobiographical memory and brain is a "once-in-a-career" experience.



DANIEL DUBOIS

dates, what day Christmas was on, when they went on that picnic, and he was right every single time.

Now Pearl jokes that H.K. is her external hard drive. Her friends will call to ask H.K. what channel ESPN is because it's faster than scrolling through the guide, or to help them remember their own medical history before surgery.

H.K. doesn't mind being their "date machine." He loves to remember. When he's thinking of a particularly juicy memory, his muscles will tense, his head will start to bob and weave, a big grin will break out on his face and his voice will get fast and excited. He gets to experience being right back in that wonderful time.

"I think about all the good stuff," he said. "I remember the negative but I don't dwell on it because it's history."

It was H.K.'s medical history that helped confirm his hyperthymnesia, a condition of exceptional autobiographical memory, meaning memories that have personal relevance.

His longtime neurologist Tom Davis, M.D., professor of Neurology, said H.K. could recite his whole medical record from an early age, including which providers he had seen on which day and what his weight and blood pressure were at all his visits.

"He wasn't doing it to show off, it was just in casual conversation. When he was young, I think he thought everyone had this ability. Can't everybody remember every single thing they've done? But as he got older, he realized how unusual it was. Plus, I had a long, detailed record of his life right in front of me. I could actually check it and knew he wasn't just making it up," Davis said.

Davis approached H.K. about participating in research, which he eagerly agreed to, and introduced him to Brandon Ally, Ph.D., assistant professor of Neurology, Psychiatry and Psychology at Vanderbilt University Medical Center.

Then Ally, along with his co-author and lab manager Erin Hussey, gathered H.K.'s entire medical record, which was on paper prior to 1996. They learned

about his neurological deficits but also culled factual details on which to test H.K.

The research revealed that H.K. has a normal IQ of 97 but confirmed his exceptional autobiographical memory. From age 11, his accuracy of recollection jumps to 90 percent and is near perfect from then on. Then, using structural MRI imaging to look at H.K.'s brain, Ally and collaborator Manus Donahue, Ph.D., from the Vanderbilt University Institute of Imaging Science, discovered two factors that may explain why he is so much better at reconstructing his memories than the rest of us — an amygdala four times bigger than normal with connections to the hippocampus 10 times greater than normal. (These are the same brain structures removed in the seminal case of H.M.)

"These previous case studies were about removing parts of the brain and seeing what fails," said Ally, who has been researching H.K.'s memory for nearly two years. "H.K. gives us the other side of that, somebody with a super ability."

The amygdala is about the size of an almond and sits at the base of the hippocampus, deep in the brain's temporal lobe. It is thought of as our emotion center — overstimulate the amygdala in monkeys and get a fearful or manic response. The hippocampus is the primary brain structure responsible for making memories. It takes all the information in a situation — sights, sounds, smells — binds them together and tags them for future retrieval.

In H.K., it seems that his exceptionally large amygdala is charging every personal experience with self-relevance and emotion, turning everyday occurrences like eating lunch and watching TV into seminal life events.

Changing the Way we Think about Memory

"If I gave him a list of 10 words to remember and asked him about them 20 minutes from now or if I asked him who was the 20th president of the U.S., his memory for this type of information would

Although it is hard to apply lessons learned in an exceptional case like H.K.'s to the general population, Ally says H.K. has the potential to change the way scientists think about autobiographical memory.

be no different from yours or mine. That's episodic and semantic memory. But if I asked him what he had for dinner or what he watched on television three months ago to the day or how he was feeling on a particular day, he could remember exactly. That's autobiographical memory," Ally said.

Given the date March 19, 2003, H.K. doesn't have the perfect ability for semantic memory, able to look up that date like an encyclopedia and know it was the day the U.S. invaded Iraq. Instead he starts reliving the day in his memory just as it happened. He first recalls what he watched on TV, and then will remember that President Bush broke in to announce the invasion of Iraq.

"One of the things we've spent years confirming is that the brain does not work like a tape recorder and a memory cannot just be recorded or cued up," Ally said. "A memory is reconstructed from separate pieces of information that we might have encoded. For the most part our memory is not totally accurate because we're constantly reshaping and reconstructing."

For H.K., however, reconstructing a memory isn't difficult and his accuracy is nearly infallible for memories after age 11. He says going back in his memory is effortless. It just happens. Dates come without any sort of calculation. He's right back there, living the memory exactly as it happened the first time.

"Most of us remember things as a third-party observer, hovering above the scene. But we have a few flash-bulb memories of really important things – our wedding day, what we were doing on Sept. 11 – that are seen through first person. For H.K., 80 percent to 90 percent of his autobiographical memories are first person. He's always right back in it," Ally said.

Ally's research of H.K. was published in the journal *Neurocase* in April, the same journal that published the first known case of hyperthymesia in a woman named Jill Price in 2006. Price has said she is haunted by her gift because she can remember all the negative events in her life and dwells on disappointments and embarrassments. After the condition was named, more people were identified, including *Taxi* actress Marilu Henner, and there are believed to be about 20 cases worldwide. H.K. is only the second case to be presented in scientific literature and the first to have structural imaging to examine the brain.

Ally came to Vanderbilt in 2010 with no idea that an individual with perfect autobiographical memory lived just a few miles from campus. "Given that there's only a handful of these folks in the world, it's a once-in-a-career thing for sure," he said.

Although it is hard to apply lessons learned in an exceptional case like H.K.'s to the general population, Ally says the young man has the potential to change the way scientists think about autobiographical memory.

"If you look at the literature criteria, one of the hallmark components of autobiographical memory is visual imagery because you have to mentally time travel back to the event, and for most of us that happens through the visual domain. Our MRI work showed that H.K.'s occipital lobes [brain region involved in vision] are very active and well connected to other brain regions. So a next step would be to figure out what role his occipital lobes play in all of this," Ally said.

He hopes to recruit a cohort of individuals who were born blind like H.K. for a functional imaging study.

This research also has implications for Alzheimer's disease because one of the



H.K. graduated from the Tennessee School for the Blind in June.

first things to go is autobiographical memory. Ally wonders if H.K. could point to potential brain targets for deep brain stimulation or pharmacotherapy.

"While the role of this drastically increased amygdala size and increased hippocampus connectivity in his memory ability is not definitive – we can't say with certainty this is why he has perfect memory – it certainly makes sense and provides the starting point of us understanding what might be contributing to this," Ally said.

"We have to try to gain as much data and insight from people like H.K. as we can. He's a special case, but it takes these once-in-a-career cases to get new insight into how the brain works." **VM**

WEB LINK

Brandon Ally, Ph.D., discusses H.K.'s autobiographical memory and its implications for the rest of us. To view the video, please visit mc.vanderbilt.edu/vanderbiltmedicine.

REBUILDING MEDICAL EDUCATION

This fall Vanderbilt University School of Medicine will transition to an innovative, four-year curriculum that has been characterized as its most comprehensive education revision in decades.

WRITTEN BY **CAROLE BARTOO**
ILLUSTRATION BY **DAN PAGE**





CALLED CURRICULUM 2.0,

it is a switch from a highly regarded, but traditional, one-size-fits-all curriculum to a complex, integrated, collaborative and flexible course schedule that includes less traditional lecture and more clinical and case-based experience.

