Vol. 34, No. 2 Fall 2010

Vital Signs

Boonshoft School of Medicine
Wright State University

New hope for patients with few options

DUAL DIAGNOSIS

From the Dean

The medical school lost a very dear friend this year. Oscar Boonshoft passed away on March 22 at the age of 92.

Oscar's legacy cannot be overstated. Through the students we graduate, and the impact they will have as they care for patients, improve systems of health care delivery, and advance medical science, Oscar's vision and influence will surely endure for generations.

His vision is evident in the pages of this magazine. You'll find stories on our new Wright State University & Premier Health Partners Neuroscience Institute and Dr. Julie Gentile's pioneering work with people dually diagnosed with intellectual disabilities and mental illness. Oscar's support for our Comprehensive Neuroscience Center facilitated our partnership with Premier Health Partners to create the new Neuroscience Institute. And Dr. Gentile is fulfilling his vision by ensuring that some of the most vulnerable among us get the care they need.

Oscar Boonshoft

Oscar inspired us with his genuine warmth, his infectious enthusiasm, his sense of humor, and his passion for the possible. He left an indelible impression on everyone who had the good fortune to meet him, just as he has touched so many lives through his transformational impact on our community.

Oscar's delight in possibility allowed him to envision a better world and devise groundbreaking ways to realize that vision. We are honored to have been part of his journey.

Howard M. Part, M.D.
Dean

What's Inside

Vital Signs

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Vital Signs is published twice a year for alumni, faculty, staff, and friends of Wright State University Boonshoft School of Medicine.

DUAL DIAGNOSIS
They have stories to tell. I'm not doing anything special. I'm just listening.

REPEAT OFFENDERS
There's no treatment for it, so why would you want to get tested? It's a Catch-22.

NO BONES ABOUT IT
These results could serve as a blueprint for preventing neck injuries, and for treating them.

FLYING HIGH
We had to get the patients stable and care for them in the air until we could get the landing gear down.

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Snapshots

Boonshoft School of Medicine ranked fourth in the nation for its social mission

A new study published recently in the *Annals of Internal Medicine* ranks the Boonshoft School of Medicine fourth in the nation for its social mission. The study, entitled "The Social Mission of Medical Education: Ranking the Schools," measured the percentage of graduates who practice primary care, work in health professional shortage areas, and are underrepresented minorities, and combined the data into a composite social mission score. It is the first to score all U.S. medical schools on their ability to meet a social mission.

To determine the true outcomes of medical education rather than the intermediate preferences of medical students and residents, the study tracked physicians in practice after the completion of all training and national service obligations. The researchers examined data from medical school graduates from 1999 to 2001. This approach differs from previous studies, which relied on the initial residency selection or reported specialty preference of students. This study pinpoints where graduates are and what type of medicine they actually practice.

"The study provides a balance to other rankings, such as the *U.S. News & World Report* rankings, that emphasize research funding, performance on MCAT, full-time faculty-to-student ratios, and subjective reputation," said Howard Part, M.D., dean of the medical school. "Since many medical school graduates who enter primary care residencies, such as internal medicine, ultimately practice in sub-specialty areas such as cardiology or gastroenterology, studies that only track initial residency selection can be misleading. The methodology used in this study gives a much clearer picture of how many graduates actually practice primary care."

"Where doctors choose to work, and what specialty they select, are heavily influenced by medical school," said lead author Fitzhugh Mullan, M.D., a professor of health policy at George Washington University. "By recruiting minority students and prioritizing the training of primary care physicians and promoting practice in underserved areas, medical schools will help deliver the health care that Americans desperately need."

"As a community-based medical school, we are closely intertwined with the community we serve, and many of our students have come here for that reason," Part said. "I'm always impressed by how focused our students are on serving their fellow human beings." VS

As medical director of the LifeFlight air medical transport service, Jeremy Brywczynski, M.D. ('04), oversees a fleet of five helicopters, a fixed-wing aircraft, and specialized neonatal critical care ambulances serving Vanderbilt Medical Center's Level 1 Trauma Center.

Helping patients in (and over) the air

Jeremy Brywczynski, M.D. ('04), fully admits, "I'm not one to shy away from attention." A naturally outgoing personality has done more than make Brywczynski a memorable classmate and a personable clinician, however. It also earned him a place on national television.

In 2009, the cable network TLC approached Vanderbilt University Medical Center, where Brywczynski is an assistant professor of emergency medicine and medical director of the LifeFlight air medical transport service, about filming a new television series: *Emergency Level One.* The documentary-style reality show would feature emergency department physicians and their efforts to help trauma patients. When the medical center agreed and approached Brywczynski about being involved, he didn't hesitate.

"They came into Nashville for six weeks," he said, "and every shift I came to work, I wore a mike and was followed by cameras everywhere I went."

The scrutiny was uncomfortable at first, but he knew rigid safeguards were in place to protect patient privacy, and he trusted the network to portray him fairly. This confidence was justified when three pilot episodes aired on TLC in January.

"It was fun," Brywczynski said, "but it was weird to see myself on TV, watching with my family" (wife Cammi and nine-month-old son Jackson).

TLC may return to film additional episodes soon, and Brywczynski would be willing to participate again. In fact, his role on the show has opened the possibility of other media projects he is exploring.

A native of Dayton, Brywczynski said he couldn't have predicted where his path after medical school would lead, but he's thrilled with the journey so far. As for the future? Stay tuned. VS

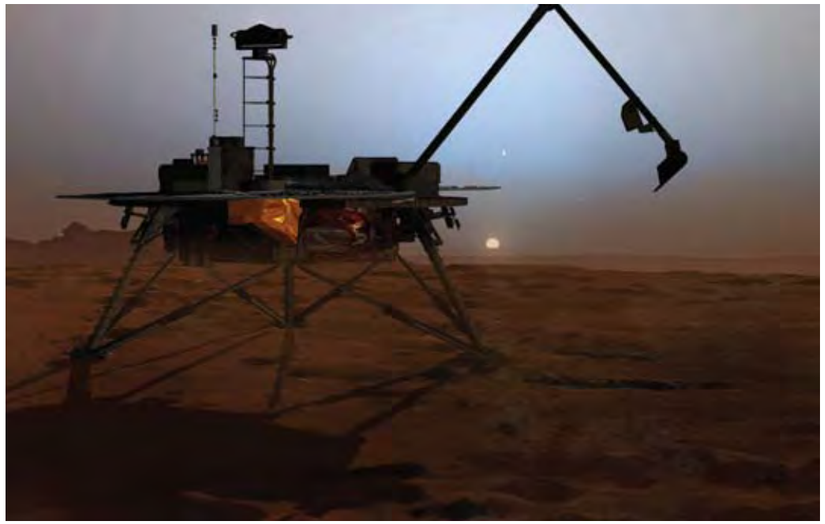
Snapshots

Preparing to deliver out-of-this-world medical care

Modern technology has enabled physicians to provide effective care in some of the most inhospitable settings and challenging circumstances on Earth, from mountain peaks to ocean depths, and blistering deserts to arctic tundra. For Tam Czarnik, M.D., all of these achievements are merely practice runs and stepping stones for a far more challenging, otherworldly goal: providing medical support for a human mission to Mars.

A 2000 graduate of the Aerospace Medicine Residency Program, in 1998 Czarnik became a founding member of the Mars Society, an international non-profit organization that promotes Martian exploration and settlement. Today, Czarnik serves as medical director for the society, which boasts nearly 8,000 members based in dozens of countries. His wife, Patt, is membership director.

The society held its annual convention in Dayton for the first time in August, and Czarnik returned to his former home to deliver a presentation entitled "A Doctor on Mars: Ten Years of Medical Operations with the Mars Society." In preparing his presentation, Czarnik applied some of the insights he has gained as medical director of the Nelson County Health System in rural North Dakota, which requires him to be flexible and resourceful in providing a wide variety of care for 3,100 patients scattered across 1,000 square miles. He also drew on firsthand experience with society-sponsored research stations in the Canadian Arctic, the American Southwest, the Australian Outback, and Iceland.



Tam Czarnik, M.D., his wife, Patt, and nearly 8,000 other members of the international Mars Society are working to promote and prepare for the exploration and settlement of Mars. Illustration courtesy of NASA.

A Mars mission would be far more challenging than the most daring space travel undertaken to date, he explained. For example, the mission would likely feature the same size crew (six people) that occupies the International Space Station at full capacity, but within a quarter of the space, millions of miles farther away, and for several years rather than a matter of months. Astronauts on the space station can be evacuated to Earth for medical care within one to two days; returning from Mars would take more than two years. Even getting an injured crewmember back inside the heated, pressurized habitation for care would likely take 90 minutes—far too long in the event of a serious or life-threatening injury.

Medical care for crew members would need to address disease, trauma such as falls and accidents, and mental health issues such as anxiety, isolation, and depression. Even dental problems could become serious if left untreated for months or years. Telemedicine would be difficult, given a communications delay between Earth and Mars of up to 20 minutes for each transmission. A remote access medical suit, with features to help maintain breathing and circulation and administer pain medication and fluids, could help, Czarnik suggested. A better solution would be to include a paramedic or physician, ideally trained in primary or trauma care, on the crew. **VS**

To learn more about the Mars Society and its research activities, visit marssociety.org

White Hall facility renamed Gandhi Medical Education Center

The Medical Education Center in White Hall has a new name.

It is now known as the Gandhi Medical Education Center in honor of the generous support of Ramesh and Saroj Gandhi. The new name was unveiled during a festive donor appreciation dinner in August. The Gandhi's recent gift will fund scholarships and complete the renovation of the pathology labs.

The planned renovation will bring the labs up to architectural par with the rest of the building. The plans include creating overflow space for the McGee Auditorium, with new video/audio conferencing technology, a new pathology lab and team-learning space, and a new quiet-study area, and adding new equipment to make the area a state-of-the-art electronic classroom. The renovation will also improve the hallway between the lab and the McGee Auditorium.

Members of the incoming Class of 2014—the first to begin their professional training in the renamed Gandhi Medical Education Center—gather to celebrate the announcement of the new name.

Renovations are slated to be complete by August 2011.

"Teamwork and commitment to community are cornerstones of our medical school," said Howard Part, M.D., dean of the Boonshoft School of Medicine, "and the creation of the Gandhi Medical Education Center has been a truly a collaborative effort. We thank all our donors whose generous support made this state-of-the-art medical education facility a reality." **VS**

NIH awards $2.1 million to encourage aspiring scientists

Since 1994, the STREAMS program at Wright State University has provided intensive summer research experiences for college students from around the country. Of the program's 150 graduates, 74 percent have completed (or are now enrolled in) advanced degree programs, and many have earned an M.D. or Ph.D. and established successful careers in biomedical research.

Thanks to a recent grant from the National Institutes of Health (NIH), the STREAMS program will be able to continue this legacy of success for several more years. Earlier this year, the NIH approved a multi-year grant of $694,440 to fund the program through 2015. At the same time, the NIH approved a second grant of $1,486,553 to establish a new, similar program and sustain it through 2014.

Like STREAMS, the new GRAD-PREP program allows participants to work with faculty mentors to conduct biomedical research in campus laboratories. However, GRAD-PREP scholars must be recent college graduates with a science degree, and they will spend a full academic year at Wright State. By completing the program, students will acquire significant research skills, experience, and credentials, which should prepare them well to earn admission to—and experience success within—competitive Ph.D. programs.

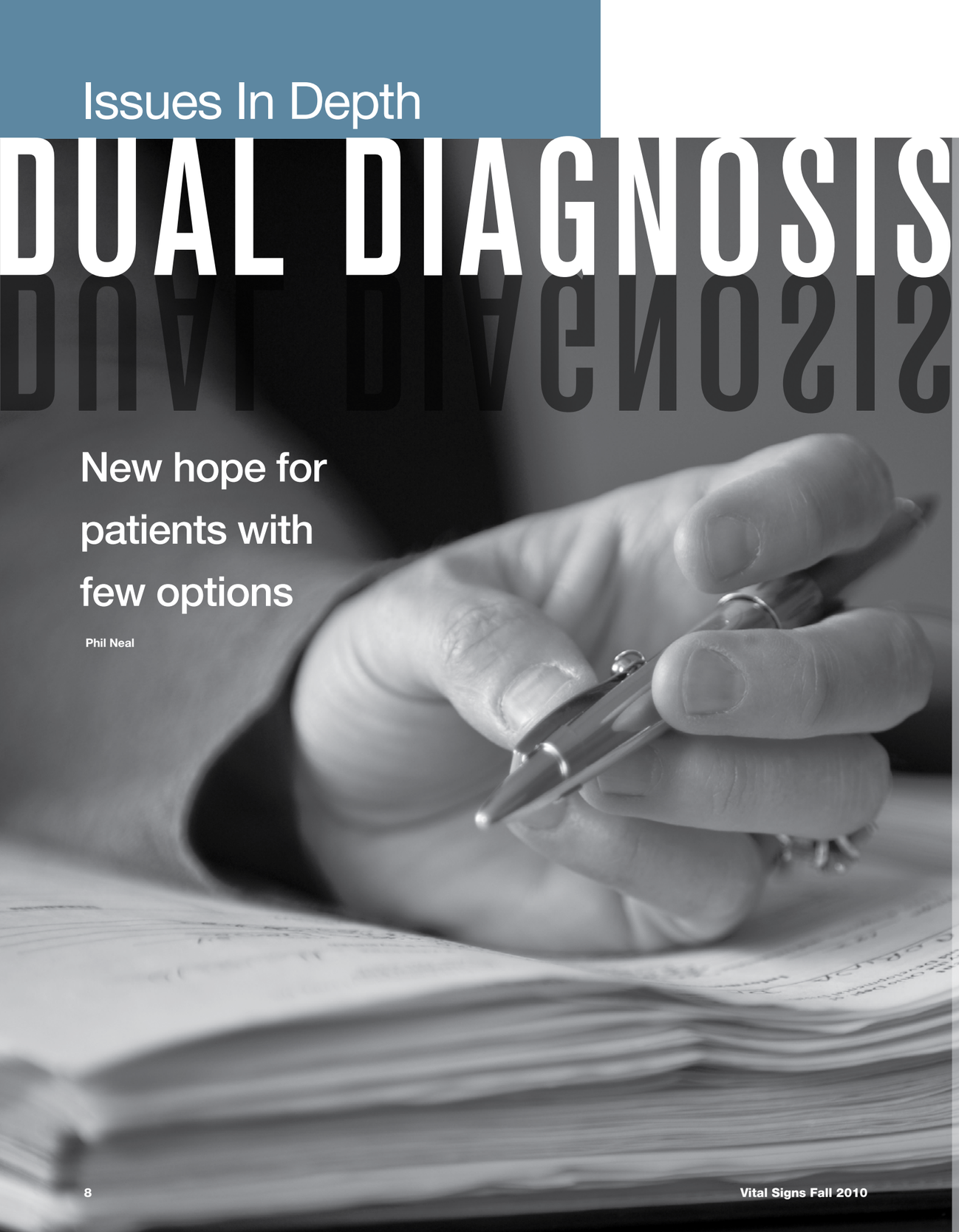
Both programs, which are based in the Boonshoft School of Medicine, are open to students from underrepresented racial and ethnic groups, those with disabilities, and individuals from disadvantaged backgrounds. **VS**

For more information, including program applications, visit med.wright.edu/streams or med.wright.edu/GRAD-PREP

DUAL DIAGNOSIS

New hope for patients with few options

Phil Neal



When Alice Young-Ditto's daughter went into labor, she experienced all of the joy, anxiety, and excitement of a first-time grandmother waiting to welcome a new generation into the family. Moments after the baby entered the world, however, his mother nearly left it.