Kim Lomis, M.D., associate professor of Surgery and associate dean for Undergraduate Medical Education, is leading a team of faculty and students in launching the new curriculum. She says when she shows the colorful chart of the fully implemented coursework to faculty, she still gets a few glassy-eye looks.

“We are still working to educate the faculty on the structure and flow, but when implementation is complete, the real difference will be that clinical, scientific and humanities learning will take place in the workplace throughout all four years,” she said.

She fully recognizes the School of Medicine is doing this before a large audience of parents, alumni and colleagues

who will be watching board scores and residency placements closely for any sign of strain.

Leadership across the School of Medicine, the Medical Center and the University recognizes the change as necessary and a step toward an exciting and evolving model of medicine.

“Today, the delivery of health care is vastly different than it was even a decade ago. The rate of scientific discovery and the accumulation of knowledge is accelerating so rapidly that in order for our students to continue to be tomorrow’s leaders, we feel this curriculum change is necessary. What our faculty and administrators have created together with the students may very well set a new standard for teaching and learning for other medical schools to follow,” said Jeff Balsler, M.D., Ph.D., vice chancellor for Health Affairs and dean of the School of Medicine.

Bonnie Miller, M.D., senior associate dean for Health Sciences, has been a driving

force behind the curriculum change since 2006.

“We needed a curriculum that is agile and better equipped to meet the needs of our students. The traditional curriculum was no longer consistent with how people use science to provide up-to-date medical care. It was time for us to incorporate new research and concepts about how people learn and how they apply what they learn,” Miller said.

Lomis and Miller are quick to point out that the new curriculum is not driven by a shortfall in instruction at Vanderbilt, but rather by the need for a fundamental change in how medicine is practiced.

“The driver is the acknowledgement that leading physicians need a new skill set. We will focus less on *what* they learn and more on *how* they learn. With the pace of scientific change and discovery, we needed to stretch learning out,” Lomis said. Thus, lifelong learning is key to the revised curriculum. William Stead, M.D., associate vice chancellor for Health Affairs and chief strategy and information officer at VUMC, has been heavily involved in developing methods to teach incorporation of ever-changing and progressing scientific information.

“He calls it a 40-year curriculum rather than a four-year curriculum,” Lomis said.

Another element is instruction in teamwork: students will work together on more team and group projects, faculty will teach collaboratively, and the School of Medicine will share learning experiences with other health disciplines like nursing, pharmacy and social work.

“In my dad’s era, it was the individual physician’s knowledge that largely determined the outcome for patients, but now a collaborative approach is needed,”

CURRICULUM 2.0 AT A GLANCE:

- Embracing innovation and improvement by integrating biomedical and social sciences as well as humanities into the practice and understanding of medicine
 - Integrating learning with patient care by immersing students in clinical environments beginning in the first year and continuing through the entire curriculum
 - Translating discovery into practice by tapping medical breakthroughs at Vanderbilt and across the world for new knowledge
 - Supporting professional growth by creating personalized learning plans and flexibility and offering supportive learning communities
 - Creating physician leaders through focus on scholarship, discovery, critical thinking and curiosity and chart progress in competency-based assessments
-

Lomis said. “We work in teams every day in clinical practice and participate in team research across disciplines across campus.

“Everyone is thinking differently about medicine, and this is ultimately good for patients.”

INPUT FROM STUDENTS

Since the design committees began working on Curriculum 2.0 several years ago, students have been involved, approaching it the same way they approach most things. They see it as an opportunity to take their own education apart and see how it ticks, and then put it back together again – differently, and better. They are natural leaders and agents of change.

“The traditional system is set up now to generate the same results it has produced in the past, but if we keep creating physicians in the same manner, the health care system might never successfully change,” said Billy Sullivan, a fourth-year medical student who joined the curriculum committee his first year, and will serve as co-chair next year.

Another major trend is blending facts with critical thinking or problem-solving skills. This is in contrast to the traditional system of teaching and testing with the goal of transmitting great volumes of factual knowledge and engendering a skillful ability to recall them.

“The concept of a great leader in medicine used to conjure an image of the cowboy physician, like a Doc Martin, who had all the answers on his own,” Sullivan said, adding that is not what he aspires to now. He says he can expect his patients to arrive for appointments with Internet printouts and an expectation that he will listen to them.

“We realize there is too much information, and it is changing too fast to know it all. I admire physicians who are able to hear a patient’s question and sit before them and say with confidence, ‘I don’t know, but I will find out,’” Sullivan said.

Sullivan took a one-year break from his medical training to complete a Masters of Education in Learning and Instruction.



DANIEL DUBBOIS



The traditional curriculum was no longer consistent with how people use science to provide up-to-date medical care. It was time for us to incorporate new research and concepts about how people learn and how they apply what they learn.” – Bonnie Miller, M.D.

PUTTING KNOWLEDGE TO WORK IN CREATIVE DISCOVERY

Conrad Myler, M.D., co-chaired the curriculum committee with fourth-year student Billy Sullivan for the 2011 school year. Now a first-year anesthesiology resident at VUMC, Myler recalls he entered the School of Medicine as the first components of the re-design were launching. Many departmental lectures previously taught in traditional, department-led, lecture style had already become team-taught block courses.

"I knew about it when I was being recruited and was excited about it. For me it fit the way my brain works," Myler said. "I would say it was overdue."

During the next phase of changes to the curriculum the Medical School administration invited faculty to design a new type of elective course that had never been offered before

which would be piloted by fourth-year students. The fourth year of medical school had traditionally focused on preparing for the intensity of internship by maximizing exposure to clinical care while tying up loose ends and traveling to interview with potential residency sites. Now, a series of electives will be offered to give students a much closer look at applying basic science and current evidence into clinical practice in their areas of interest. Myler says the experience showed him the potential power of these courses.

"It really hit me fourth year, when I took our immersion course in perioperative care," Myler said.

He explains that immersion means taking students at a higher level of knowledge and putting them with top experts in a single area, like cancer hematology or perioperative care. Critical thinking, creative thinking, applying basic science

and transitioning to independent lifelong learning were the goals of this course.

"In this immersion course, we were able to really put to use what we had learned before. Early in medical school, even in the new curriculum, there is still a lot of rote learning for the basic biology of complex concepts, for example the clotting cascade (the chain reaction of chemicals that interact to form a blood clot).

"First year we were memorizing vitamin K dependant clotting factors labeled with numbers like 2,7,9, 10, not to be confused with 3,7,9, and 10, which are the cranial nerves with parasympathetic innervations. At times it felt like memorizing phone numbers," Myler recalled.

In a traditional curriculum, by graduation, students would have memorized clotting factors, as well as medications and diseases that impact clotting, and would have seen

interesting examples of how those facts apply. But essentially, the learning would stop there. Instead, the new fourth-year immersion courses allowed students to glimpse the next step.

"I was sitting down with an expert in hematology and the clotting cascade. She was showing us the new drugs and research information that had come out even in the last year. I realized I was able to listen, and understand fully and ask the right questions. She could show me how to assess the new information and apply it to my practice, and to look for the next question," Myler said.

By talking with those on the cutting edge, studying current evidence and protocols, Myler was able to experience the essence of discovery and evidence based medicine through the application of scientific rigor during medical school, at a time when he was ready for it.

- CAROLE BARTOO

He says even in K-12 education circles there is a trend away from solely focusing on the acquisition of factual knowledge.