Shortly after the delivery, an aneurysm in Andrea Young's brain ruptured, causing a hemorrhagic stroke and leaving the new mother battling for her life. Physicians were able to diagnose her condition quickly and perform emergency procedures to stabilize her, but they cautioned that her outlook was grim.

"The doctors had basically given up all hope that she would survive long after surgery," Alice said. "The surgeon told us, 'She's young. It's up to her and God. We've done all we can do.'"

Despite the odds, Andrea survived. Physically, she made a remarkable recovery, but her mental capacity was altered dramatically. It quickly became clear that someone else would have to take responsibility for her newborn son.

"I thought, 'A new birth? No way can I do this,'" Alice recalled.

Somehow, though, with the help of her husband, James Ditto, and a close-knit extended family, she did. Today, Alice is the guardian for both her daughter, who is able to live independently nearby with significant support, and her grandson, Robert.

"I used to ask 'Why?'" Alice said. "Now I ask, 'Why not?'"

Portrait of a young patient

While Alice didn't expect her second stint as a mother to be easy, raising Robert for the past two decades has involved challenges she never anticipated—and can never fully overcome. At 21, Robert is strong, handsome, outgoing, and full of a young man's hope and enthusiasm. But he also continues to need close supervision and ongoing support.

Like some 80,000 other Ohio residents, Robert has a developmental disability. His condition falls under the broad category of intellectual disability (ID) and consists of an educational delay and mild autism. What this means in terms of day-to-day life, according to Alice, is that he behaves like a child of five or six.

"He's very independent, outspoken, opinionated," she said. "He's very playful, and extremely social. In many ways, he's like a normal teenager, but he always has to have that supervision, because his common sense—it's just not there."

Robert's situation is further complicated by long-term mental health issues. He suffers from bipolar disorder, which can cause cycles of mania and depression, and has some trouble with coping skills and anger management.

Despite these challenges, Robert enjoys a happy, fulfilling life. He completed high school and now attends a school-based transitional program that provides supervised work opportunities in the community. He is an accomplished athlete who excels in softball, basketball, and track. He loves to bowl, enjoys spending time with friends, and has strong relationships with his extended family.

All of this is possible due to the devoted care of his grandmother—and expert support from a visionary physician determined to bring quality care to those most in need.

Vulnerable patients with few good options

The confluence of mental health issues and ID places Robert squarely within the ranks of a specialized, challenging, and often poorly served patient population: the dually diagnosed. Some 28,000 Ohioans with ID will experience mental illness during their lifetime, according to Julie Gentile, M.D., ('96) associate professor of psychiatry. She has devoted much of her own professional life to ensuring they have access to effective treatment.

Around 85 percent of people with ID have a mild disability, Gentile said. They may have comparatively little trouble living in the community, holding down jobs, building strong relationships, and receiving adequate health care. The remaining 15 percent, who have moderate, severe, or profound ID, are more likely to have complicated dual diagnoses and less likely to get appropriate care.

Alice Young-Ditto has served as guardian for her grandson, Robert, and his mother, Andrea, since Andrea suffered a brain aneurysm during childbirth 21 years ago.

"They have a higher prevalence of mental health issues," Gentile said, "and it's harder to find physicians in general who are comfortable seeing them."

Providing effective psychiatric care can be even more challenging because behavior and communication issues can make traditional physician-patient interactions ineffective, if not impossible.

"Patients who have communication difficulties, especially those who are nonverbal, take more time to interview and assess and treat," she said. "And often the treatment plan is based on collateral data from direct care staff, family members, etc."

Even unraveling the complex web of conditions confronting many dually diagnosed patients can be difficult. An important first step is simply distinguishing mental health issues from more straightforward medical problems.

"Patients with communication difficulties who have medical problems often present with behavioral issues," Gentile said. "So they come to psych first, as opposed to a primary care physician or someone in another field. It's vitally important that we screen for medical conditions and make sure everyone has a primary care physician who is doing thorough physical exams and follow-up."

In a similar way, dually diagnosed patients are often prescribed a dizzying array of medications, presumably in an attempt to manage their symptoms.

"We have a lot of polypharmacy. There's a lot of overmedication in this subset of the population," Gentile confirmed. "We have people regularly referred to our clinics who are on 10, 15, or 20 medications. We have patients on multiple antipsychotics, multiple mood stabilizers, cardiac medications, sometimes medications in many other categories, in an effort, I believe, to decrease behaviors or to sedate or quiet folks."

Such prescriptions are often "off label," with uses and dosages that haven't been approved by the U.S. Food and Drug Administration. Dually diagnosed patients are already at a disadvantage in this regard, because people with ID are one of four groups (along with children, senior citizens, and women of childbearing age) excluded from clinical trials of pharmaceuticals.

"We don't have specific data for our subset of the population," Gentile said, "which is why I promote following best practices and evidence-based medicine, for the general population. I want my medication regimens to look exactly the same. There's no evidence that they should look different."

Carefully adjusting a patient's medications to suitable levels can take weeks or even months, Gentile said, but the benefits are well worth the effort.

"If people are medicated appropriately," she said, "they're going to think more clearly. They're going to have improved memory skills. Their learning potential is going to be improved. And their quality of life is going to be better."

The power and promise of psychotherapy

In addition to effective pharmacological management, Gentile is a strong advocate of psychotherapy for dually diagnosed patients.

"I think it's a common belief that patients with ID cannot benefit from psychotherapy, and can't actively participate," Gentile said.

On the contrary, she insists that psychotherapy can be a powerful—and sometimes uniquely beneficial—form of treatment.

"I have seen it work. I've seen it do amazing things, and we have science to back that up. Modifications need to be made, however," she said. "Patients often have memory problems and attention span difficulties, and they need more repetition."

In light of these challenges, appointments tend to be shorter and more frequent, with two or three 30-minute sessions each week rather than a single meeting of 50 minutes.

In addition, "we might involve a caregiver or other interested party," when one is available and the patient consents, "at the beginning or end of the session, to summarize and communicate what needs to be reinforced between appointments.

"You can also give patients visual aids," Gentile said, "so they can practice coping skills, strategies, and so on between appointments, and if they have something tangible, something concrete to remind them they are much more likely to assimilate the information."

All of this extra effort is justified in order to offer the best possible treatment for patients with significant needs.

"They have anxiety disorders and depressive disorders and psychotic disorders," Gentile said, "just like everyone else in the general population."

Consolation for the bereaved

Dually diagnosed patients may bear an especially heavy burden in dealing with grief and loss issues. Because modern medicine has increased life expectancy for people with ID dramatically, many will outlive their parents, siblings, and others who play a central role in their lives.

"It can be catastrophic," Gentile said. "They could lose their home, their pets, their possessions, their primary caregiver—everything at the same time. It's not uncommon for people with ID to move four or five times in the first 12 months after losing the last remaining caregiver."

> **"If people are medicated appropriately, they're going to think more clearly. They're going to have improved memory skills. Their learning potential is going to be improved. And their quality of life is going to be better."**

In order to avoid this kind of harrowing upheaval, Gentile encourages her patients and their caregivers and family members to make plans for scenarios they may fervently want to avoid considering.

"It's difficult for families to look ahead," she acknowledged, "but I'm pretty proactive in my appointments. I bring these issues up on an ongoing basis. Let's talk about it. Let's make plans, so you can have some input and make some of these very important decisions."

She also discourages well-meaning efforts to shelter patients when a loved one passes away. The impulse to do so is understandable, but it can have negative long-term consequences.

"Some people think they're protecting individuals by not allowing them to participate in funeral services," Gentile said, "but if they're excluded from those things, they're going to have more difficulty moving on."

Even in a best-case scenario, grief and anxiety related to a painful loss may not fade with time or grow any easier to bear.

"I've got two sisters whom I see at my clinic," Gentile said. "They lost a brother about 30 years ago, and they ask about

him at every appointment. Their way of processing the grief is a constantly unfulfilled expectation, so they will continue to wonder where this individual is, how he is doing. They're still struggling with this 30 years later."

Preparing the next generation of psychiatrists

Gentile's passion for working with the dually diagnosed developed early in her career. After graduating from the medical school in 1996 and completing her psychiatry residency at Wright State in 2000, she spent three years working at Twin Valley Behavioral Healthcare, a local state psychiatric hospital (which closed in 2008). Roughly a quarter of her patients there had ID.

"I realized that I was drawn to those patients," she said, "but I wasn't confident in interviewing them and providing assessment."

She began reading everything she could find on the subject, and she reached out to colleagues around the country for guidance.

"I found out there weren't many people doing this kind of work," she said. "There are certainly counselors, social workers, nursing staff, direct care staff, and case managers, but there weren't a lot of psychiatrists."

Sensing an opportunity to enhance both patient care and medical education, she approached Jerald Kay, M.D., chair and professor of psychiatry, about creating a dual diagnosis curriculum. Kay loved the idea, and Gentile worked with Ed Comer, then business director for the department, to coordinate funding and goals with the county boards and state departments that oversee mental health and developmental disabilities.

Today, Gentile teaches a didactic sequence on dual diagnosis to psychiatry residents, and she strives to have all of them spend time working with patients at her three practice sites.

"I think the residents find it very rewarding," she said.

In fact, a 2010 graduate of the residency program, Allison Cowan, M.D., decided to practice with Gentile and today sees patients with dual diagnosis from six counties. Other current residents have also expressed interest in following her into the field after completing the program.

While these decisions are especially gratifying, Gentile said, "I hope that all of the graduating residents will welcome patients with ID to their practices."

Forging a statewide support system

In addition to training tomorrow's psychiatrists directly, Gentile is playing a leading role in an ambitious statewide outreach and education effort. As project director for the state of Ohio's Mental Illness Developmental Disabilities Coordinating Center of Excellence (MIDD CCOE), Gentile is overseeing efforts to promote best practices in psychiatry for patients with a dual diagnosis, and to build a network of care providers who are willing and able to serve them.

Approaching this monumental task involved a three-pronged strategy. First, even as Gentile was developing her curriculum for Wright State, she spent a lot of time on the road, delivering presentations and making connections with care providers all over the state. This broad outreach continues today. In a three-month period ending in September, Gentile organized and helped deliver educational events encompassing nearly 4,500 hours of instruction for close to 1,000 participants from all 88 Ohio counties, most of them clinicians who can apply what they learned to help patients.

Second, as an outgrowth of awareness and education efforts, the MIDD CCOE has fostered the creation of countywide Dual Diagnosis Intervention Teams (DDIT). DDITs consist of a team of professionals in each of Ohio's counties who collaborate to improve care quality and access for patients with dual diagnosis.

The third initial goal excited Gentile the most.

"My real passion," she said, "was to get several clinics to serve as assessment centers for people with developmental disabilities."

At present, the MIDD CCOE supports six dedicated assessment centers throughout Ohio. Officially, the centers' service area includes 76 counties, but they effectively cover the entire state. Ninety-four percent of Ohio residents are within 120 miles of a center, and 64 percent are within 60 miles.

"From a geographical standpoint," Gentile said, "it's a pretty reasonable distance to travel to get a comprehensive and thorough psychiatric assessment, with recommendations for the local provider who's managing the patient's care."

Patients who are willing to travel can also receive ongoing care at two of the six centers, including one of Gentile's practice sites: the medical school's Consumer Advocacy Model program. She also practices in the state's only community mental health clinic located within a county board of developmental disabilities services. Gentile feels this setup, which she helped to pioneer, is ideal for patients with a dual diagnosis.

Julie Gentile, M.D., is passionate about providing the best quality care for dually diagnosed patients. "They are true survivors," she said. "They're an inspiration to me every day."

From assessment to outcomes

Now that assessment centers and DDITs are in place to serve most of the state, Gentile wants to focus on outcomes.

"We believe the assessment capacity is useful," she said, "but we don't have quantifiable evidence. One of our goals for the next 12 months is to come up with a way to ensure that people are receiving care on a timely basis, and that the recommendations are improving patients' quality of life."

> **"He said he was shocked to see my videos. He said, 'I've never heard that it's possible. I've never seen it done.'"**

To this end, she added, "Ideally we want there to be a physician in each local community who provides the highest quality mental health care for these folks."

She also wants to implement evidence-based best practices for patients living in institutions such as developmental centers or intermediate care facilities. The infrastructure to do so is largely in place, but launching such a large-scale program will require another long-term, labor-intensive project.

Even while she contemplates all of the work still to be done, Gentile has earned a national reputation for her accomplishments to date. In 2009, the National Association for the Dually Diagnosed (NADD) honored her with the NADD Award for Clinical Practice. More recently, she was selected by the *Dayton Daily News* as one of the region's "Ten Top Women," an annual recognition for outstanding community leaders who have made a significant impact on life in the Miami Valley.

Also in 2010, at a national conference in Boston in October, the American Psychiatric Association presented Gentile with its Frank J. Menolascino Award, which recognizes exceptional work on behalf of patients with developmental disabilities. The award was gratifying, but she was more excited by the reaction to the presentation she delivered in conjunction with it.

The presentation included video clips from a DVD series Gentile is developing, in collaboration with NADD, to demonstrate aspects of assessment and psychotherapy for dually diagnosed patients.

"I feel that the use of videos of patient care is very important with this subset of the population," she said. "It's difficult to describe the variations in psychotherapy interventions for patients with ID. I think it's much better to see them firsthand on the screen."

One audience member in Boston wholeheartedly agreed. An experienced director of a developmental center in New Jersey, he approached Gentile afterward to express his astonishment.

"He said he was shocked to see my videos," she said. "He said, 'I've never heard that it's possible. I've never seen it done.'"

Seeing was believing, though: he hopes to bring Gentile to his center to present her work to his staff, and to begin offering new and better services to the center's patients.

Responsibility and rewards

In addition to the monumental task of spearheading systemic, statewide change, Gentile continues to work directly with or coordinate care for hundreds of patients, many of them confronting overwhelming challenges.

"The vast majority have no family involvement," she said, "so you not only have complicated medical conditions, severe psychiatric conditions, and often abuse histories, but you also have abandonment issues and extensive loss and grief issues. It's amazing how common all of those things are. That's why I think these patients are truly survivors."

Rather than becoming burned out by continually helping patients with such extensive needs, Gentile enthusiastically embraces the responsibility inherent in her role.

"I take that very seriously," she said. "If no one's looking over my shoulder or openly, legally advocating for an individual, that's my duty to perform that service."

Despite the significant challenges, she also finds working with dually diagnosed patients immensely rewarding.

"They're just completely genuine, and they're real," she said. "They are great. They make me laugh, and we laugh together a lot. I learn as much from them as I can offer them. I know that for sure. Every day I'm reminded of that.

"I wouldn't want to do anything else," she added. "When you're able to connect with somebody who's nonverbal, or if someone's doing their best to tell their story, and you really get it, I mean, what's better than that?

"They have stories to tell," she insisted. "You just have to take your time and help them put the pieces together. And listen. I'm not doing anything special. I'm just listening."

Even in the most difficult of circumstances, she is also sustained by an abiding sense of hope.

"We're not going to fix everything. We're not going to cure everything," she said. "But we're going to do our absolute best. We're never going to give up, and I will always be hopeful that we can completely treat psychiatric conditions. We can improve quality of life. I am totally committed to that."

With encouragement from Dr. Gentile, Alice Young-Ditto is making plans to help Robert make the transition to a small group home where he can enjoy more independence and look forward to long-term stability.

Looking forward to a fulfilling life

Alice Young-Ditto and her grandson Robert are among the many grateful individuals whose lives Gentile has touched through her work.

"Honestly, I am very proud and enthusiastic about our time with her," Alice said. "I can't say enough about her. I really can't. It has been such a wonderful experience compared to some of the things I've encountered down through the years with Robert. This one, sad to say, is late in coming, but it's just such a blessing.

"In other settings, we just didn't see any results," she explained. "I felt the same way when I walked out that I did when we walked in. What really was said or suggested that's going to make Robert better? I didn't get that."

In contrast, she appreciates that Gentile always keeps her informed and involved.

"She gives all parties concerned a voice; she works with everybody," Alice said. "When I leave her office, I really feel that, okay, we're going to try this. Or okay, that really worked. We're very comfortable with her. I almost feel like she's a family member."

Alice also admires that Gentile is such a fierce advocate for her patients, and that she encourages families to plan for their long-term wellbeing. While Alice and her husband are in good health, they know Robert will likely outlive them, and they also want him to have a fulfilling and independent life. To this end, they are developing plans to help him transition to a small group home in the next few years.

"You should always have a plan," Alice said. "My plan is to get him to a place where as long as family members are available, we can see to him, but if something happens, he can be somewhere people are paid to take care of him.

"He's getting older, and I want him to have a life of his own," she added. "He's almost 22 years old. He's grown. If he has that need (for independence) and it's possible, I want to make it happen."

While the details of these plans aren't finalized, Alice has faith that things will continue to work out. What gives her such confidence? The presence of three key factors Julie Gentile would no doubt wholeheartedly prescribe:

"Good doctors, good family, and lots of love." **VS**

Looking back on a disability-focused career at Wright State

By Dennis Moore, Ed.D.

I am in the process of retiring from my full-time position in the Boonshoft School of Medicine, and this has been a time of personal and professional reflection. I did the math, and incredibly, I have been working with and for people with disabilities for 46 years. My journey began with a paid internship as a mental health aide when I was 16, which entailed living and working with 1,400 patients at a state mental hospital for an entire summer. At the institution, I discovered that human beings can be viewed as less than people through processes no more sinister than the perpetuation of outdated organizational norms forged during previous eras. Nearly all residents of this institution were there involuntarily, locked into wards 24 hours a day, and controlled in semi-conscious states by medications that left them neurologically damaged. The unsettling, stark conditions in that place were a strong influence on my subsequent career course, which has included working as a special education teacher, clinical counselor, and researcher. In my four-plus decades in the field, I have seen much progress in regard to disability awareness and social science. This has been heartening, but there is still plenty of work to do.

It's more than coincidence that much of my career has occurred at Wright State, first as a graduate student and eventually as a faculty member. Our institution has a strong, long-term commitment to people with disabilities, and it is widely known for having one of the country's largest and most comprehensive offices for students with disabilities. University faculty have improved the science of prosthetics design, created the first statewide e-therapy system for substance abuse and mental health support for individuals with disabilities, led a national research center on the employment of people with disabilities, founded a multi-university Ohio Center of Excellence for people with developmental disabilities, and developed a highly specialized training program for mental health professionals who work with

people who are deaf. And these accomplishments are just the highlights of a considerably longer list.

It's particularly gratifying to see Dr. Gentile highlighted in this issue of *Vital Signs,* as she exemplifies how and why faculty at Wright State stand out in this field. Notably, she too has been both a student and faculty member at WSU. Her psychiatric skills have largely been dedicated to people with disabilities, and I have had the opportunity to see firsthand the impressive outcomes that are possible when such specialized expertise is coupled with patient-friendly attitudes, specialized diagnostic skills, and in-depth knowledge of pharmacology. Today, thanks to dedicated faculty like Dr. Gentile, we are making great strides on behalf of people who far too often have had to settle for much less.

One recent experience also provided me with some valuable perspective. Andy Imparato, who identifies himself as a lawyer and someone with a disability, spoke on campus this fall as part of the Presidential Lecture Series. Andy is the founding president of the American Association of People with Disabilities and the primary driving force behind recent federal legislation entitled the Americans with Disabilities Act Amendments of 2008. His talk was well attended, and he delivered a powerful message with laser-like clarity about what we must do, as a nation, to improve imperfect and increasingly expensive public benefits programs such as Social Security Income and Disability Income, Medicaid, and Medicare. As our country ages and health care costs continue to rise, expertise from disability specialists will be increasingly necessary.

I drove Andy to the airport following his talk, and he told me he is very impressed with our university. He attributes WSU's accomplishments not to our elaborate tunnel system or accessible buildings, but rather to our people. Administrators, students, staff, and faculty all must understand and reflect pro-disability values in order to stand out as we do. He also told me that our institution's commitment to disability research will be an even greater asset in the future. Census data indicate that more than 50 million Americans have disabilities, and this figure continues to climb. As our country ages, our future will increasingly depend on our ability to engage people who are disenfranchised or disabled, which will allow us to increase employment and community participation while decreasing the need for publicly supported entitlements.

It can be daunting to contemplate the challenges ahead, but from the perspective of my professional journey, I can say that we—as a university and a nation—are up to the task. With continued vision, dedication, and collaboration, we can all look forward to what the next 46 years will bring.

Dennis Moore, Ed.D., is professor of community health and director of the Substance Abuse Resources and Disability Issues (SARDI) Program within the medical school's Center for Interventions, Treatment, and Addictions Research.

Root and branch: Robert Fyffe on lineage, legacy, and a life in neuroscience

Phil Neal

Neuroscience is all about connections. Just as important as the synapses that link axons and dendrites within a complex network of nerves, however, are the strong personal and professional relationships that define this young discipline.

"Science is a history and a tradition," explained Robert Fyffe, Ph.D., associate dean of research affairs and professor of neuroscience, cell biology, and physiology. "There are schools of science, and you can trace back the lineages to the founding fathers in each discipline. And if you're interested, you start to understand that these lineages mean something."

As a fully developed discipline, neuroscience has only existed for 40 or 50 years, and its pioneers, including the English physiologist and Nobel laureate Sir Charles Scott Sherrington, conducted their groundbreaking investigations early in the last century.

"People in neuroscience often look at their degrees of separation from the founding fathers and their respective trainees," Fyffe said. "Most of my generation can get to Sherrington in about five handshakes. And that web of connectivity extends across the globe."

While the field has certainly grown over the decades, in many ways neuroscience remains a close-knit community characterized by collaboration and camaraderie. Photos on the walls of Fyffe's office, treasured keepsakes from a 30-plus-year career in science, bear this out. The group portraits span the globe as well as the decades, covering international meetings held in Hungary in the 1970s, Australia in the 1980s, and, most recently, a symposium hosted by Wright State last year. Fittingly, the meeting in Dayton was convened to honor one of the field's elder statesmen (Lorne Mendell, Ph.D., of SUNY Stonybrook) and celebrate his impact on a generation of scientists.

"It's a good bunch of people," Fyffe said, looking over his photos. "I have friends all over the place."

Scottish roots and global branches

Fyffe's interest in science began in his youth. His parents owned a bakery in Alexandria, Scotland, but they didn't encourage Fyffe or his sister and two brothers to go into the family business.

"It was too rough, too risky," Fyffe said.

In his mid-40s, Fyffe's father decided to leave the bakery business and started taking night classes in food science in preparation for a teaching career.

"He was a terrific inspiration," Fyffe said, "because he actually graduated from college the year before I did."

After earning his bachelor's degree in biochemistry at the University of Glasgow, Fyffe went to the University of Edinburgh to study neurophysiology. While there, he forged connections with colleagues that endure to this day, developed the research interests that have been his passion, and discovered his own place in the neuroscience lineage.

"Sherrington trained (Sir John) Eccles," he said, "who trained (Ainsley) Iggo, who trained my great mentor and supervisor, Alan Brown."

Brown's research built on work by scientists in Canberra, Australia, in the 1950s who developed a technique for recording intracellular activity by inserting a micropipette into a single neuron. Brown and many other researchers were attempting to use the micropipette to inject neurons with some kind of molecule to render it visible under a microscope.

"In Alan's lab and one or two others—in Göteborg, Sweden, for example," Fyffe said, "they realized that if you injected an enzyme called horseradish peroxidase, you could use a histochemical reaction and reveal the neuron in exquisite detail.

"I used to go into the lab in the evening after classes," he recalled, "and just stand in the corner and watch Alan and his colleagues do their thing. I learned a lot just from watching and listening"

When Fyffe was ready to begin his Ph.D. work, Brown and his colleagues welcomed him into the lab in a more formal role. Fyffe's familiarity with their cutting-edge techniques served him very well, as did his fortuitous timing. In addition to conducting his own research, when a pair of key postdoctoral researchers in the lab returned to Canada and Australia, Fyffe said, "I got to finish up a lot of their projects, which made for a very productive time."

"I liked what I saw. I really liked the spark here…. The chance to help build something appealed to me."

As a graduate student and then a research associate in Brown's lab, Fyffe made a series of trips to the U.S. to set up a lab at the University of North Carolina at Chapel Hill, where researchers had similar interests. Fyffe held a position as a visiting professor there for two years.

"But then the tradition thing came in," he said, "because I really wanted to work at Australia National University, especially the John Curtin School (of Medical Research), which was really the place where modern neurophysiology began with John Eccles."

By then Fyffe was married to Dorothy, another native of Alexandria who attended the same high school. Fortunately, Dorothy was willing to set aside her teaching career and accompany Fyffe to the Southern Hemisphere. After three years in Canberra as a research fellow with an independent laboratory, Fyffe returned to Chapel Hill, where he served as a faculty member until 1992. Then his path branched again, this time leading him northward to a young medical school in Dayton, Ohio.

An unexpected opportunity

Fyffe was content in North Carolina, but a colleague accepted a position at Wright State and talked him up so much that administrators invited Fyffe to visit as well.

"I came up just out of courtesy in some ways," Fyffe said, "but I liked what I saw. I really liked the spark here. Although it was a young, small place, it was a very supportive environment. And the chance to help build something appealed to me."

So the Fyffes relocated yet again, this time with the couple's two young daughters—Katherine and Fiona, both born in Australia—and moved to Ohio, where the family would soon be joined by another daughter, Anne. Fyffe came to the medical school as an associate professor of anatomy, with his funding from the National Institutes of Health (NIH) and extensive laboratory equipment in tow.

"I brought the grants and the lab with me," Fyffe said. "It was the biggest moving truck they'd seen on campus. We got the lab re-established very quickly, thanks in no small way to the assistance of Diane Dewey," whom Fyffe hired as his first lab technician and who worked with him until her retirement in 2005. Also, soon after arriving, he hired Francisco Alvarez, Ph.D., to join his group. Alvarez subsequently established a highly productive independent research program and is now a full professor in the Department of Neuroscience, Cell Biology, and Physiology.

After three busy years establishing his lab, forging local connections, and helping to grow the department, Fyffe was tasked with a new challenge: directing the Biomedical Sciences Ph.D. program.

"The program was undergoing a major review by the statewide board of regents," Fyffe said. "There were issues that needed tending to, but in the end, we came through with flying colors."

After five years heading the Ph.D. program, Fyffe was ready for new challenges.

"By then," he said, "I was beginning to think we really needed to step up to the plate and bring neuroscience to the fore."

Facilitating "the three Cs"

Howard Part, M.D., who was just beginning his tenure as dean of the medical school, agreed with Fyffe and approved the creation of a new Center for Brain Research, with support from the Kettering Fund.

"It was largely a virtual center," Fyffe said. "We were just providing a way to make a lot of the things we'd built up over the previous eight years truly accessible and available for other people.

"We already had our first confocal microscope," he said. "We upgraded our electron microscope, and we carved out space so people could access these tools."

A year later, the dean asked Fyffe to step into a new role as associate dean for research affairs. An initial priority would be supporting research partnerships within and beyond the university.

"I thought it was a good idea," Fyffe said, "because I've always believed in the idea of sharing and collaboration."

While you can't mandate cooperation, he acknowledged, "you can facilitate things, and I enjoy doing that. And certainly since I've been here, I've always shared any 'toys' I've been fortunate enough to have, and I think that philosophy has been very much in tune with the school and other leadership positions."

A formal emphasis on collaboration also provided a strong basis for the medical school to compete for some of the abundant grant money being distributed during those years through programs such as the Ohio Third Frontier.

"At that time everyone was talking about the three Cs: Cincinnati, Columbus, and Cleveland," Fyffe said. "So we pitched our own three Cs, which were 'centers, cores, and collaborations.' Our strategy was to formally recognize the existence of centers and create core resources people could use to collaborate."

The school steadily built up resources in genomics, proteomics, and microscopy, and numerous researchers joined the faculty. Fyffe played a key role in bringing many new colleagues to campus, including fellow neuroscientist Timothy Cope, Ph.D., formerly of Emory University, who served with Fyffe on an NIH study section. Today, Cope is professor and chair of the neuroscience, cell biology, and physiology department. He also leads the university's first NIH Program Project Grant (which includes Fyffe, Alvarez, Mark Rich, M.D., Ph.D., and Kathryn Engisch, Ph.D.) and is the founding director of the recently created Wright State University and Premier Health Partners Neuroscience Institute.