"It used to be the more knowledge, the better. Instead, today, it's teaching the transfer of problem-solving skills to new situations," he said.

A DIFFERENT KIND OF INTELLIGENCE

Lomis says that's a great example of why the new curriculum is needed.

"Scientists struggle in today's model with getting practitioners to appreciate what is new, what discoveries have been made, and how they can apply it to their practice," Lomis said. "The fact is the pace of changing information will never slow down. This is further evidence that a dif-

ferent kind of intelligence is needed in today's health care system."

Lomis uses a colorful stair-step chart to illustrate the dimensions of learning. At the lowest step are the facts students memorize. Then as learners they mature and build up to learning concepts and procedures. Finally, they begin to apply, analyze and evaluate.

At the very top of the steps is what is called "metacognition," the place where students can truly be creative.

Traditionally, the latter two steps began mostly after graduation from medical school. Lomis says Curriculum 2.0 begins incorporating higher levels of learning right from the start so that by graduation students are primed to become

creative physicians, well-positioned to discover and lead.

"We need to spend a lot less time at the fact-remembering stage because, frankly, computers and even our phones can retrieve better than our brains," Lomis said.

With Curriculum 2.0, the hard work and dedication to becoming knowledgeable about medicine comes through case-based or problem-based learning, followed by early clinical experience that allows students to begin taking ownership of the problems they will see in practice.

Required research projects in the third or fourth year will further enhance critical thinking skills while allowing students to build mentoring relationships with Vanderbilt investigators.

Lomis and Miller say as Curriculum 2.0 progresses, it will become more flexible so that the students can shape it. By the third and fourth years, they will have their own highly personalized education plans designed for their own learning needs.

“Part of why we have done so well so far is because students are of such high caliber. We tell them, ‘This is us trying to get out of your way.’ Let’s free these bright young people to shape their education, then they will be ready for continuous quality improvement in practice,” Lomis said.

Meanwhile, critics might ask why one of the top medical programs in the nation would tinker with a very successful curriculum. After all, Step 1 U.S. Medical Licensing Exam scores at Vanderbilt are well above the national average, contributing to the success the medical students enjoy in matching to the best residency programs.

Lomis promises great care is being taken to ensure that quality measures do not suffer, but she says there is plenty of proof the old model stopped working long ago. When physician job satisfaction declined in the 1990s, the Robert Wood Johnson Foundation researched the reasons. Doctors cited increased fragmentation, the emergence of managed care, dilution of physician decision-making authority and society’s increased skepticism toward professionals. Lomis says that view was in large part due to the type of practice physicians were trained to engage in, one which no longer fits the changing health care model.

“Challenges were attributed to the system, and doctors saw it as imposed on them,” Lomis said. “We need to train our students, residents and fellows to know they are part of a system and they can shape it. So this is an important question: In four years of medical school, how do we create doctors who will change medicine?”

We might have the answers soon. Since 2010, graduating VUSM students have been exposed to elements of the new curriculum. Former Curriculum

Committee co-chair Conrad Myler, M.D., says he wishes Curriculum 2.0 had been fully in place for his training. He and Sullivan say they will continue working with Lomis and other students and faculty to see that the rollout of Curriculum 2.0 goes smoothly.

“I want people to know that students coming into the Vanderbilt University

School of Medicine are already very smart and have proven themselves worthy acquirers of factual information,” Sullivan said.

“But top-of-the-line physicians are never satisfied with status quo, they want to have a role in making things better. Those are the kinds of students we have here and the kinds of physicians we will be.” **VM**



We need to train our students, residents and fellows to know they are part of a system and they can shape it. So this is an important question: In four years of medical school, how do we create doctors who will change medicine?” - Kim Lomis, M.D.



DANIEL DUBOIS

PRESIDENT'S LETTER

Dear Canby Robinson Society,

Commencement is a time of looking back and looking forward. To see how far we've come and what's ahead of us. Our Class of 2012 is taking the next step in their careers as leaders in medicine, and I am ending my term as Canby Robinson Society Board president. It seems like a perfect time to reflect on all that we've accomplished together.

As members of the society, I like to think we're following the model set by Dr. George Canby Robinson, dean of the School of Medicine from 1920 to 1928, who was a visionary in improving medical education and bringing together teaching, patient care and research under one roof. We've played a part in helping create these future leaders in health care. We've been able to lighten their burden of medical school debt by supporting scholarships, and we've supported these students as professors, mentors, volunteers and friends during this challenging journey.

As president of the CRS Board, I have had the good fortune to meet many of the outstanding Canby Robinson Scholars.

More recently, I have had the privilege of making that special phone call, in which I inform the applicant that they have been awarded this honor. All of these young men and women were attracted to Vanderbilt by the quality of education they knew they would receive as well as the warm and collegial culture of our faculty and staff. However, they would not have come here without the benefit of financial support. Without the CRS Scholarship, they would graduate with enormous debt that likely would impact their ability to pursue research, teaching, community service and even their interest in some of the less remunerative specialties. The ability to offer medical scholarships is truly life-changing, and I have been able to see that every day.

Every gift at every level makes a difference for these students. Through the collective impact of your gifts, we support scholarships for outstanding students, endowed chairs for faculty, early efforts in groundbreaking research and up-to-date facilities. All this is made possible by the generosity of friends and colleagues who give faithfully year after year.

Your sustained giving in turn sustains these good efforts. We will all reap the

benefits of educating tomorrow's leaders in medicine. It's been such an honor to work side by side with you, and I'm looking forward to our next steps.



Paul Sternberg Jr., M.D.
Board President
Canby Robinson Society

For more information about the Canby Robinson Society, contact the Stewardship Office by mail at Vanderbilt University, Suite 820, 2100 West End Ave., Nashville, TN 37240-7711, by phone at (615) 936-0439 or by email at stewardship@vanderbilt.edu. Visit the website at www.mc.vanderbilt.edu/crs.

MAKE A DIFFERENCE BY SUPPORTING SCHOLARSHIPS

Students who enroll in the School of Medicine and the School of Nursing at Vanderbilt University possess the drive to make a difference in health care. Philanthropy supports the education of these future health leaders to the benefit of us all.

"Building our scholarship endowment through philanthropic support is the key to reducing debt and helping students build a career path of innovation and impact," says Jeffrey R. Balser, M.D., Ph.D., dean of the School of Medicine and vice chancellor for Health Affairs. "By giving to endowed scholarships, donors help bring the brightest medical and nursing students to Vanderbilt. Thank you for your support."

ENDOWED SCHOLARSHIPS

120 School of Medicine
36 School of Nursing

AVERAGE DEBT AT GRADUATION Class of 2012

\$140,500 Medicine
\$69,900 Nursing

FACTS

73% of 2012 graduates in the School of Medicine incurred debt to attend school
95% of students at the School of Nursing receive some form of financial aid

MINDFUL OF HIS HUMBLE ROOTS, SCHOLARSHIP DONOR IS HAPPY TO SHARE HIS GOOD FORTUNE

Frank C. Spencer, M.D. '47, keeps a picture of an old, dead mesquite tree on his office wall at New York University's Langone Medical Center.

"It's to remind me of where I came from," he explains. "I was born on the other side of that tree on a farm in Texas. It's the kind of thing that makes you feel very lucky, which is a strong antidote for arrogance."

It was out of that sense of gratitude that Spencer and his wife, in honor of his 50th medical school reunion, funded the Dr. Frank C. and Connie Ewell Spencer Medical Scholarship for worthy students who could not otherwise attend medical school. Spencer continues to support the scholarship fund, and more than 30 students have benefited from his generosity. Spencer has also included the School of Medicine in his estate plans, and his bequest gift will further add to the support provided through the Spencer Scholarship.

"I see this scholarship as a payback," he says. "My interest is funding bright people who need some financial support to get through medical school. The best investment you can make is in bright young people."

Spencer graduated from college at 17 and applied to two medical schools in Texas. They turned him down, saying he was too young. Overhearing some students discuss the merits of Vanderbilt University, he applied. He received an acceptance letter from Vanderbilt University School of Medicine in 1943, beginning his own journey from the lone mesquite tree.

At Vanderbilt, he graduated top of his class as a Founder's Medalist and headed to Johns Hopkins in Baltimore to begin his surgery training. He trained under famed Hopkins surgeon Alfred Blalock and then followed William



"My interest is funding bright people who need some financial support to get through medical school. The best investment you can make is in bright young people." - FRANK SPENCER, M.D.

Longmire, who helped found UCLA's medical school, to California. Soon after, Spencer was called for military duty in Korea. It was there that he radically altered WWII-era battlefield procedures for treating arterial injuries, saving many limbs by treating wounds more rapidly with arterial grafts. This was contrary to official military orders, which clearly stated, "All arterial injuries will be ligated." Ligation of an artery results in amputation of the leg in about 50 percent of patients.

"I wasn't looking for any recognition. I just didn't want to take a leg off if I didn't have to," he remembered. His techniques spread and Spencer was called to Washington to receive the Legion of Merit Award.

"All that is flattering as long as you don't believe it too much," he said. "I have a great disdain for arrogance. Much of your good fortune depends on other people."

Back in the States, Spencer returned to Hopkins, where he was one of the first surgeons to perform coronary bypass. He later helped start a surgery program at the

University of Kentucky and then headed to NYU, where he was chair of the department of surgery for more than 30 years and remains on the faculty as physician director of patient safety.

Supporting students is a way for him to show he remains grateful. "Supporting a university to me is a privilege," he says. "If you look at the history of civilization, there's a striking parallel between the growth of civilization and the growth of universities. A university is the best mechanism for transmitting valuable knowledge. Otherwise you'd be reinventing the wheel every 100 years. A university is invaluable to society."

Still active in his mid 80s, Spencer works at the medical center five to six days a week but takes off one month every year to go bass fishing in Maine. He never harms the fish, just takes a picture and throws each one back.

"I don't consider myself generous," he says. "I'm just grateful."

- JENNIFER JOHNSTON

FRIENDSHIP BUILT ON PHILANTHROPIC FOUNDATION

Jeff Balser, M.D., Ph.D., met prominent Nashvillian and Vanderbilt Board of Trust emeritus member Ridley Wills II for the first time in 1998, shortly after returning to Vanderbilt University Medical Center from residency and fellowship training and a faculty position at Johns Hopkins.

But the generosity that connected them for life occurred a full decade earlier.

Balser, now vice chancellor for Health Affairs and dean of Vanderbilt University School of Medicine, was two years shy of completing the M.D./Ph.D. program at Vanderbilt University School of Medicine when he was awarded the Meade Haven M.D./Ph.D. Scholarship.

It's funded by the family of longtime Vanderbilt supporter Wills, retired senior vice president of the National Life & Accident Insurance Co. and third-generation member of Vanderbilt's Board of Trust, and his wife, Irene, after the death of Ridley Wills' father, Jesse E. Wills, in 1977.

Ridley Wills II, left, funded the scholarship that helped Jeff Balser, M.D., Ph.D., complete his rigorous educational program.



The scholarship allowed Balser to complete the M.D./Ph.D. program, which typically takes seven to eight years. The length and cost of an M.D./Ph.D. program makes full scholarship support essential. While VUSM is the recipient of a federal grant from the National Institutes of Health that supports a portion of the cost for about 25 percent of Vanderbilt's current 94 M.D./Ph.D. students, the remainder of the support comes from a combination of endowment, scholarships, the Dean's office and the individual departments.

In 1988 Balser was told only that a prominent Nashville family was supporting his scholarship. "I wrote a thank you note. I understood, and was so grateful, that their support was making it possible for me to finish my program."

After Balser became dean of the School of Medicine in 2008, he asked for information about the Meade Haven Scholarship and learned it was named after the Wills' Belle Meade home. The couple, whose son, Morgan, is a 1996 graduate of VUSM, also fund the Wills Scholarship to provide assistance to worthy medical students based on financial need.

"I was stunned, because I had met Mr. Wills on several occasions. The very same evening I knew I would see Mr. and Mrs. Wills at a dinner, so I approached them and said, 'Do you know who had the Meade Haven Scholarship? I did.' They didn't know either. It was one of those special moments."

Balser said the two have gotten to know each other very well since that time.

"We love to talk about how things come full circle, how some things you've done long ago have a big impact down the road. I think it's very fair to say that without the Meade Haven Scholarship my life would have been very different. I very likely would have landed somewhere else for M.D./Ph.D. training."

Wills said that he and his wife are proud of all Balser has accomplished. "We've been impressed with his leadership. He's energetic and bright and the School of Medicine is a great source of

pride for everyone who loves Vanderbilt."

The majority of students entering medical schools across the country are confronted with unmanageable costs that require them to take on substantial debt, forcing students to make choices that limit them when pursuing their desired career paths in medicine. Vanderbilt now competes head-to-head with the nation's most elite medical schools for the world's finest students.

Some inclined to attend Vanderbilt are nevertheless forced to choose other schools with more robust scholarship endowments, particularly when faced with incurring large debt obligations.

Student scholarships and endowed chairs are Balser's two top funding priorities at the School of Medicine. The recently launched Scholarship Initiative has a straightforward purpose: to grow the scholarship endowment so that every student accepted — an elite group of about 250 from among the 5,600 who apply each year — can choose Vanderbilt without concern for burdensome debt.

The Class of 2012 graduated with an average total educational debt level of \$140,500. Some medical student couples have debt loads exceeding \$300,000.

Irene Mathieu, a member of the Class of 2014, said that Vanderbilt became her No. 1 choice for medical school after she found out she was receiving a full four-year Canby Robinson Society Scholarship.

"I have been able to focus on my passions of primary care and health in underserved communities around the world — passions that are decidedly not lucrative. But thanks to the Canby Robinson (scholarship) I do not have to consider finances when weighing career options and have been able to fully explore these areas in medical school," she said.

"I want to help shape foreign and trade policies by advocating for the health rights of communities impacted by these policies. Agricultural and free trade agreements are particularly fascinating to me because of their effects on poverty, migration and disease risk. Thanks to my scholarship, these dreams will not be limited by

IN BRIEF

debt,” said Mathieu, who is considering a career in internal medicine and pediatrics and a master’s degree in public health.

Michael Casner, president of the VUSM Class of 2013, received the Cornelius Vanderbilt Scholarship, which funds 40 percent of his tuition. Casner, who plans to pursue emergency medicine, said that not only did the scholarship make a Vanderbilt medical education affordable, it also showed him that Vanderbilt wanted him. “That intangible aspect meant more to me than the numerical value of the offer,” he said.