"We've got some really, really good people here, whether in research, education, or administration," Fyffe said, "and that's probably the most gratifying thing: working with good people.

"We've also got a lot of really good infrastructure," he added. "People are impressed when they see what Wright State has. With that infrastructure in place, we hope our basic scientists can thrive, even though it's a very competitive time.

"The next step," he said, "is really to develop the clinical side of things, and that's where the Neuroscience Institute, in partnership with Premier, has been important. I think that's going to be transformational."

Connecting structure and function

Despite taking on so many demanding leadership roles over the years, Fyffe has managed to sustain his laboratory and remain active in research.

"I've had an NIH grant every year I've been here," he said, "which is something I guess I'm proud of. I've somehow managed to keep the funding going."

Building on his early experiences with Alan Brown, Fyffe has focused his research over the years on comparing neuron structure and function, particularly in motor neurons within the spinal cord.

"It gave me this terrific set of tools you could use for structure-function analysis in an almost unlimited way," Fyffe said of his work in Brown's lab. By recording intracellular activity and studying the form of that same cell, he explained, "you can start to ask structure-function related questions that are relevant to development and disease."

Adding new and more advanced techniques over time allowed him to continue moving his investigations forward and pursuing new avenues of inquiry.

"It's a branch of science that doesn't necessarily lead to publication of 10 papers a year," he admitted, "but I think it pays off. Our work has been highly cited over the years, and it would be fair to say that some of our results have been incorporated as the textbook standard."

And just as Brown's work profoundly influenced him early in his career, Fyffe has contributed to the development of some of tomorrow's promising young neuroscientists. In addition to encouraging research by medical students and residents, he has served as a formal mentor and advisor for dozens of students in the Ph.D. and M.D./Ph.D. programs.

"I had actually always intended on going to another medical school," said Adam Deardorff, a third-year M.D./Ph.D. student. Before applying to medical school, however, he earned a master's degree at Wright State and spent two years working in Fyffe's lab.

"My decision to come here was specifically so I could keep working with Dr. Fyffe," Deardorff said, "because I liked him that much, and he was such a good mentor."

Fyffe hasn't hesitated to welcome young scientists into the field and extend the proud scientific lineage he joined so long ago in Scotland. In fact, he has helped Adam forge connections with other researchers at Wright State and beyond, including Bruce Walmsley, Ph.D., a colleague and friend from his time at Australia National University.

"They're all very open and welcoming," Deardorff said of the neuroscientists. "Because we're such a close-knit group, we can work together and do things that maybe other fields can't do as easily. The whole is greater than the sum of its parts."

For his own part, Fyffe is gratified to see new branches budding on the "family tree" of neuroscience, and he is excited to shepherd the medical school's research enterprise through the coming, critical years. He is also helping to shape the future of neuroscience by serving as a grant reviewer on NIH study sections, a function he has performed consistently for decades.

"I feel it's a duty," he said. "They've funded me for 20-odd years continuously, so I feel obliged to give back. But the biggest benefit, I think, is not just reading and reviewing cutting-edge science, which lets you learn a lot. It's the people you meet, the people you connect with."

Despite the allure of making new connections in this way, Fyffe is looking forward to the expiration of his current term as a reviewer, which ends in another year.

"It's very rewarding for multiple reasons, but it's a lot of work," he said. "I've got to start saying no."

Even better than the real thing: Using high technology, heartfelt emotion to train better physicians

The Science of Medicine: Simulation center serves up virtual trauma to help students perfect high-stakes patient care

The atmosphere in the trauma room is tense but focused as several caregivers hover over a badly injured patient. Constantly in motion, they work together to assess, stabilize, and treat the patient, who has been stabbed in the abdomen, complains of intense pain, and has difficulty breathing. A roomful of specialized equipment allows the medical team to closely monitor the trauma victim's vital signs, consult with other hospital departments, check lab results, and provide life-saving aid—as needed, they can administer drugs, intubate, shock the heart, and perform emergency surgical interventions.

If the team handling this case seems calm and confident, it is only partially due to their aptitude for emergency medicine. It also helps to know that nothing more is at stake than a valuable learning opportunity.

The caregivers are all fourth-year medical students. The patient is a sophisticated medical mannequin. And the trauma center is a simulation room within the medical school's Center for Immersive Medical Education and Research (CIMER).

For more than six years, the emergency medicine department has used simulation exercises to provide training in trauma care that would be impossible to conduct with real patients. The center is capable of running highly detailed and realistic trauma scenarios, and it plays an integral role in the education of Wright State medical students and residents, as well as students in Kettering's nursing and physician assistant programs.

"What we try to accomplish here is to provide a place to dress-rehearse medicine," said Raymond Ten Eyck, M.D., M.P.H., professor of emergency medicine and director of CIMER.

"We want to reproduce what students do with stable patients all the time," he said. "They can talk to the patient, get all the information, do a full exam, look at the lab or order some labs, come to a conclusion about what's going on, and then go talk to their attending."

This is essential, Ten Eyck feels, because many students will be expected to play this role, to accept this level of responsibility, once they graduate and enter residency programs. To prepare them, Ten Eyck and his colleagues try to make scenarios as realistic as possible, from the equipment and materials used to the way the patient responds to treatment.

"They can actually work through doing this in a safe environment where it doesn't matter what they do," Ten Eyck said. "We're always trying to push them a little farther than they might be comfortable with, because this is the place to learn and make mistakes."

In fact, Ten Eyck and others orchestrate and monitor the whole simulation from an adjacent control room behind a one-way mirror. Using a bank of computers, CIMER staff can observe the simulation from multiple cameras; adjust the patient's vital signs; send X-rays, CT scans, lab results, and other information to the trauma team; and even "speak" as the patient through a remote microphone. In another similarly equipped adjacent room, two dozen other students can observe the exercise, learn from the scenario, and prepare for their turn with the patient.

The center features multiple adult medical mannequins, as well as a child model and an infant model for pediatric scenarios. In addition, for task-based training, the center has a series of models that mimic the anatomy and physiology of a live human for procedures such as inserting chest tubes or central lines, or performing surgical cricothyrotomy, peritoneal lavage, or even arthrocentesis or pericardiocentesis. The models are so realistic, in fact, that they are approved for use in Advanced Trauma Life Support™ classes in place of cadavers or animals.

Medical students, residents, and staff physicians use CIMER's realistic anatomical models to practice invasive procedures, including ultrasound-guided interventions.

While immersing students in a high-stakes situation such as managing a trauma case can be stressful (even when the scenario is simulated), Ten Eyck said that students really seem to appreciate the simulations.

After bringing more than 1,000 students through the center over the years, he said, "the feedback we've gotten has been universally very positive."

Simulation training is very effective as well, he feels, though few studies have explored its influence on patient outcomes. Ten Eyck and his colleagues did research the impact of the simulations for the medical school's graduating class of 2008, however.

"We found they did better on their final exam for the material they covered in simulation," he said. In addition, "they were far more satisfied, and they developed better clinical skills."

In the future, Ten Eyck expects simulation to become an even more integral and important training tool for medical students, residents, and other health professionals. He believes trauma simulation will one day be part of licensing exams and board certification. Closer to home, CIMER recently established a mobile simulator by equipping a large RV with a control room and two patient rooms, complete with mannequins and medical equipment. Ten Eyck also looks forward to doing more interdisciplinary training to emphasize teamwork and communication skills, which can help prevent many medical errors.

"The concept of simulation is not new," he said, "but how we are using it is. Most schools are just starting, but there are very few that haven't started. The trend is clearly there."

The Art of Healing: Standardized patients help students forge human connections, hone communication

In a small consultation room, a young physician speaks with a middle-aged couple. The husband, a cancer patient, has his face buried in his hands, his body wracked with sobs. His wife tries to comfort him, cradling him against her as she murmurs softly and looks pleadingly at the doctor, who has just delivered unexpected bad news and now sits silently in the stunned aftermath of his announcement.

Although this scenario involves no specialized, high-tech equipment, it, too, is a simulation designed to hone critical skills medical students need to develop before applying them with real patients. The man and his wife are standardized patients, trained actors playing roles designed to mimic challenging situations that physicians are likely to face. The scenario is an exercise in which the students try to impart specific information, address questions, and strike a balance between honesty and hope, empathy and self-preservation, confidence and compassion. And the consultation room is one of many along a corridor in the medical school's Skills Assessment and Training Center (SATC) in the Elizabeth Place business and medical center in downtown Dayton.

SATC is a kind of high-touch counterpart to the high-tech CIMER. Rather than emergency procedures, SATC scenarios tend to emphasize basic physical and interpersonal skills, such as conducting a patient interview or examination, or communicating and connecting with patients and family members. All medical students visit SATC at least once a year, and patient encounters form a large part of their pre-clinical training. In the second year alone, students will participate in nine different scenarios to help prepare them for clinical clerkships in year three.

In a typical academic year, the center facilitates well over 1,500 encounters between standardized patients and medical students, residents, or other health professionals. The center also provides trained evaluators to observe and assess each performance, and medical school faculty members conduct group "debriefing" conversations with students after the scenarios to explore their thoughts and reactions. SATC rotates through a repertoire of more than two dozen unique scenarios, ranging from patients who complain of headaches, dizziness, or nausea, to cases involving acute stress, neurological disorders, and binge drinking.

Organizing that volume and variety of encounters can be a daunting task, according to S. Bruce Binder, M.D., Ph.D., associate professor of family medicine and assistant professor of pharmacology and toxicology. Binder directs the center and is clinical curriculum coordinator for the medical school.

"We talk about it being controlled chaos," he said.

He considers the effort well worthwhile, however, because of the unique benefits the simulations provide.

"We don't do this with real patients," Binder said, "because students wouldn't all get the same experience. And this is a safe situation, where if they screw it up, it's fine. Nobody's hurt."

While most of the center's scenarios involve examination and diagnosis, the surgical Objective Structured Clinical Exam (OSCE) with the cancer patient and his wife is part of an innovative set of cases focusing on end-of-life and palliative care.

"Students really have to practice before they talk to patients," said Kathryn Tchorz, M.D., associate professor of surgery and associate director of medical student education, who developed the scenarios for the third-year surgery clerkship, which she also directs.

"There are many ways to take care of patents, many ways to talk to them," Tchorz explained, and practicing helps students "gain some insights into how to approach these difficult topics, so they can give challenging information and talk to patients about things that are really very hard, and very human."

The scenarios also serve an important practical purpose: preparing students for their medical board exams. The United States Medical Licensing Examination (USMLE) Step 2, which students must pass before they can practice medicine, includes 12 standardized patient encounters.

"We use some of these encounters as a last chance for students to sort of put their skill sets together before their testing," said Jerome Borchers, program trainer for SATC, who helps develop the scenarios and trains all of the standardized patients and evaluators.

Once people sign up to be standardized patients, Borchers added, they often find the experience so rewarding that they keep coming back, learning new roles and working with new groups of students every year. Some have been with the center for more than a decade.

Nathan Barnes, now a fourth-year medical student, consoles standardized patients Jonathan Heart and Mary Rose Pica during a discussion about end-of-life care for a patient with late-stage pancreatic cancer.

The standardized cancer patient, Jonathan Heart, is a four-year SATC veteran. Over the years, he has played characters ranging from the owner of a Lexus dealership to a farmer, and feigned maladies ranging from simple headaches to late-stage pancreatic cancer.

"I think it's a very important program," Heart said of his longstanding connection to SATC. "Every time I do it, I see the value of it, and I see what the students get from it."

Despite reprising many roles and reenacting similar situations over the years, Heart said that each encounter is unique and compelling.

"It never gets tired, mundane, or boring," he said. "The students all have different approaches, different ways of saying things. It comes down to personality."

While boredom is never an issue for Heart, the intensity of the encounters can sometimes be difficult to bear, especially in scenarios as emotionally charged as those featured in the end-of-life surgical OSCE. Even so, he can't resist coming back.

"I feel privileged to be doing this," he said. "I feel like I'm making a difference—for them and for me. It's a learning experience for everybody. I touch their lives, and they touch mine. We all walk away smarter, and better. When I talk to people about this program I just glow."

Heart's doctor in the simulation, fourth-year medical student Nathan Barnes, agrees about the value of the encounters.

"They are a good way to get some experience before you start with real patients," he said.

He added that having to keep a checklist of communication points and evaluation criteria in mind can be distracting, but the conversations tend to flow better once he can get through a scenario's requirements and really focus on the patients. Doing so many encounters over the years also tends to diminish the novelty and excitement, he said, but he still considers time spent at SATC worthwhile overall.

"We will use what we learn as the foundation for how we practice," he said. VS

A Closer Look

The Ultimate Gift

Anatomical Gift Program celebrates 30 years of altruism, education

Frank Nagy, Ph.D., director of the Anatomical Gift Program, addresses family members and friends of donors during an annual memorial service to honor their loved ones and celebrate their selfless gifts.

Each fall for the past 30 years, students and faculty have paused to honor the people who make medical education at the Boonshoft School of Medicine possible: the men and women who donate their bodies to the school's Anatomical Gift Program.

Donors play an invaluable and indispensable role in medical education by allowing students to gain a detailed, firsthand understanding of human anatomy. A strong knowledge of the anatomical disciplines is the foundation of basic medical science, which makes it essential for both physician training and all forms of medical practice.

"The impact of these selfless gifts truly does abide forever," said Frank Nagy, Ph.D., director of the Anatomical Gift Program. "For three decades, generations of physicians have begun their medical education by learning from donors the vital lessons only they can teach. As these students graduate and go on to practice medicine, help patients, serve their communities, and share their knowledge with new students in turn, the legacy of a donor's gift becomes limitless."

Since 1980, the school has invited family and friends of donors to campus for an annual memorial service to honor and remember their loved ones. Following this service, an interment ceremony is held in the serene, tree-shaded Rockafield Cemetery on campus, where the ashes of many donors are laid to rest. Each year, more than 1,200 family members and friends attend the memorial and committal services, which are conducted by regional and national clergy of diverse faiths.

The 30th annual services took place on a beautiful Sunday afternoon in September, and were held in honor of 470 donors who lost their lives over the past year. More than 19,000 caring people from all walks of life are currently registered as donors.

This year's services marked another milestone as well. The longtime director of the program, Frank Nagy, is retiring after 34 years of service to the medical school. In those 34 years, Nagy estimates that nearly 7,000 people have passed through the program to become donors, and each has a different story to tell.

"Each of the donors is special," he said. "There was a gentleman who was 106 years old. He had been heavily involved in the civil rights movement in Dayton. There was another who was a member of the Tuskegee Airmen."

He also remembers the couple who donated their stillborn baby to the medical school.

"She wrote a text about the baby and asked me to read it to the medical students when they looked at the baby," he said. "I did, and I read it every year at the memorial service. She had a big impact on me. She still does.

"You learn a lot from these people," he said. "To do what they do for so many people, they're just exceptional. We owe them a lot." VS

1,000 words

The combination of comfortable furniture and an intense workload can overcome even the most dedicated students on occasion. Second-year student Ayesha Ashai proves that in addition to being a gripping and informative publication, *Vital Signs* can double as a highly effective makeshift sleep mask. (For more snapshots of students hard at work, see the back cover.)

Web photo from the Facebook group “Boonshoft Sleeps.”

REPEAT OFFENDERS

WSU researchers recreate genetic changes in living cells that cause Huntington's disease and myotonic dystrophy

Cindy Young

Stacy Proctor was 14 when her father, Doug, died in his sleep.

Doug had been diagnosed with myotonic dystrophy 12 years earlier at the age of 28. Myotonic dystrophy (dystrophia myotonica type 1, or DM1) is an inherited neuromuscular disorder that causes muscle weakness and can also affect the eyes, heart, and brain.

There is no cure for DM1, and treatment usually amounts to managing the symptoms. The symptoms can vary widely between individuals, from muscle weakness, early cataracts, diabetes, and gallstones, to heart arrhythmias, which ultimately caused Doug's death.

Of the four siblings in his family, Doug was the most athletic, playing football in junior high and Little League Baseball throughout his childhood. But by his mid-20s, he was experiencing significant muscle loss and increasing weakness.

When he was diagnosed with DM1, doctors told him it was an inherited disease, and that there was a 50 percent chance he would pass it on to his children. His daughter, Stacy, was 2 years old.

Her father didn't talk much about his illness when Stacy was little. She would notice bruises from falls or a cast from a broken bone, but her parents didn't dwell on it.

"I didn't really know the details of it," she said. "All I knew was that his legs were skinnier than mine, and that they were really weak. At that age, I really didn't think anything of it. I didn't think about me getting it. I didn't think about any of that until later on."

Stacy is now a junior at Wright State University, majoring in rehabilitation services and engaged to her high school sweetheart, Tommy Fox, a mechanical engineering major at Wright State. But now that she's on the cusp of starting her own family, Stacy thinks about her father's disease a lot.

So far, Stacy shows no signs of the disease, nor does anyone else in the family. Current genetic testing can tell her whether she has the genetic abnormality that causes the disease, but the test cannot precisely predict whether she will actually get the disease, when the onset may be, or the severity of the symptoms.

"That's the thing," Stacy said. "Do you want to know, or do you want to just wait it out? There's no treatment for it, so why would you want to get tested? It's a Catch-22."

But passing it on to your children is another matter.

"I would never want to do that to my child, knowing that I could have gotten tested," Stacy said. "As far as starting a family, I think getting tested is something you bite the bullet on and just do it."

With the help of new research underway at Wright State, people like Stacy may someday be able to learn much more from genetic testing for DM1 and similar diseases and possibly, down the road, benefit from improved treatments.

Researchers in Michael Leffak's lab were the first to recreate the genetic changes that cause several neuromuscular disorders. Left to right: Michael Leffak, Ph.D.; Yanzhe Gao, biomedical sciences Ph.D. student; Xiaomi Chen, biomedical sciences Ph.D. student; Lubna Abu-Niaaj, Ph.D., postdoctoral research associate, biochemistry and molecular biology; Guoqi Liu, Ph.D., M.B.A., research assistant professor of biochemistry and molecular biology; Jianhong Yao, M.S., research associate, biochemistry and molecular biology.

Extra DNA repeats cause neuromuscular disorders

Diseases such as DM1, Huntington's disease, and several forms of spinocerebellar ataxia can occur when certain building blocks of DNA, abbreviated CTG, are repeated multiple times. These repeated sequences, or trinucleotide repeats, occur in several genes that are related to the function of nerve cells and communication between nerve and muscle cells. These extra sequences are thought to bunch up along the DNA strand, forming a loop known as a hairpin. When they do, the cell may not copy them accurately, which can lead to instability in the number of trinucleotide repeats when the DNA replicates.

An average person might have 10 or 20 CTG repeats inside certain genes, but someone who has one of these disorders may have 200 or a thousand copies of this repeat sequence. The extra repeats either prevent that gene from being expressed or, by mechanisms that aren't completely clear, interfere with the expression of other genes in the same cell.

WSU researchers first to recreate repeats in living cells

Until now scientists have been unable to recreate the genetic changes that occur in these diseases or demonstrate the mechanisms that cause repeated sequences to increase in human cells. But Wright State research assistant professor Guoqi Liu, Ph.D., and graduate student Xiaomi Chen, working in the laboratory of Michael Leffak, Ph.D., professor and vice chair for research in the Department of Biochemistry and Molecular Biology, have done just that. Their research was recently published in the prestigious scientific journal *Nature Chemical Biology.*

"The significance of the paper is that we can mimic the DNA changes that occur in these diseases in genetically engineered cell lines that Dr. Liu and Ms. Chen have created," said Leffak, "and they went farther than that. They actually demonstrated a mechanism that leads to the instability of the repeat sequences."

Liu and Chen made synthetic zinc-finger nuclease enzymes that would recognize the trinucleotide repeat hairpin structure, and only this structure. They showed that the zinc-finger nucleases could be expressed in living cells and would cut the CTG hairpin structure while the cell was duplicating its DNA.

"What we've shown is a mechanism for the structural changes that may lead to a dozen or more neurodegenerative disorders."

According to Leffak, if you follow the inheritance of myotonic dystrophy in families, a parent may have a pre-mutation number of these repeats, perhaps 40 or 50. They won't show the disease, but they're predisposed to passing DM1 on to their children, who might have 200 or 300 repeats and might get myotonic dystrophy at age 5 or 7. But if that child has children, they may have 1,000 or 2,000 copies of this repeat and be affected from birth. The onset of the disease is earlier, and the disease is more severe the larger the number of these repeats.

Someone can have mild symptoms or no symptoms and be pre-mutation. But another person with the same number of repeats can show symptoms or pass on the disease to his or her children.

"An important question is, what other genes in the body cause one person to pass on an expansion, while another person starts with the same repeat number but does not pass on the expansion?" said Leffak. "There are undoubtedly other genes at work that modify how unstable the trinucleotide repeat is.

"Another significant aspect of the paper is that it shows that we have an assay for the instability or the expansion of these repeated sequences," he said. "And now we can begin to analyze other genes that, in combination with the trinucleotide repeat length, might predict the risk for inheritance of severe disease or the rate of progression of the disease."

Leffak's earlier pioneering work has played a major role in this research. When chromosomes replicate, their double helix strands of DNA begin to unzip in specific locations called origins. Scientists estimate there are about 25,000 origins throughout the human genome, but only about two dozen have been indentified, one of those by Leffak almost 25 years ago.

He found the replication origin near a gene called c-myc on chromosome number 8 that makes a protein essential to cell division. Leffak's team used the c-myc replication origin to replicate the DNA in the cell lines they created.

During replication, the DNA strands can unzip, or fork, in either direction, to the left or to the right.

"One of the things our research shows is that it matters whether you have what's called a replication fork moving left-to-right or right-to-left, which you can control by where you put an origin of replication," Leffak said.

Direction of DNA replication may play a role

Their research shows that the direction of replication through these DNA sequences influences whether they expand or contract.

"It means that if an individual has 50 copies of the repeat sequence, they may or may not give rise to a child who has the disease," he said. "It could be that for most of the eggs or sperm that are produced that replicate this DNA in this direction, everything is fine. But it's that rare occurrence that you replicate from a different origin, for whatever reason, that you induce this kind of instability. So if we could regulate which replication origins get used or how enzymes move through these structures we might prevent the disease."

Leffak says treatments are still far down the road. He prefers to focus on the predictive value of the research for now.

"What we've shown is a mechanism for the structural changes that may lead to a dozen or more neurodegenerative disorders," he said. "For the future, this lets us identify other genes that influence the instability of these sites. And so potentially, a couple who is planning a family could be tested to see what the panel of other genes is, or how they're expressed, to assess the risk of whether they will generate sperm or eggs that have the abnormality."

For family members who are concerned they may have the disease, other genes could be analyzed to predict somatic, or post-embryonic, expansions, which would lead to faster-progressing or more severe disease.

How can this research help people like Stacy?

"What's available to her currently is to analyze her DNA for the number of repeats she's got," Leffak said. "And then, depending on the number of repeats, she would be given a risk factor.

"If any of what I'm saying comes true, then additional genes could be analyzed," he said.

"The question is how does the body know whether to continue with the instability or maintain the stable number that the person was born with?" Leffak said. "My belief is there are other genes that control that. And if we can find those genes and analyze them, it will give us further insight into the instability."

Someday their research may show a path to a cure

"In these genetically engineered cell lines we made, treating with certain drugs can not only lead to expansion of the repeats, but depending on where the sequence is located in the chromosome, you can also get contraction of repeats," Leffak said. "So it's theoretically possible to cause the cell to take out some of the extra copies when it duplicates those sequences."

"One of the goals of therapeutic treatment is to remove or cut off the looped CTG repeat," said Liu. "If you can find a way to cut it off, you could have a tool to cure the disease at the DNA level."

"That would be awesome," Stacy said. **VS**

Research underway at Wright State may help couples like Tommy Fox and Stacy Proctor know whether or not they will pass on to their children the genes for the disease that took her father's life.

No bones about it: Researchers collaborate to improve artificial joints, prevent spinal injury

Jim Hannah

A ceramic leg bone lies on the desk of Tarun Goswami, D.Sc.

An associate professor with a dual appointment in biomedical, industrial, and human factors engineering and in orthopaedic surgery, sports medicine, and rehabilitation, Goswami is all about bones. That's because he heads up a major research effort to redesign artificial joints from head to toe.

Goswami's goal is to extend the life of artificial joints, make them more flexible, and reduce pain for patients. He also hopes to put a dent in soaring health care costs by reducing the number of joint-replacement surgeries.

More than 700,000 primary total hip and knee replacements are performed each year in the United States, and demand for the surgery is expected to double in the next 10 years, according to the American Academy of Orthopaedic Surgeons. By 2030, there are expected to be 572,000 total hip replacements and 3.4 million total knee replacements.

Industry and academia, going toe to toe

Lesser known is total toe replacement. Candidates include women who wear high heels or poorly fitting shoes. That can result in bunions, a swollen, painful bump in the joint that connects the big toe to the foot.

"There are 43 million people who have that kind of problem. So it's a big problem," Goswami said.

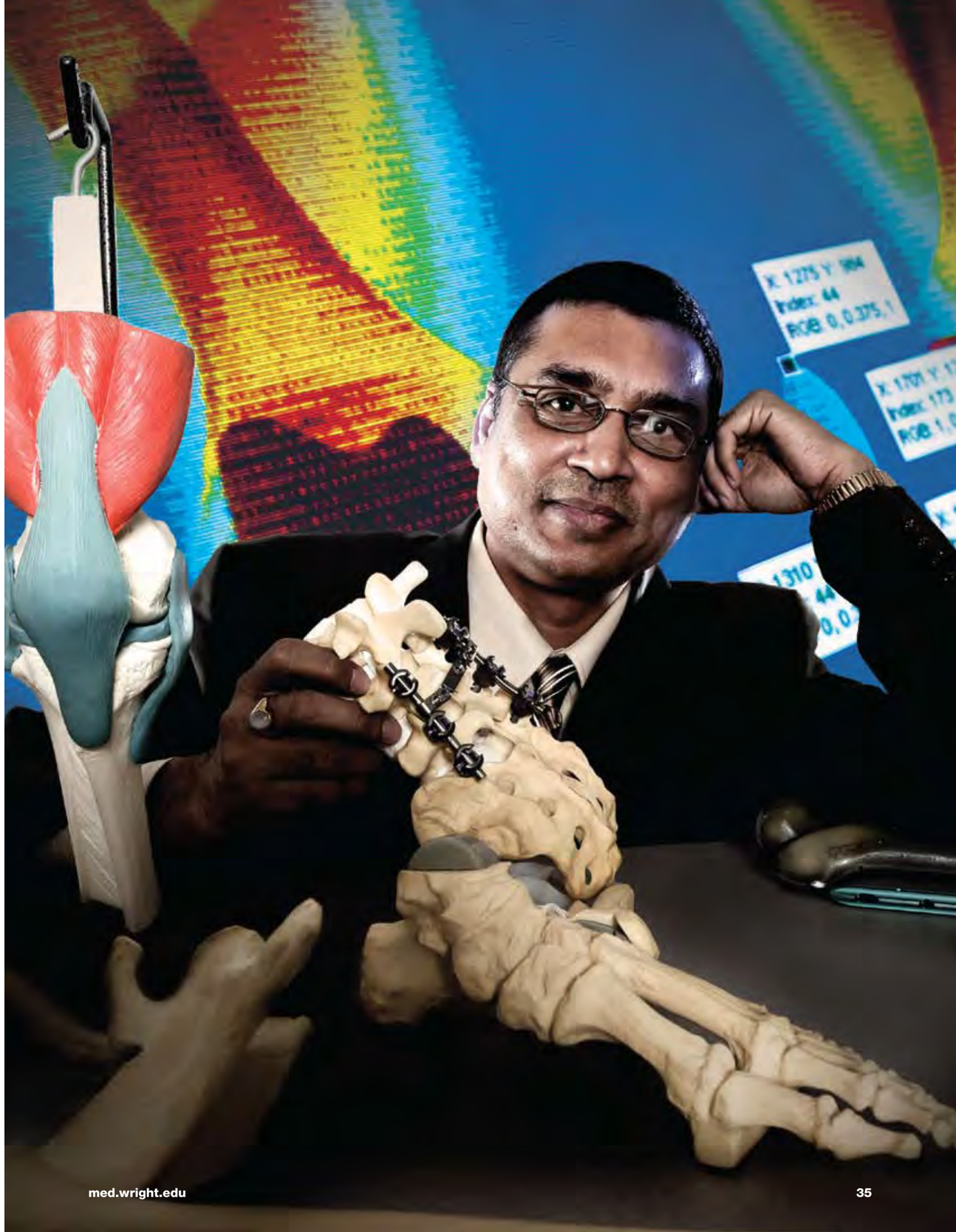
Goswami and his team of researchers have come up with 10 different designs for artificial toes. Each design has a different system of screws, ridges, and slots that can be used, depending on the individual patient and specific toe problem.

Goswami said the designs, which are patented, are engineered to last longer and be more comfortable. In addition to replacing damaged or malfunctioning natural toe joints, they can replace artificial toes that aren't performing well.

"These are ready for transitioning from the university to industry," Goswami said.