He said being able to leave medical school without enormous debt has allowed him to focus on things he values without the worry of how he will repay his debt.

“For residency training I’d like to be in an urban environment, which typically means a higher cost of living. While I still have some student loans to repay, knowing they aren’t as large as they could be makes the financial aspect of living in a big city a little less daunting.”

Balser said having a fully funded M.D./Ph.D. scholarship to Vanderbilt allowed him to invest the time to learn the fundamentals of discovery science early in his career.

“I wasn’t burdened with substantial debt after my medical training, so I was able to spend more time engaging in post-doctoral research training while raising a family. The scholarship made everything possible. It’s a key reason I’m so passionate about trying to raise more money for student scholarships.

“When I think about philanthropy, I think about the Wills family,” Balser said. “For me, philanthropy isn’t just an idea, it’s a personal experience, and when I think about the impact the Wills family has had on my own life and career, it helps me articulate how important scholarship support is at Vanderbilt.” - NANCY HUMPHREY

WEB LINK
For more information visit vanderbilthealth.org/MDscholarship.

A COMMUNITY HOSPITAL, IN THE BEST SENSE OF THE WORD

The expansion at the Monroe Carell Jr. Children’s Hospital at Vanderbilt will have a lasting impact on the Middle Tennessee community. And the support from that community will have a lasting impact on the hospital. More than 335 donors, companies, foundations and organizations provided \$13 million to the project.

“Nashville is a great community,” says Richard W. “Rick” Dreiling, chairman and CEO of Dollar General and also chair of Monroe Carell Jr. Children’s Hospital Board. “Our people are genuine, and we actively work to make our community better. The hospital is an outgrowth of that, and we’re very excited to be a part of its future.”

Dollar General Corporation is giving more than \$1 million to benefit the Neonatal Intensive Care Unit, part of Children’s Hospital’s 33-bed, 30,000-square-foot addition. “Every time you see a child who is struggling from premature birth or a disability, it reinforces this belief that every child should have the same start in life,” he says. “Every child deserves to be healthy and get an education.”

For Martha Ezell, a nurse educator and a board member of Children’s Hospital, her support springs from personal experience. Her family’s long relationship with Monroe Carell Jr. sparked their interest in the hospital.

“We are so very fortunate to have a resource like Children’s Hospital right here in our community,” Ezell says. “We are one of the many families in this area who have a Vanderbilt story. We are blessed to be able to support the hospital.”

The family made a gift to name a patient room on the Pediatric Critical Care Unit to honor pediatric cardiologist Vernat Exil, M.D.

The impact of gifts from community supporters will be felt for decades to come, says Susie Stalcup, vice chancellor of Development and Alumni Relations. “Vanderbilt made a bold commitment to children’s health when it began this expansion project during the economic recession, and our supporters made that bold commitment together with us,” she says. “The opportunity to expand our capacity to care for patients and families will be transformative. By caring for the children who need us the most, we are creating a brighter future for all of us.” - JAN READ

Jeff Balser, M.D., Ph.D., vice chancellor for Health Affairs, and Ann Carell, honorary board member of the Monroe Carell Jr. Children’s Hospital at Vanderbilt and wife of the late Monroe Carell, cut the ribbon at the May expansion celebration.





ANN H. PRICE, M.D.
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Reunion 2012 Special Anniversary Class Celebrants

<i>Reunion 2012 Anniversary Years</i>	<i>Reunion 2012 Class Social Chair(s)</i>
Quinq Plus 1961 & earlier 50th (Quinq) 1962	W. Anderson Spickard Jr., M.D. Lansdon B. Robbins II, M.D. Harold L. Moses, M.D. Clifford L. Garrard Jr., M.D.
49th (Quinq) 1963	Ronald E. Overfield, M.D. Robert W. Ikard, M.D. Gary W. Duncan, M.D.
46th 1966	William B. Ralph Jr., M.D.
45th 1967	Joseph W. Huston III, M.D.
41st 1971	J. Brevard Haynes Jr., M.D.
40th 1972	J. Gregory Sikes, M.D.
36th 1976	James W. Felch, M.D., Ph.D.
35th 1977	Linda S. Ludin, M.D.
31st 1981	George D. Wright III, M.D. Ellen P. Wright, M.D.
30th 1982	Carl R. Hampf, M.D. David L. Cross, M.D.
26th 1986	John W. Macey Jr., M.D.
25th 1987	Erich B. Groos Jr., M.D.
21st 1991	Deborah D. Beyer, M.D.
20th 1992	Kenneth J. Carpenter, M.D. Chace T. Carpenter, M.D.
16th 1996	Anne F. Anderson, M.D.
15th 1997	Sara F. Patterson, M.D.
11th 2001	James D. Grippo, M.D.
10th 2002	Sara Habibian, M.D.
6th 2006	Matthew P. Landman, M.D. Celeste O. Hemingway, M.D.
5th 2007	Adam S. Pitts, M.D.

Service Award winner, Margaret (Peggy) Joyce, B.A. '51. The Saturday, Oct. 27, reunion activities will feature student presentations followed by a new event, our first ever medical alumni luncheon/tailgate in Langford Auditorium. Afternoon homecoming/football festivities and our anniversary class parties on Saturday evening will round out the VUSM Reunion weekend. To learn more about the VUSM Reunion 2012, please visit our VMAA website which will be continuously updated during the coming months: <https://medschool.vanderbilt.edu/alumni/>.

VMAA Events and Programs

For the past several months, the VMAA has been actively involved with members of our Vanderbilt medical community. We extend a special note of appreciation to both Robert Snowden, M.D. '69, (VMAA Board Regional Representative) and Joseph Cook, M.D. '64 (newly elected VMAA Board Regional Representative), who graciously served as hosts for regional dinners earlier this year in Pensacola, Fla., and Durham, N.C., respectively. In addition, the VMAA hosted spring events for our Vanderbilt Meacham (Neurological Surgery), Friesinger (Cardiology), Roentgen (Radiation Oncology), Luton (Psychiatry), and Orthopaedic Societies. Most recently, we supported our students' annual 5K Shade Tree Trot, which raised \$21,000 for the Shade Tree Clinic. In addition, we assisted with the Post-Doctoral Fellows Poster Symposium and Ph.D. qualifying celebration. A busy summer was highlighted by the June 25 welcome picnic for our new Vanderbilt medical house staff.

VMAA Welcomes New Board Members

The VMAA welcomes the following newly elected or appointed board members whose four-year terms will begin at Reunion 2012: Regional Representatives: Joseph A. Cook, M.D. '64, (Southeast), Maj. Gen. Stephen L. Jones, M.D. '78, B.A. '74, (Northeast), Loren H. Marshall, M.D. '84, HS '87, (Mid-West) and Mary Laird Warner, M.D. '90, (Mid-West) and Specialty Society Representatives: Melissa R. Kaufman, M.D., Ph.D. (HS '07, FE '09, FAC '09-present, Vanderbilt Urology Society), Joseph Wilson Jr., M.D. (B.A. '73, FE '83, Friesinger Society), and Sara Habibian, M.D. '02, HS '06, (Burnett Society).