The state of Ohio funds much of Goswami's research with the hope that technology his team develops will produce businesses and jobs if it is taken to market successfully. Goswami also encourages this possibility in his capacity as head of the university's Device Development Center, which brings together engineers, resident physicians, and medical students to collaborate on the design and development of medical devices. The center reaches out to local businesses looking for solutions to medical problems that the devices can address. The center has already generated three U.S. patent applications and several provisional patents. Goswami's team also has secured patents on artificial ankle joints, total toe joints, braces, and splints.

"Dr. Goswami has brought a new area of expertise to our bioengineering department," said Richard Laughlin, M.D., professor and chair of orthopaedic surgery, sports medicine, and rehabilitation. "Collaborating



Tarun Goswami, D.Sc., leads research to design better artificial joints, including knees and ankles, and to help prevent and treat injuries to the neck and spine.

with the orthopaedic surgery department has raised the level of understanding and scholarship in joint replacement. This truly is an example of translational research that easily goes from the bench to the operating room and bedside."

Knees, hips, and ankles—new and improved

One medical problem that Goswami would like to solve involves ankle replacement. The field is growing rapidly because patients are looking for better options than standard fusion, which removes the worn-out part of the joint and permanently holds or fuses the bones in a fixed position. His designs aim to retain the flexibility of the ankle joint.

"An ankle is one of the very complicated joints where you have multiple bones making a particular contact to give you the motion," he said.

As prosthetic replacements continue to improve, the demand for ankle replacements has surged in recent years, according to Laughlin.

"Increased knowledge of foot alignment and fixation techniques has also made ankle replacement a viable option for patients with end-stage ankle arthritis," Laughlin said.

"We have had patients resume working and light recreational activities, such as golf, with the ankle replacements. The improvement in gait mechanics makes these activities possible."

Goswami has also investigated artificial-knee liners in hopes of coming up with a design that reduces or slows the creation of debris as the liner wears out. For that initiative, he turned to the university's powerful atomic force microscope.

"I'm looking at it from a very, very small, molecular level," he said.

As the joint moves, the rubbing roughens the liner. After 10 years of typical use, Goswami estimates that the liner is 6,000 to 8,000 times rougher. The roughness eventually results in liner debris being spun off. The body then produces cells that attack the debris as foreign objects. These same cells often proceed to attack the bone, a painful condition called osteolysis.

Goswami has developed a wear-prediction model for artificial joints. By taking into account body weight, the size of the implant, the thickness of the liner, and other parameters, a mathematical formula determines how long the artificial joint will last.

He is currently working on a specific model for the artificial hip joint, which when implanted results in a redistribution of body weight and stresses. His designs are aimed at preventing bone loss and providing better stability and functionality.

A blueprint for spine and neck health

Goswami is also working to improve the treatment of spinal injuries and develop ways to predict when they are likely to occur. To pursue this mission, he used an external grant and matching funds from Wright State to form the Spine Research Group (SRG), which is aimed at training the next generation of engineers, physicians, and researchers.

Back pain and neck injuries cost Americans about $15 billion per year in medical care and disability payments. In private industry alone, there were about 123,000 work-related back injuries in 2004, according to the Bureau of Labor Statistics. Neck injuries can range from strains, whiplash, and pinched nerves to herniated discs or spinal cord injuries.

In 2006, Goswami himself had cervical disc herniation issues in two of his spinal vertebra segments. Orthopaedic surgeons with Wright State Physicians treated his condition, and today he is pain free.

One of Goswami's goals is to create a computer program that will provide an individualized treatment plan for people based on their body type, activity level, neck structure, type of injury, and other important factors. The program, which is in development and should be completed within two years, could also calculate a person's overall potential for injury and indicate how to reduce it. These results could serve as a blueprint for preventing neck injuries, and for treating them based on symptoms, range of motion, and other factors.

"This is going to help the average person who might not know anything about neck anatomy or functionality or mechanics," said researcher Mary Kundrat-Blackmore, Ph.D., an SRG member and research assistant professor of biomedical, industrial, and human factors engineering. "It's going to be understandable on a physician and an engineer level, but also on a patient level."

Graduate and undergraduate student researchers at Wright State are contributing to the SRG work by collecting data on neck injuries. Some students are conducting mechanical analyses on spinal segments from cadavers, while others are working on the computer programming. Their work should support the development of mathematical models to predict the most common behaviors and positions for people who incur neck injuries. **VS**

Research Spotlight

New WSU & PHP Neuroscience Institute will speed transfer of research discoveries from lab to bedside

Wright State University President David R. Hopkins addresses a standing-room-only crowd during the news conference to announce the creation of the WSU & PHP Neuroscience Institute.

In February, the Boonshoft School of Medicine and Miami Valley Hospital announced the formation of the Wright State University & Premier Health Partners Neuroscience Institute.

This major public-private initiative partners the Dayton region's strongest biomedical research institution with the clinical resources of the region's largest hospital system to speed the transfer of research discoveries from bench to bedside, improving the diagnosis and treatment of neurological disorders such as stroke. At the same time, Miami Valley Hospital announced a major investment to create a new Department of Neurology within the Boonshoft School of Medicine. The investment includes long-term support for clinical neurologists who will form the nucleus for collaboration with university-based neuroscientists on critical research on stroke and movement disorders. A national search is underway for the founding chair of the new department.

"By leveraging our considerable NIH-funded research strengths along with Premier's extensive clinical resources, we will make new breakthroughs in a broad range of neurologic disorders," said David R. Hopkins, P.E.D., president of Wright State University. "The university and hospital system are committed to investing significant fiscal resources to recruit new physician-scientists to join our talented faculty in the institute, with the goal of providing improved neurological care for our community, as well as longer-term clinical trials and continuing research."

Neurological disorders afflict tens of millions of Americans and directly or indirectly affect all of us. Many of these common disorders, such as stroke, Parkinson's disease, or traumatic injury, impact the patient's ability to control movement, ranging from the ability to walk to the control of fine hand movements.

The institute will be the critical centerpiece for conducting neuroscience research, and will promote ways to move the results of that research directly from the laboratory to the bedside, providing outstanding neurological clinical care to the community and creating a clinical and research enterprise that will be pivotal for the region's economic recovery.

The state of Ohio has designated the institute as one of Ohio's Centers of Excellence. Wright State University now has four designated Centers of Excellence, including the Center of Excellence in Knowledge-Enabled Computing, the National Center for Medical Readiness, and the Center of Excellence in Human-Centered Innovation. VS

Future Docs

Walking the walk to support AIDS services

On a chilly Sunday morning in April, dozens of medical students sacrificed some well-deserved rest to rally support for a good cause. The annual, student-organized AIDS Benefit Walk/Run drew more than 80 participants for a brisk run, jog, or stroll through the wooded beauty of the Wegerzyn Gardens Metro Park in north Dayton. The event featured race shirts for participants, awards for the top finishers by gender and age category, and raffle prizes, but the big winners were local organizations receiving proceeds from the fund-raising event: AIDS Resource Center of Ohio (ARC of Ohio) and Miami Valley Positives 4 Positives. VS

Sharing and celebrating medical student research

The second annual Medical Student Research Symposium, held on the evening of April 1 in the Gandhi Medical Education Center, was bigger and better than its predecessor in nearly every way. With 25 research posters on display, the symposium more than doubled the size of last year's inaugural event, and some 50 faculty members, students, and guests attended.

The event was organized by the Medical Student Research Club and supported by the Office of Research Affairs. Several medical school departments donated awards for the juried competition, with a team of faculty members serving as judges. Awards were presented for the best poster, presentation, and research in the categories of clinical and basic science.

- Overall Poster Award: Nicole Zanin (winner), Kevin Kelley and Kelly Miller (runners-up)
- Clinical Science Award: Larry Goldenberg (winner), Jessica Zagory (runner-up)
- Basic Science Award: Ann Imber (winner), Gabrielle Horstman (runner-up), Nathan Weir (runner-up)
- Presentation Award: Shaden Khalaf (winner), Nicole Majoras (runner-up), Sara Chinnappan (runner-up) VS

Shining a spotlight on health care disparities

Just two month after devastating earthquakes ravaged Haiti, the fifth annual Global Health Symposium, in March, organized by the Global Health Initiative student group, featured a keynote speaker who has been working to improve health care in the impoverished island nation since 1996. Evan Lyon, M.D., who is affiliated with Harvard Medical School and Brigham and Women's Hospital in Boston, described some of his experiences building and working in rural Haitian clinics with the international medical aid organization, Partners in Health. Lyon also talked about his advocacy efforts in the U.S., where health care disparities may be less visible but can have a devastating impact. VS

Future Docs

Fulbright Award supports student's research in Peru

Matias Iberico, a third-year student in the M.D./M.P.H. program is spending 10 months in Peru to conduct public health research with a grant from the Fulbright U.S. Student Program.

For Matias Iberico, a third-year M.D./M.P.H. student, conducting public health research in Peru has been both a homecoming and the introduction to a fascinating new world. Iberico was born in Lima, Peru's capital, but moved to the United States with his family when he was five. His research also involves a community and culture very different from those he experienced as a child.

In August, Iberico began a 10-month project working among impoverished populations in the district of Ventanilla, which lies north of Lima and consists largely of shanty towns and slums. He is part of a team of about 40 Peruvian researchers, lab personnel, field workers, and health professionals led by Carlton Evans, M.B.B.S., Ph.D., of the Imperial College London's Wellcome Centre for Clinical Tropical Medicine, Universidad Peruana Cayetano Heredia, and the Johns Hopkins Bloomberg School of Public Health. Iberico is also staying in close contact with Boonshoft School of Medicine mentors Cristina Redko, Ph.D., assistant professor of community health, and Thomas Herchline, M.D., professor of internal medicine.

Evans' project, Innovative Socioeconomic Interventions Against Tuberculosis (ISIAT), seeks to implement and rigorously evaluate a large biomedical and socioeconomic intervention aimed at breaking the chain of transmission of tuberculosis (TB).

"A basic researcher traditionally wants to understand a problem, or is curious about some phenomenon," Iberico said. "This project is really exciting because it goes beyond that. We're interested not only in how to treat or cure TB from a biomedical point of view, but also how to prevent it or fight it from a larger social perspective."

Iberico is investigating the effectiveness of the project in using isoniazid preventative therapy (IPT) to prevent TB in children. His project involves reviewing data from an ongoing study started three years ago, as well as conducting interviews with patients to better understand their perceptions of the disease, IPT, and the health care system overall.

"IPT has been demonstrated to be one of the most effective interventions for controlling TB," Iberico said. "Generally, there is a very low level of utilization of this free, government-provided therapy, but in ISIAT intervention areas we are seeing a very high level of utilization and adherence. I want to understand why and how we can better structure interventions in the future."

Iberico's research is funded by a scholarship from the Fulbright U.S. Student Program. Iberico applied for the Fulbright award in part because the government-sponsored program emphasizes both academics and cultural exchange. Review commissions in both the United States and Peru selected Iberico for the award, which will support his research for the full 2010-11 academic year.

"I have lots of hopes for my time in Peru," Iberico said. "I'd like to not only do my project, but I also really want to get to know the population that I'm working with and try to understand where they come from." VS

Medical students take a break for service

Like many of their peers nationwide, a group of Wright State medical students decided to hit the road with some friends to spend their spring break on the coast. Rather than a few buddies getting together to lounge on the beach, though, these students formed a 50-person volunteer crew headed to New Orleans for a week of volunteer work.

The group needed six large vans to ferry everyone from Dayton to the Crescent City, where they split into smaller teams to serve at three project sites. One team worked at OnSite Relief Inc., an organization focused on disaster relief and long-term recovery efforts. Another assisted at Project Lazarus, which provides transitional housing, assisted living, hospice care, and related services for homeless people with HIV/AIDS. The third team was assigned to Camp Restore, which organizes rebuilding projects and outreach efforts within the community, including work with children in Head Start programs.

Third-year students Dan Persinger and Sonya Hovsepian, who are service co-chairs for the Medical School Student Council, organized the volunteer experience as a sequel of sorts, following a similar trip they planned and led in 2009. Based on how much participants raved about that trip—and the opportunity to earn credit toward the school's service learning requirement—more than four times as many people signed up in 2010. This year's planning committee alone included nearly as many people as last year's entire trip. Persinger and Hovsepian were thrilled by their classmates' overwhelming response, as well as the prospect that their initiative could become an annual tradition—new organizers have already scheduled multiple volunteer sites in New Orleans for spring 2011.

"The cool thing about service is it's an exchange," Hovspeian said. "We go and we give a little bit, but we can also learn a lot. We can come back and tell the people in our communities what we've learned and what we've seen, and we can reflect and hopefully grow a little bit."

This idea of viewing service as an exchange is especially valuable for medical students preparing to enter a profession dedicated to helping people. For example, one evening a resident of Project Lazarus shared his life story with the students, including his battles with drug addiction and HIV/AIDS, as well as being in prison when Hurricane Katrina devastated the Gulf Coast.

"It was unbelievable," Hovsepian said of the moving encounter, which also resonated with her as a future physician. "It's good to remember, as we go into our professional lives, that everyone we meet is a human being, and they have a history and the capacity to grow. Everyone deserves the benefit of the doubt.

"Medicine is service," she added, and it's crucial to "know how to do service and see it as an exchange. It's not about us giving to the patients all the time. Our patients are also going to impact our lives. That's what makes medicine so enriching. That's why we're so fortunate." VS

On the streets of New Orleans: a few of the 50 WSU medical students who volunteered there over spring break.

Match Day

Graduating medical students gathered on Thursday, March 18, to share one of the final—and most exciting—milestones of their journey to enter the medical profession: Match Day. The 86 members of the Boonshoft School of Medicine class of 2010 joined more than 30,000 other applicants in the largest Match Day on record, and the results clearly raised the bar as well. Wright State students matched to top-caliber residency programs throughout the country. Nearly half will remain in Ohio, and 43 percent will enter a primary care field such as family medicine, internal medicine, or pediatrics.