Best Wishes,

Ann H. Price

Vanderbilt Medical Alumni Reunion 2012

Our next biennial VUSM Reunion, Oct. 25-27, is fast approaching. Reunion festivities will begin on Thursday morning, Oct. 25, with a golf outing at Vanderbilt's Legends Club followed by an evening welcome reception at the Country Music Hall of Fame and Museum. On Friday, Oct. 26, the reunion schedule features CME opportunities, the Quinq class inductions (Classes of '62 and '63), luncheons for all alumni, and our traditional Grand Dinner celebration at Loews Vanderbilt Hotel. This year the Grand Dinner will honor our 2012 VMAA Distinguished Alumni Award recipients, John M. Leonard, M.D. '67, and David H. Walker, M.D. '69, as well as VMAA Alumni Achievement Award winner, Robert F. Miller, M.D. '82, and VMAA Distinguished

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

60s

Robert Carey, M.D. '65, FE '72, Harrison Distinguished Professor of Medicine at the University of Virginia, received the Edward H. Ahrens Jr., Award from the Association for Patient Oriented Research in April 2012. The award is given for distinguished career achievement in clinical and translational science. In addition, Carey has been elected a member of the board of directors of the American Heart Association.

James Maddy, M.D. '63, and his wife, Judith Knight Whitsitt, R.N., celebrated their 50th wedding anniversary in June. Maddy had a private practice in internal medicine at Casper Clinic in Casper, Wyo., for the last several years of his practice, while Judith worked in the clinic as a nurse. The couple has six children.

Fremont Wirth, M.D. '66, is the neurosurgery co-director of the movement disorders program at St. Joseph's/Candler Health Systems in Savannah, Ga., and associate clinical professor of surgery/neurosurgery at the



David Frantz, M.D., Thomas Nygaard, M.D. '78, **Chad Hoyt, M.D., HS** '97, and **Chris Thompson, M.D.**, participated in the International Cardiovascular Diseases Conference, which was held in Dar es Salaam, Tanzania, in January. The conference was in conjunction with the Cardiology Tanzanian Outreach Project, which aims to cultivate and improve cardiovascular care throughout East Africa.

Medical College of Georgia. He served as president of the American Association of Neurological Surgeons, director of the American Board of Neurological Surgery and co-director of Neuro-Oncology at the Nancy N. and J.C. Lewis Cancer & Research Pavilion at St. Joseph's/Candler.

70s

Ralph Wesley, M.D. '72, HS '73, FAC, presented the keynote Wendell Hughes Memorial

Lecture in ophthalmic plastic surgery at the American Academy of Ophthalmology meeting in Orlando, Fla., in October 2011. He is founding director of Ophthalmic Plastic and Reconstructive Surgery and clinical professor of Ophthalmology at VUMC. He serves as chairman of the American Society of Ophthalmic Plastic Surgery Foundation and is a member of the advisory board of the Vanderbilt Eye Center. He is married to the former Julia Arterberry (MA '71) and they have four children.



Levi Watkins Jr., M.D. '70, delivered the keynote address at the 34th Annual University-wide Research Symposium at Tennessee State University in April. Watkins is the associate dean of the Johns Hopkins University School of Medicine and professor of Cardiac Surgery. He attended Tennessee State University where he majored in biology and served as president of the student body.

80s

Timothy Givens, M.D. '87, has been associate professor of pediatrics and medical director of the Emergency Department at Children's Hospital Colorado, since 2009. He was recently named section head of pediatric emergency medicine, in the Department of Pediatrics at the University of Colorado School of Medicine. He is married to Patricia Givens, R.N., associate chief nursing officer at Children's Hospital Colorado and former chief nursing officer at the Monroe Carell Jr. Children's Hospital at Vanderbilt. They have four children: Elliott, 25,

Jacquelyn, 23, Daniel, 21, and Sam, 18.

Michael Kaleko, M.D., Ph.D., HS '86, has been appointed scientific director of Synthetic Biologics, a developer of synthetic DNA-based therapeutics and innovative disease-modifying medicine.

Art Klose, M.D. '83, HS '85, was named Physician of the Year in Carteret County by the medical staff at Carteret General Hospital.

Thomas McLeod, M.D. '88, is the volunteer medical director of the Salvation Army's Good Samaritan Medical Clinic in Rochester, Minn., which serves uninsured residents and has 3,000 patient visits per year. He is also a primary care physician at the Mayo Clinic, a position he's held for 20 years.

Robert Means, M.D. '83, FE '89, professor of Internal Medicine and executive vice dean at the University of Kentucky College of Medicine, was installed as the 66th president of the Southern Society for Clinical Investigation at its annual meeting in New Orleans in February.



Russell Leftwich, M.D. '78, HS '81, chief medical informatics officer for the Tennessee Office of eHealth Initiatives, is the recipient of the 2011 HIMSS Physician IT Leadership Award. The award is presented to one individual who, in the judgment of the board of directors, has demonstrated significant leadership in the area of applying IT to the needs of physicians, serving the society and/or the industry.



Michael Blood, M.D. '81, center, participated in a two-week medical mission trip to Haiti in November 2011. With a medical team of 30, they were able to see 3,000 patients and perform 30 surgeries. This was his 16th trip to Haiti since 2005. Steve O'Sheal, M.D. '81, performed the pathology reading on surgical specimens.



Eric Rowinsky, M.D. '81, has joined Stemline Therapeutics, Inc., as executive vice president, chief medical officer and head of research and development. The clinical state bio-pharmaceutical company develops novel oncology therapeutics that target cancer stem cells.

Mary Dekker Nettleman, M.D. '81, has been appointed vice president for health affairs and dean of the Sanford School of Medicine at the University of South Dakota. Nettleman is a nationally-recognized expert in epidemiologic and health outcomes research and has served as chair of the Department of Medicine at Michigan State University College of Human Medicine since 2003.

David Reagan, M.D. '85, HS '88, Ph.D. '82, has been named chief medical officer for the Tennessee Department of Health. In this position Reagan will serve as an adviser to the commissioner on matters of health policy and assist in setting priorities for the department.

Left to right: Lee Gordon, M.D. '90, associate professor of Surgery and Cancer Biology at Vanderbilt, Mark Fogarty, M.D. '90, an internist in St. Louis, Mark Earnest, M.D. '90, Ph.D., professor of Medicine at the University of Colorado School of Medicine, and Jeff Sippel, M.D. '89, MPH, chief medical officer at Centura Health in Denver, enjoyed a back-country ski trip to the Fowler-Hilliard Hut outside Leadville, Colo., in January.



90s

Michael Bobo, D.D.S., M.D. '97, HS '00, maintains private practice of oral and maxillofacial surgery in Murray, Ky., and Union City, Tenn. He recently completed construction on a new office and brought in an associate surgeon to the practice. He and his wife, Sharon, celebrated 20 years of marriage and have three sons: Christian, 12, Clayton, 10, and Carson, 8. The family owns and operates Deeply Rooted Farms, where they raise Angus cows, Highland cows and Clydesdale horses.

Scott Gibbs, M.D. '92, was elected president of the West Virginia Academy of Otolaryngology Head

and Neck Surgery in October 2011. In August he will serve as the chief of Otolaryngology at the V.A. Medical Center in Huntington, W.Va.

George Goldin, M.D., HS '94, joined the Redmond Regional Medical Center's board of trustees in January. Goldin has practiced in the Department of Gastroenterology at the Harbin Clinic since 1997.

Richard Hackett, M.D. '95, left the White House in January 2011, where he served on the National Security staff as director of medical preparedness, to rejoin the U.S. Department of Health and Human Services as chief medical

book focus



Eric Zacharias, M.D. '93, an assistant clinical professor at the University of Colorado Health Sciences Center, has authored the book "The Mediterranean Diet: A Clinician's Guide for Patient Care" (Springer). He and his wife moved to Colorado for the great offerings of outdoor activities and excellent climate. They enjoy running, cycling, telemark skiing, and hiking together and with their children.



John Warner, M.D. '92, has been named chief executive officer for UT Southwestern Hospitals, effective Feb. 1. Warner has been one of the leaders of the planning process for the new 460-bed state-of-the-art hospital scheduled to open in 2015.

officer and deputy director of biomedical advance research and development authority.

Renee B. Iacona, Ph.D. '98, has been promoted to section director of statistics and programming for AstraZeneca Pharmaceuticals where she will manage a staff of more than 100 across Wilmington, Del., and Sodertalje, Sweden.

Kimberly Klippenstein, M.D. '90, HS '94, FE '97, is an oculoplastic surgeon in Nashville and was recently named a Kentucky Colonel by Gov. Steve Beshear for care rendered to patients from Kentucky. She is a member of the Canby Robinson Society and a clinical instructor in ophthalmology at Vanderbilt. Her oldest son,

Cole, is playing hockey in the Junior League in Canada.

Martin Newman, M.D. '97, has been ranked among the top physicians in the nation and was honored with the prestigious 2011 Patients' Choice Award, given to physicians who receive top scores by their patients and top quality measures.

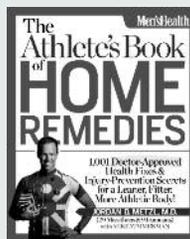
2000-

Rachel Bloch, a third-year Vanderbilt medical student, and **Michael Wolf, M.D.** '12, were married May 18 in Nashville. Wolf is an intern at the Monroe Carell Jr. Children's Hospital.

D.J. Campbell, M.D., FE '07, has joined the board of directors of Chattahoochee Bank of Georgia (CBG). Campbell has been a board-certified plastic surgeon at the Aesthetic Center of Gainesville and Braselton, P.C. since August 2007. He resides in Gainesville with his wife, Jennifer, daughter, Hannah, and son, Blevin.

Rob Isaak, M.D. '07, has joined the University of North Carolina Department of Anesthesiology as a clinical assistant professor and as a member of the liver transplant anesthesiology team.

Sean Kelly, M.D., HS '00, has been named chief medical officer by Imprivata. He will work closely with clinical and IT leadership to identify trends that drive innovative new products for improving physician efficiency.



Jordan Metzler, M.D., FE '97, has published "The Athlete's Book of Home Remedies," which includes hundreds of doctor-approved, do-it-yourself remedies for numerous sports injuries. He is a sports medicine physician at New York City's Hospital for Special Surgery. Metzler is also a 29-time marathon runner and has completed nine Ironman Triathlons.

book focus

Jonathan Kim, M.D. '04, began a fellowship in cardiology at Emory University in July 2011. His study "Cardiac Arrest in Long Distance Running Races" was published in the Jan. 12 issue of the *New England Journal of Medicine*. He and his wife, Angela, welcomed a son, Benjamin, who was born Nov. 4, 2011.

Andrew Lautz, M.D. '10, and Kara Moranski, Ph.D., are engaged to be married. Lautz is a pediatric resident at Children's Hospital in Philadelphia.

Kelly Moore, M.D. '00, MPH, the medical director of the Tennessee Immunization Program, received the 2012 Natalie J. Smith, M.D., Memorial Award for outstanding program management, at the annual meeting of the National Association of Immunization Managers in February.

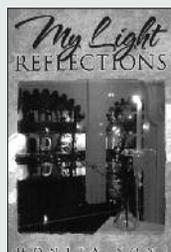
John Phillips, M.D. '10, and **Catherine Hawley, M.D.** '12, were married April 7 in Winston-Salem, N.C. Hawley is a resident in diagnostic radiology at Harvard's Brigham and Women's Hospital and Phillips is a resident in radiation oncology at the Harvard Radiation Oncology Program.

Daniel Stover, M.D. '08, HS '12, was awarded a fellowship in medical oncology at Massachusetts General Hospital/Dana-Farber Cancer Institute in July. In addition, he was given the Hold Young Physician Leadership Award by the Southern Medical Association in December 2011.

Julie Thwing, M.D. '02, HS '06, and her family moved to Dakar, Senegal, where she has accepted a position as resident technical adviser with the U.S. President's Malaria Initiative. She will be helping to oversee a budget of \$20 million in malaria control interventions and will be providing technical assistance to the National Malaria Control program. She will be the only Centers for Disease Control and Prevention staff in the country. She and her husband, Ed, had baby boy, Jeremiah, on Aug. 7, 2011.



Kimberly Vinson, M.D. '03, assistant professor of Otolaryngology, has been named assistant dean for VUSM's newly organized Office for Diversity. She will focus on diversity among medical students and will work on a curriculum to teach about health disparities.



Monita Soni, M.D., HS '97, has authored the book "My Light Reflections" (AuthorHouse), a collection of poems. Soni is president of the Huntsville, Ala., Literary Association and founder of PrimePath, a diagnostic pathology laboratory.

book focus



Lonnie S. Burnett, M.D., professor of Obstetrics and Gynecology, emeritus, and former chair of the department, died April 3, following a brief illness. He was 84. After distinguishing himself as a faculty member at Johns Hopkins University, Dr. Burnett was recruited to Vanderbilt in 1976 as chair of the Department of Obstetrics and Gynecology, where he served in that role for 19 years. He is recognized for his contributions in gynecological oncology. In 1993 the Vanderbilt Obstetrical Gynecological Alumni Association ("The Stork Club") was renamed the Lonnie S. Burnett Society. In 1995, he was named the Frances and John C. Burch Professor at VUMC. Under Dr. Burnett's leadership, the department increased in size and national reputation. More than 100 residents completed their residency training during his tenure. In recognition of his support of and devotion to medical student scholarship, Dr. Burnett was elected president of the Canby Robinson Society in 2006. Dr. Burnett is survived by his wife, Betty, and children, Anne and Michael Julian.

Calvin Applewhite, M.D. '43, died Feb. 2. He was 92. Dr. Applewhite is survived by his wife, LaVerne; children, Rebecca, Charlotte, Virginia and Elizabeth; 11 grandchildren and five great-grandchildren.

Anne Utley Barnes, M.D. '55, died Feb. 18. She was 85. Dr. Barnes is survived by children, Sidney Jr., and James; and three grandchildren.

Charles Betts, M.D. '51, died Nov. 6, 2011. He was 86. Dr. Betts is survived by his wife, Mary; children, Leah, Charles and Craig; 10 grandchildren and five great-grandchildren.

Dixon N. Burns, M.D. '45, HS '52, died March 24. Dr. Burns is survived by three children, three grandchildren and two great-grandchildren.

Robert Davies, M.D., HS '69, died Jan. 13. He was 72. Dr. Davies is survived by his wife, Suzanne; children, Elizabeth and Meredith; stepchildren, Catherine and Christopher; and one grandchild.

Michael Faulstich, M.D., Ph.D., HS '96, died April 21. He was 53.

Dr. Faulstich is survived by his wife, Kim; children, Paul, Natalie and Maria; and parents, Helen and Jerry.