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Ohio State University Medical Center
Columbus, OH

Jessica Barnett
Family Medicine
WSU Boonshoft School of Medicine
Dayton, OH

Kevin Beers
Anesthesiology
University of Virginia
Charlottesville, VA

Nikunja Bhatt
Internal Medicine
National Capital Consortium
Bethesda, MD

Howard Bowers
Surgery-General
WSU Boonshoft School of Medicine
Dayton, OH

Michelle Bowman
Neurology
University Hospital
Cincinnati, OH

Erin Brattoli
Pediatrics
Nationwide Children's Hospital
Columbus, OH

William Breeding
Emergency Medicine
University of Kentucky Medical Center
Lexington, KY

Megan Chambers
Ophthalmology
Ohio State University Medical Center
Columbus, OH

Erin Davren
Emergency Medicine
University of Louisville School of Medicine
Louisville, KY

Vincent DeGeorge
Anesthesiology
University Hospitals Case Medical Center
Cleveland, OH

Matthew Durbin
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Loyola University Medical Center
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Nashville, TN

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Indianapolis, IN

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Memphis, TN

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Cleveland, OH

Maureen Gallagher
Pediatrics
Medical College of Wisconsin Affiliated Hospitals
Milwaukee, WI

Lindsay Gates
Vascular Surgery
Yale-New Haven Hospital
New Haven, CT

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Dayton, OH

Jessica Geiger
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Mayo School of Graduate Medical Education
Rochester, MN

Melanie Golembiewski
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University Hospitals Case Medical Center
Cleveland, OH

Jessica Guyer
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Bethany Harper
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Dayton, OH

Jennifer Hartsock-Vandine
Family Medicine
WSU Boonshoft School of Medicine
Dayton, OH

Mada Helou
Anesthesiology
Cleveland Clinic Foundation
Cleveland, OH

Matthew Hensler
Otolaryngology
University Hospital
Cincinnati, OH

Anthony Hesketh
Surgery-General
Stony Brook Teaching Hospitals
Stony Brook, NY

Ryan Hinman
Physical Medicine & Rehabilitation
Ohio State University Medical Center
Columbus, OH

Jessica Hoying
Family Medicine
Trident Medical Center
Charleston, SC

Eboni January
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St. John's Mercy Medical Center
St Louis, MO

Jeffrey Jenks
Internal Medicine
Boston University Medical Center
Boston, MA

Kevin Jensen
Obstetrics/Gynecology
Texas Tech University
El Paso, TX

Shivani Jindal
Internal Medicine
University Hospital
Cincinnati, OH

Matthew Johansen
Orthopaedic Surgery
Georgetown University Hospital
Washington, DC

Linden Karas
Surgery-General
Allegheny General Hospital
Pittsburgh, PA

Michael Kim
Family Medicine
Madigan Army Medical Center
Tacoma, WA

Charlene Lam
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Hershey Medical Center/Pennsylvania State University
Hershey, PA

Katrina Lambert
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Ann Arbor, MI

Jennifer Tomich
Radiology-Diagnostic
Eastern Virginia Medical School
Norfolk, VA

Jing Jing Wang
Pediatrics
Indiana University School of Medicine
Indianapolis, IN

Cameron Wick
Otolaryngology
University Hospitals Case Medical Center
Cleveland, OH

Elizabeth Wirth
Obstetrics/Gynecology
WSU Boonshoft School of Medicine
Dayton, OH

Sylvester Youlo
Orthopaedic Surgery
University of Wisconsin Hospital and Clinics
Madison, WI

Zebo Zakir
Anesthesiology
Rush University Medical Center
Chicago, IL

Nicole Zanin
Internal Medicine
University of California-Irvine Medical Center
Orange, CA

Fei Zhang
Psychiatry
Ohio State University Medical Center
Columbus, OH

Crystal Zilo
Obstetrics/Gynecology
St. John Hospital
Detroit, MI

Stephen Zitelli
Family Medicine
Bethesda Hospital
Cincinnati, OH

Graduation

In addition to their family, friends, and other supporters, graduating members of the Class of 2010 were joined by a special guest at the commencement ceremony on Friday, May 28: the U.S. Surgeon General.

Regina Benjamin, M.D., M.B.A., Surgeon General of the United States Public Health Service, delivered a pointed commencement address entitled "What America Wants and What Society Needs in Its Future Physicians."

During the ceremony, which took place in the Schuster Performing Arts Center in downtown Dayton, graduates also received their M.D. degrees, participated in a "hooding ceremony" to receive traditional regalia denoting their new profession, took a professional oath, and signed their names followed by the initials "M.D." for the first time.

The ceremony also included the presentation of several notable awards:

Appreciation Award—
Wright-Patterson Air Force Base Medical Center

Dean's Award—
Maria E. Shaker
For commitment to academic excellence, empathy and compassion toward others, personal integrity and professionalism, and earning the respect and trust of classmates and faculty.

Arnold P. Gold Foundation's Leonard Tow Humanism in Medicine Award—
Melanie E. Golembiewski (student) and Ashley K. Fernandes, M.D., Ph.D., Assistant Professor, Community Health and Pediatrics (faculty)
For consistently demonstrating compassion and empathy in the delivery of care to patients

Teaching Excellence Award—
Ashley K. Fernandes, M.D., Ph.D., Assistant Professor, Community Health and Pediatrics
For outstanding professional skill and pride in discharging his instructional duties.

In addition to receiving their medical degrees, members of the graduating Class of 2010 enjoyed an address by the U.S. Surgeon General, Regina Benjamin, during their commencement ceremony in May.

Convocation

The 101 incoming students of the Class of 2014 gathered as a group for the first time on Sunday, August 1, during the 35th annual Convocation and White Coat Ceremony.

The ceremony, which was held in the Schuster Performing Arts Center in downtown Dayton, celebrated the official beginning of students' medical education. During the ceremony, students received the white coats symbolic of their chosen profession and recited, as a group, their first oath of professional medical ethics.

Roger Pacholka, M.D. ('85), clinical assistant professor of emergency medicine, was the featured speaker for the event. As a former disc jockey and comedian, as well a Wright State alumnus three times over (undergraduate, medical school, and residency), Pacholka combined polished performance and personal experience to deliver a lively address to students and their guests.

The students, who were carefully selected from a pool of nearly 3,000 applicants, did not have long to reflect on this poignant milestone. Orientation for the class began the following day, and formal classes started the following week.

The Convocation and White Coat Ceremony for the incoming Class of 2014 included words of welcome from associate dean of student affairs and admissions Gary LeRoy, M.D. (top), an address by featured speaker and clinical assistant professor of emergency medicine Roger Pacholka, M.D. ('85) (bottom left), and a group recitation of an oath of professional medical ethics (bottom right).

Events

Reunion Weekend

Medical school alumni from the classes of 1980, 1985, 1990, 1995, 2000, and 2005 gathered this summer to revisit great memories and create exciting new ones during a weekend of special events. The festivities began on Friday evening, July 16, when classmates cheered on the Cincinnati Reds to a 3-2 victory over the Colorado Rockies in Great American Ballpark. Dinner in a private party tent before the game and a dazzling fireworks display afterward completed the evening.

On Saturday, a tour of the Boonshoft School of Medicine and the Wright State campus helped many alumni recall their student days—while showcasing how remarkably the school and university have grown and changed over the years. The evening featured a sunset cruise along the Ohio river aboard a luxurious 110-foot yacht, including dining, dancing, and live entertainment among the passing city lights.

The weekend concluded with a full day of family fun at Kings Island, southwest Ohio's premier amusement park.

Academy of Medicine Distinguished Guest Lecture and Awards Dinner

On a beautiful evening in April, Academy of Medicine members and their guests gathered in the Ponitz Sinclair Center in Dayton for a special event to honor students, residents, and faculty; celebrate the invaluable work of academy members; and promote fellowship and camaraderie. In addition to fine cuisine and lively company, attendees enjoyed an unforgettable evening with one of the world's most accomplished and admired athletes: golf legend Tom Watson.

Following his initial remarks, Watson engaged in a conversational interview with academy chair David L. Roer, M.D. ('84), who served as the evening's emcee. This friendly exchange delighted guests, as Watson shared many entertaining stories and moving insights drawn from a storied career spanning four decades of professional golf—including eight major championships.

The event inspired several guests—as well as Watson himself—to become academy members, contributing to a record-setting year for academy membership. Membership dues help to support exceptional medical education and enable some of tomorrow's most promising physicians to complete their studies without the burden of high-interest commercial loans.

For more information, or to become a member today, visit med.wright.edu/academy

Second Annual Medical-Spirituality Conference: "Connections of the Heart"

On April 15, the Second Annual Medical-Spirituality Conference explored the spiritual and medical aspects of organ transplantation, incorporating the perspective of both the recipient and the organ donor, as well as the donor family and the health care team. The afternoon conference drew hundreds of participants, who enjoyed a moving presentation by featured speaker Annette Jo Giarrante, M.Div., CPCC. A spiritual director for more than 20 years, Giarrante is a faculty member with the Institute for Spiritual Leadership in Chicago, Loyola University Chicago, and other institutions. Following a heart transplant in 2007, Giarrante has devoted much of her recent work to exploring the spiritual dimensions of her own medical experience. The conference also featured a panel discussion by local care providers and clergy.

Save the Date

Third Annual Music and Medicine Symposium
Date: January 25–26, 2011
Concert: 8 p.m., January 25
Symposium: 10 a.m.–4 p.m., January 26
Info: med.wright.edu/calendar

Sixth Annual Global Health Initiative Symposium
Date: March 31, 2011
Speaker: Dr. Jon Andrus
Deputy Director, Pan American Health Organization
Info: med.wright.edu/calendar

Third Annual Medical-Sprituality Conference
Date: April 14, 2011
Speaker: Doug C. Smith, M.Div., M.A., M.S.
Info: med.wright.edu/calendar

Academy of Medicine Lecture and Dinner
Date: April 27, 2011
Speaker: Chris Spielman
OSU All-American, NFL Pro Bowler, and sports radio host
Info: med.wright.edu/calendar

Reunion Weekend 2011
Classes of 1981, 1986, 1991, 1996, 2001, and 2006
Date: July 29-30, 2011
Location: Columbus, OH
Info: med.wright.edu/calendar

On the Move

Mary C. McCarthy, M.D., FACS
Chair, Department of Surgery

In nearly three decades as a medical school faculty member, Mary C. McCarthy, M.D., FACS, has devoted her expertise in general and trauma surgery to significantly enhance medical education, research, and patient care. She is now applying her experience in a new leadership role as chair of the Department of Surgery. Since coming to the medical school in 1991, McCarthy has also been affiliated with Miami Valley Hospital, where her tenure has included terms as director of trauma services, overseeing the region's only Level I Trauma Center; surgical director of the intensive care unit; and associate medical director of CareFlight, the area's only air ambulance system. She is board certified in both general and critical care surgery, a Fellow of the American College of Surgeons, a member of numerous other professional organizations, and an active researcher who publishes regularly in professional journals. McCarthy earned a B.S. from Stanford University and her M.D. from Indiana University, and she completed her residency in general surgery at University of Texas Southwestern Medical School and Affiliated Hospitals in Dallas.

Arthur Pickoff, M.D.
Assistant Dean for Clinical Research

A faculty member since 1999, Arthur Pickoff, M.D., is chair and professor of both pediatrics and community health, positions he will retain alongside his new role. As assistant dean, Pickoff will lead efforts to enhance and expand the medical school's flourishing clinical and translational research enterprise. He will work with the associate dean for research, faculty members, and partners across the region to support university and collaborative research, clinical trials, and research by residents and fellows. A native of New York City, Pickoff earned a B.A. in chemistry from Queens College and an M.D. from Albert Einstein College of Medicine, and completed his pediatrics residency at Mount Sinai Hospital. He also completed a fellowship in pediatric cardiology and an NIH postdoctoral program in cardiac electrophysiology at the University of Miami. Before coming to Wright State, Pickoff was a faculty member at the University of Miami and Tulane University. A Fellow of both the American Heart Association and the American College of Cardiology, he is board certified in pediatrics and pediatric cardiology. Pickoff practices and teaches at the Children's Medical Center of Dayton, where he also serves on the hospital's board of trustees.

Richard W. Pretorius, M.D., M.P.H.
Chair, Department of Family Medicine

An Ohio native and graduate of Fairview High School in northwest Dayton, Richard W. Pretorius, M.D., M.P.H., has returned home to become professor and chair of the Department of Family Medicine. Most recently, Pretorius served as associate professor of family medicine at the State University of New York at Buffalo, where he also was founder and director of the Medical Education Teaching and Research Innovation Center. Previously, Pretorius was affiliated with the University of Iowa College of Medicine for 13 years, where he served as medical director for numerous institutions and programs and held a wide variety of rural medicine and clinical teaching appointments—initially through his work for the U.S. Department of Health and Human Services National Health Service Corps. Pretorius received his B.A. in biology and chemistry from Wittenberg University, his M.D. from the University of Virginia, and his M.P.H. from the Medical College of Wisconsin. He completed his residency in family medicine at Case Western Reserve University. An active researcher who presents and publishes extensively, Pretorius is also a gifted teacher. His educational work has garnered several awards, including the prestigious Innovation Award in Medical Education from the Association of American Medical Colleges in 2009.

In Good Company

A calling to heal: The third life of Sister Margo Young

Sister Margo Young, M.D. ('90), decided to become a physician later in life than most, and her path to the profession was an unusually winding one.

At the age of 18, Young left her home in central California to join the Sisters of the Precious Blood, a Roman Catholic congregation in Dayton whose mission includes a call to "proclaim God's love by being a life-giving, reconciling presence in our fractured world."

The congregation encouraged Young's interest in becoming a teacher, and after earning an education degree from the University of Dayton in 1970, she taught in primary and Montessori schools in Cincinnati and Colorado for six years.

She then returned to Dayton and began doing counseling and pastoral work, a focus that led her to earn a master's degree in counseling from Wright State in 1980. During this phase of her career, she served as the first hospice chaplain in Dayton, director of pastoral care at the Maria-Joseph Center long-term care facility, and a staff chaplain at Good Samaritan Hospital. This last assignment led her to consider a vocation in medicine.

"I was mostly in the ICU, the emergency room, and oncology," she said. "I was taking care of the psychosocial, emotional, and spiritual dimension of people."

Sister Margo Young, M.D. ('90), prepares a simple meal to share with her fellow caregivers and volunteers in the Proyecto de Salud Sangre de Cristo, based in La Labor, Guatemala.

A conversation with a co-worker sparked the idea of adding medical training to complement her other skills, but Young considered the prospect highly unrealistic.

"I belonged to a religious congregation," she said, "and I just couldn't make those kinds of independent decisions."

Also, she said, "I did not have a strong science background. When I went to school the first time, they didn't even know what an organelle was."

Nevertheless, the thought of going to medical school refused to go away. She spoke with the hospital's head of medical education, took some science classes at Wright State, and even met with the dean of the medical school. Rather than dissuading her as she expected, each experience only strengthened her resolve.

"Finally, I discussed it with my congregation," she said. She explained that she saw medical school as "something to round out what I consider my healing ministry. I didn't have that physical dimension."

With the wholehearted approval of her congregation, Young applied to medical school, was accepted, and in 1986, at the age of 38, left teaching and counseling behind to begin what she calls her "third life" in medicine.

After a devastating tsunami ravaged numerous countries bordering the Indian Ocean in 2004, Young spent several months in India providing medical care for those injured and displaced by the unprecedented natural disaster.

Staying true to herself

Young found medical school challenging, but more than the demands of the coursework or clinical experiences, she struggled with how much of her time and focus school demanded. She worried that such intense dedication would irrevocably alter her sense of self-identity and purpose.

"Gradually," she said, "I knew that I was going to be who I was no matter what. I survived it. School didn't beat who I was out of me, which I'm grateful for."

On the positive side, she forged strong friendships with a group of four other non-traditional students, and she considers that support network a crucial factor in helping her graduate.

"I also appreciated that the school was very primary care-oriented," she added. "I just appreciated the balance of it, that they looked at ethics, and the whole person, and the psychosocial spiritual dimension."

After graduating, she entered the Internal Medicine Residency Program at nearby Kettering Medical Center.

"I have just eternally appreciated the training I got there," she said, "because it was so drilled into us that our history and our physical are 95 percent of what we do. That has stood me in very good stead."

After residency, she practiced locally for a year and worked with residents in the program. She then helped to establish a new primary care office in rural Farmersville, an area close to Dayton but badly underserved from a medical standpoint.

"Basically, people who needed care there went to the vet," she said. "I came in one day, and he said, 'Oh I'm so glad you're here. Now I can take care of animals and not have to be stitching up people.'"

At home among the poor and displaced

In 1995, Young finally settled in the place she would call home for more than a dozen years: La Labor, Guatemala. Within this rural, rugged, and deeply impoverished region in the heart of one of Central America's poorest countries, her mission was to help care for people in need.

"There was one little clinic that we took over," Young recalled, "and from there people started asking us to come to their villages.

"Within six months we started a second clinic 10 miles over the mountains on this dirt road," she said. "And within three years we had five clinics."

Today, the Proyecto de Salud Sangre de Cristo, or "Blood of Christ Health Care Project," also includes two dental clinics and two simple clinical laboratories. In addition to providing basic health care, the project is conducting extensive outreach efforts in the villages and schools to promote environmental and public health, including recycling, sanitation, ventilation, reforestation, and healthy personal habits.

Young loved applying her talent and training to care for patients' spiritual and physical needs, but she hadn't left her days as a student behind.

"I struggled with the Spanish," she admitted. "I kind of learned by the seat of my pants."

And she couldn't have asked for better teachers.

"The people are just so gracious," she said. "They correct you with great humility, and without making you feel bad."

She also maintained ties with the U.S. medical community, playing host to a dozen medical students and residents over the years and welcoming a group of Dayton-based surgeons for annual medical mission trips.

A journey coming full circle

Early in 2008, Young left Guatemala and returned to California. The decision to leave was difficult but necessary, based on a variety of factors, including the need to support her religious order closer to home during a time of declining membership. She also needed to prepare for a board certification renewal exam, a prospect that proved difficult in rural Guatemala.

"Obviously, I didn't practice the level of medicine that an internist does up here," she said. "I became a great hand surgeon. I am great at machete wounds. I've done a couple of births, and I've set bones with a tongue depressor. But I didn't know all the fine fancy stuff, so I ended up coming up to study."

Her diligence paid off, and after passing her board exam, she decided to remain in California to pursue a new path of service.

"I'm not thrilled with inserting myself in the medical establishment in the States," she confessed. "Down there, you did what you had to do, to care for people so that they could have better health, and better quality of life."

In contrast, she finds the kind of restricted and defensive medicine imposed by the U.S. legal and insurance environment to be limiting.

"If I had my 'druthers,' I would take a bench and go out on a corner somewhere and see people," she said. Instead, "I can't even volunteer at a clinic without malpractice insurance."

In Guatemala, in contrast, "When there was an earthquake in El Salvador, we filled up a pickup truck and went over there for four or five days and saw everybody, when nobody else had been there yet."

Another time, when the Guatemalan government relocated thousands of people left homeless in the wake of Hurricane Mitch to hillsides near the clinic, Young and her colleagues spent weeks helping to dig latrines and providing basic medical care.

"Every week for months," she said, "I went out there, brought some medicine, sat on a bench, and saw people."

She also spent several months in India caring for people after a devastating tsunami in 2004, an experience that profoundly moved her.

Reaching more people

Young has made peace with her place in U.S. medicine by embracing the opportunity to continue her work in a different way.

"I made a conscious choice to come to an area that was poor, that was Hispanic, and where I could somehow be of service with all the gifts that I have," she said. "I approached St. Bernadine's Medical Center in San Bernardino, and they created a job for me, which is pretty amazing."

As a community outreach physician with the hospital, Young is able to practice part-time at a low-cost, private clinic serving the uninsured, unemployed, and others in need. The rest of her time is devoted to projects designed to help the hospital better serve those most in need. For example, over the past 18 months, she has worked to strengthen the hospital's offerings and outreach related to maternal-child care, preventive health, and chronic disease management. Her next focus is establishing a community health care center locally to improve care access and continuity.

"I've kind of had to accept and embrace that what I am doing offers more possibility for reaching more people than the few individuals I might take care of," she said. "And it has more potential for systemic change."

After 45 years as a nun and 20 as a physician, Young can look back on her experiences—and forward to what tomorrow may bring—with a healthy dose of perspective.

"In hindsight," she said, "after 40-some years, I can say it's a call. Somewhere along the line, there's just this thing in your soul that says 'Yeah, that's right.'

"As with anything," she added, "you either grow into it or you grow out of it, and I grew into it. And I'm very grateful for that. It doesn't mean I didn't have to give up some things, or I didn't want some other things, but I just knew this was the right path." **VS**

In Good Company

Flying high: Maurice Young gets a bird's-eye view of battlefields

Lieutenant Colonel Maurice Young, M.D. ('00), takes a moment to enjoy the view from the cockpit of an F-16 at Joint Base Balad in Iraq. During Young's deployment, he supported pilots with the U.S. Air Force 55th Expeditionary Fighter Squadron, which flew missions as part Operations Iraqi Freedom and New Dawn.

When a hydraulic hose ruptured inside the airborne C-130H Hercules troop transport, spraying gallons of highly caustic fluid on passengers—and damaging the plane's brake, flap, steering, and landing gear systems—Lieutenant Colonel Maurice Young, M.D. ('00), was glad to be on board.

As an active duty flight surgeon with the U.S. Air Force 55th Expeditionary Fighter Squadron, Young was prepared—and eager—to help during the midair emergency. While crew members helped many of the 34 passengers put on oxygen hoods to protect their eyes and lungs from the damaging mist filling the cabin, and flight engineers worked to lower the landing gear manually, Young treated those hardest hit by the eruption.

"Some of them who really got drenched, where it got in their eyes and all over their clothes," Young said, "we had to douse them with water and make sure their eyes weren't severely burned. We had to get the patients stable and care for them in the air until we could get the landing gear down."

Despite damage to key systems, the plane, en route from Baghdad to Erbil, Iraq, was able to make an emergency landing at Joint Base Balad, which is north of the capital within the Sunni Triangle region. The passengers all escaped serious injury and were able to continue their journey in a new plane.

"It's not always that intense," Young said of the experience, which was notable enough to be featured in the *Air Force Times* in June. "Those are the exceptions. For the most part, things are pretty routine."

Young's routine consists of providing primary care for F-16 pilots and their family members, and he's accumulated 120 hours of flight time providing airborne medical support for pilots and passengers.

On the ground, Young added, "I also take care of air evacuations and mass casualty patients, as well as the day-to-day traumas that occur here in Iraq."

Answering the call to serve

Now a member of the Air Force Reserves, Young has strong military ties that go back decades. A native of Jacksonville, he earned a bachelor of science degree in mathematics from the University of Florida in 1989 and immediately enlisted in the Air Force. He considered the military his best route to medical school, a dream nurtured since his teenage years.

"I just always wanted to help people," Young explained. "I lived in an underserved community where many people didn't have—or couldn't afford—health care, so I wanted to give back. I wanted to be a physician to impart health care to others."

When he entered the service, however, shortages in technical disciplines made his math background valuable, and Young was selected for Air Force Space Command in Colorado. Over time, he was able to prepare for medical school by taking night classes at the University of Colorado, and when he was ready to apply, Wright State's close affiliation with Wright-Patterson Air Force Base and strong commitment to diversity caught

his eye. He was accepted and in 1996, at the age of 30, took a big step toward his goal of becoming a physician.

After serving as class president for four years, Young graduated in 2000 and entered a residency program in obstetrics and gynecology at Akron City Hospital. During his second year there, he rejoined the Air Force. Following residency, he served for nearly four years at Langley Air Force Base in Virginia before deciding to give civilian practice a try.

In making the transition, however, he didn't want to sever all ties with the military and chose to join the Air Force Reserves.

"I decided to do flight medicine because it combined a bit of primary care, and also I would be with the flying community," Young said. "That area is underserved in the military, so there's a big shortage in flight docs."

Earlier this year, that same willingness to fill a critical need led Young to volunteer for a four-month deployment to Iraq. He was assigned to the 55th Fighter Squadron based at Shaw Air Force Base in South Carolina and shipped out to Joint Base Balad in May. His tour of duty was supposed to end in September, but Young once again answered the call to serve.

"There was nobody to replace me," he said, "so I elected to stay on for an additional two months."

A promising flight path

Although he'll be 45 in January, Young is as eager as ever to take on new challenges. Rather than resume his civilian ob/gyn practice following his deployment, he plans to return to Dayton for training to make flight medicine his full-time focus.

"I'm actually looking at the aerospace medicine program at Wright-Patt right now," he said. "It'll take me via Wright State's M.P.H. program, and then a year of aerospace medicine there, followed by a year of occupational medicine."

Young will learn whether he's been admitted to the program in December. His wife Rickita and three daughters, Leila (10), Mia (7), and Kennedi (1), are excited to accompany him to the city he used to call home. In fact, Rickita, who is pursuing a degree in clinical laboratory science, has already been accepted at Wright State as a transfer student.

For his part, Young couldn't be more pleased about a potential homecoming. He's stayed in close touch with many classmates through the years and has crossed paths with several Boonshoft graduates during his years in the service, including during a stint at Yokota Air Base outside of Tokyo.

"It's a small world," he said. "Even over in Japan, you still run into your classmates."

VS

Alumni Notes

We're proud of our alumni and want to spread the word about your achievements. If you have professional news or personal updates to share—or simply want to stay in touch—please contact the Office of Advancement at som_adv@wright.edu or (937) 775-2972.

1988

Carolyn F. Davis, M.D.
is the author of a new book: *100 Questions and Answers About Your Daughter's Sexual Wellness and Development.* Published by Jones and Bartlett Learning in April, the book provides reliable, current information on physical and mental health topics related to adolescence. Davis is an assistant professor in the Department of Obstetrics and Gynecology at the Virginia Commonwealth University School of Medicine, Inova Fairfax Hospital Campus. In addition to teaching and writing, she currently lives and practices in the Washington, D.C., area.

Curt Thompson, M.D.
recently published *Anatomy of the Soul,* which explores the connections between cutting-edge neuroscience and Christianity. The book, which has been endorsed by Daniel Siegel, M.D., of the Mindsight Institute, describes ways to "rewire" the brain for healthier connections with God and others. Thompson also operates a private psychiatry and neuroscience practice, Curt Thompson, M.D., & Associates, in Falls Church, Virginia, outside of Washington, D.C., and maintains a Web site: beingknown.com.

1997

Kevin Meyer, M.D., FACEP
is practicing as an emergency medicine physician with Qualified Emergency Specialists, Inc., in Cincinnati. He is also acting chief of staff at Mercy Hospital Mt. Airy and is the medical director of Mercy Medical Center Harrison, ACLS education for Mercy's west side hospitals, and Harrison's Fire Department. Additionally, he serves on Mercy Health Partners' Physician Council, which manages quality within the health care system. He and his wife, Shelly, have three sons: Ethan, Blake, and Griffin.

1998

Deborah Ann Payne, M.D.
is a newlywed, having married husband Max Westbrook this June. After graduation, she completed a residency in general psychiatry and a fellowship in child and adolescent psychiatry at Louisiana State University in New Orleans. Today, Payne serves as state medical director and practices child and adolescent psychiatry with Family Preservation Services, Inc., in Durham, North Carolina, where she and Max live.

2000

Nathan Piovesan, M.D.
recently ended a 10-year career with the Air Force to devote himself to a full-time role as a missionary with the Association of Baptists for World Evangelism (ABWE). The transition entailed a move to nearby Fort Walton Beach, Florida, with his wife, Dorothy, and their children Joshua, Victoria, Noelle, and Catherine. Piovesan is currently doing pre-field ministry work in the United States to prepare for a mission to Bangladesh.

2001

Gary A. "Chip" Betz II, M.D.
and his wife, Mia, and daughter, Ava (2), recently welcomed a new arrival to the family: son Christian Doty Betz, born on December 4, 2009. After completing a residency in internal medicine, and serving as chief resident at St. Joseph's Hospital, in Phoenix, Arizona, Betz remained as an academic hospitalist until 2005, when he established a private practice, Thompson Peak Internal Medicine, in nearby Scottsdale. He is still affiliated with the hospital through part-time service at its Mercy Care Clinic and teaches residents who rotate through his practice. He was recently chosen by *Phoenix Magazine* as one of Arizona's "Top Doctors 2010" in the field of internal medicine.

2004

Christopher Savage, M.D., and Erica Mailler-Savage, M.D.
have been busy since graduation. The couple live and work in Winter Park, Florida, and have one daughter, Mackenzie (3). Savage specializes in otolaryngology and facial plastic surgery and practices with The Ear, Nose, Throat and Plastic Surgery Associates. Mailler-Savage specializes in dermatology and is a practicing Mohs surgeon.

In memoriam

Martin A. Marks, M.D. ('86)
passed away in October. Marks, 58, is survived by his wife Linda, sons, Christopher and Danny, and his mother, brother, and two sisters. Following graduation, Marks completed his residency in internal medicine at the University of South Florida. He was board certified in internal medicine, which he practiced in Tampa, Florida.

Boonshoft
School of Medicine
WRIGHT STATE UNIVERSITY

3640 Col. Glenn Hwy. ■ Dayton, OH 45435-0001

New breakthroughs in caffeine research

In addition to structured research opportunities available at the medical school, many students are taking part in an informal, long-term investigation into the effects of caffeine consumption on alertness, recall, and higher-order thinking.

Preliminary results indicate that coffee, soda, and energy drinks—alone or in combination—can often facilitate learning by prolonging consciousness. As in any scientific experiment, however, researchers are also learning a great deal from their failures.

Visual evidence reported in the electronic journal "Boonshoft Sleeps" (published by Facebook) is helping to pinpoint recommended dosages and delivery methods for a variety of scenarios, ranging from traditional lectures to team-based learning exercises and preparation for end-of-course exams.

For more information on this groundbreaking research, see page 28 inside.