William Harrison, M.D., HS '50, died April 27. He was 91. Dr. Harrison lived in Houston. He is survived by children, Cindy, Bill, Melissa, Douglas and James; 11 grandchildren and five great-grandchildren.

William H. Hill, M.D., HS, FE '63, died in April. He was 81. Dr. Hill is survived by his sister Jean; and many nieces and nephews.

Jack A. Jaffe, M.D., BA '56, MD '59, HS '60, died Dec. 15, 2011. Dr. Jaffe is survived by children, Jack and Dara.

Joanne Linn, M.D. '50, HS '53, FAC '02, died Jan. 27. She was 85. Dr. Linn is survived by children, Mary Louise, Margaret, Joseph and David; seven grandchildren; and three great-grandchildren.

Shields Livingston, M.D., HS '51, died June 28, 2011. He was 72. Dr. Livingston is survived by his wife, Harriette; children, Barbara, Marian and Thomas; five grand-

children and two great-grandchildren.

R. Gordon Long, M.D. '55, BA '52, died April 6. He was 81. Dr. Long is survived by his wife, Francoise; and children Chris and Andrew.

William Lyle, M.D., BA '41, MD '44, HS '47, died Feb. 28. He was 92. Dr. Lyle is survived by his wife, Sara; children, Laurie, Lane, Lillian, Bill and John; step children, Chole and Caress; 15 grandchildren and step-grandchildren; and six great-grandchildren and step great-grandchildren.

Richard Mathews, M.D. '66, of Dallas, died May 13. He was 72.

David Mullins, M.D. '49, HS '52, B.A. '46, died April 13. He was 86. Dr. Mullins lived in Pelike, Ala. He is survived by his wife, Marilyn; children David and Claudia; four grandchildren and one great-grandchild.

Lech Pietrasz, M.D., FE '95, died March 27. He was 55. Dr. Pietrasz is survived by his wife, Marta.

Ron Rice, M.D. '72, HS '78, died

Dec. 19. He was 65. Dr. Rice is survived by his wife, Pam; and children, Bradley and William.

Jourdan Roane, M.D. '56, HS '57, B.A. '53, of Memphis, Tenn., died May 13. He was 80.

Thomas Whitley, Jr., M.D., HS '73, died Jan. 29. He was 69. Dr. Whitley is survived by his wife, Jennifer; children, Carson, Harrison, Tim and Rob; and one grandchild.

John Yardley, M.D., HS '54, died Dec. 7, 2011. He was 85. Dr. Yardley is survived by his wife, Eritha; children, William, Madeleine and Elizabeth; six grandchildren and two great-grandchildren.

James Zickler, M.D., BA '43, MD '47, HS '57, died April 23. He was 90. Dr. Zickler is survived by his wife, Bobby; children, Jane, Dotty and Jim; seven grandchildren and five great-grandchildren.

Charles Zirkle, M.D. '41, HS '46, died Jan. 23. Dr. Zirkle is survived by his wife, Betty; children, Helen, Ian and Kevin; 11 grandchildren; and seven great-grandchildren.



John M. Flexner, M.D., professor of Medicine, emeritus, died Dec. 27, 2011. He was 85. Dr. Flexner was a U.S. Navy veteran who attended Yale University, earning a B.A. there in 1950, followed by a medical degree from Johns Hopkins in 1954. That same year he began an internship in internal medicine at Vanderbilt, joined the School of Medicine faculty in 1959, and over the years devoted himself to treatment of hematology/oncology patients, with a special interest in pain control and end-of-life issues. He was also a tireless educator of students, residents and fellow faculty members. He was elected an American Cancer Society Professor of Oncology, one of only 17 in the country; he was a co-founder, along with David Barton, M.D., of Alive Hospice; and he was one of the early physicians interested in pain management. His first wife, Barbara, who for many years was director of the Radiation Technologist Training Program, died in 2002. In 2003, in a hospital chapel packed with well wishers, Dr. Flexner married his second wife, Glenda, who survives him, as do four children, 10 grandchildren, and one great-grandchild.



1) School of Medicine graduate Rachel Apple, left, and her mother, Ann Price, M.D., VUSM's associate dean for Alumni Affairs, are all smiles on Commencement Day.

2) Joseph Knadler, Kelly Kohorst and Brad Lewallen give Founder's Medalist Daniel Koehler a few pointers.

3) From left, School of Medicine students Sarah Deery, Gabriela Andrade, Katie Ayers and Alia Durrani start the celebration following graduation.



PHOTOS BY ANNE RAYNER

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The Scholarship Initiative for Vanderbilt University School of Medicine

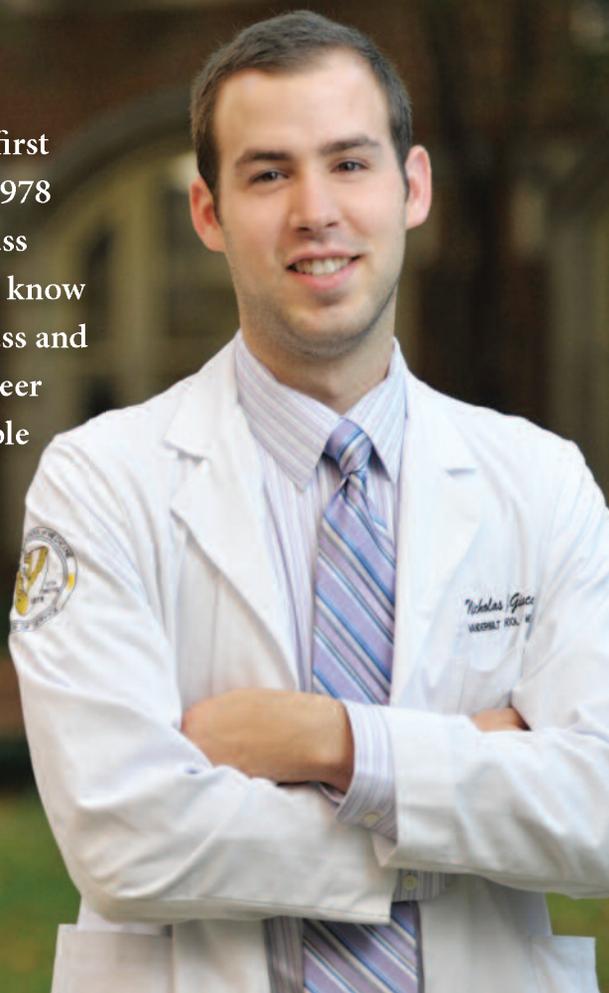
As a medical school applicant, Nicholas Giacalone knew that Vanderbilt was the place for him, yet he believed his state school options would provide more competitive financial aid packages. Giacalone, a native of Upper Sandusky, Ohio, was thrilled to be wrong. His decision to come to Vanderbilt was made possible by scholarship support.

Giacalone is the recipient of the 1978 School of Medicine Class Scholarship and also receives support from the Sue and Nelson Andrews Scholarship and the David Hitt Williams, M.D. Memorial Scholarship.

"I'm inspired by the generosity of so many who are making my dream to practice medicine a reality," says Giacalone.

"I'm honored to be the first student to receive the 1978 School of Medicine Class Scholarship. Getting to know the members of this class and hearing about their career paths has been a valuable part of my Vanderbilt experience."

— *Nicholas Giacalone,
Vanderbilt University
School of Medicine
Class of 2013*



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