



MCW *magazine*

P 20

Dialing Back on Pain

MCW Physicians & Researchers
are Helping Patients Manage Pain



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LEADERSHIP MESSAGE

NIH Funding Increase: Science Matters

This spring, Congress approved a \$2 billion increase in funding (to \$34.1 billion) for fiscal year 2017 for the National Institutes of Health (NIH), one of the world's foremost medical research centers. The bill also included \$5.7 billion for the National Cancer Institute, \$1.4 billion for Alzheimer's disease research, \$320 million for the Precision Medicine Initiative and \$260 million for the BRAIN Initiative. It also more than quadrupled funds to fight opioid addiction.

Many individuals locally, regionally and nationally advocated for this increase for biomedical research given the positive impact it has on our country's development, economy and health. Importantly, this funding sends a strong signal of support to those young scientists who dedicate decades to developing the knowledge and skills to uncover the next great cure for disease.

MCW – a major national research center and the second-largest research institution in Wisconsin, with \$92.6 million of NIH grant support in fiscal 2016 – is poised to extend the benefit from this investment to patients and industry. Specifically, MCW has internationally-recognized excellence in each of the areas receiving the largest increases of NIH funding – and they have been earmarked by our School of Medicine (SOM) for strategic growth. MCW also is well-positioned to invest with our citizens and the NIH in these areas, as the SOM contributes approximately an additional fifty cents for each dollar received from the NIH into our research programs. These programs create new knowledge, provide cutting-edge clinical trials to improve patient outcomes, advance the health of our nation and prolong life.

The NIH funding increase also sends a clear message to our communities that “science matters” – bringing confidence to those in the medical education and clinical fields that funding research remains a priority. As chair-elect of the Council of Deans for the Association of American Medical Colleges, and executive vice president and dean of the MCW SOM, I am confident that continued strong support for the NIH by our elected officials will lead to a future of better health, new discoveries, promising careers for our talented students and ongoing economic development for our communities and beyond.

Joseph E. Kerschner, MD '90, FEL '98

Dean, School of Medicine

Executive Vice President

“I am confident that continued strong support for the NIH by our elected officials will lead to a future of better health...”



CONTENTS



8



12



28

COVER STORY

20 / DIALING BACK ON PAIN



6 / VOICE OF THE STUDENT



7 / MCW SPRING CELEBRATIONS!



8 / STUDYING THE 3D STRUCTURES OF PROTEINS TO DISCOVER NEW DRUGS



10 / SLEEP APPRECIATED MOSTLY WHEN IT'S LACKING



12 / APAMSA: ADVOCATING FOR BETTER HEALTH



14 / CULLEN FAMILY RUNS FOR HEART HEALTH



16 / BRINGING INNOVATION, DISCOVERY AND HOPE TO PANCREATIC CANCER PATIENTS



26 / HONORING A VALUED PARTNERSHIP: DR. WILLIAM AND MARLENE LISTWAN



28 / 2017 ALUMNI WEEKEND CELEBRATION



INSIDE EVERY ISSUE

4 / STAT REPORT

40 / IN MEMORIAM

36 / HAPPENINGS

42 / CHANGE AGENT

38 / ALUMNI NOTES

43 / A MOMENT IN HISTORY



ON THE COVER: MCW clinicians, researchers and educators are undertaking numerous endeavors related to pain management and providing long-term relief to patients.

STAT REPORT



Photo courtesy of Jay Westhauser

National Transformation Network Partners attending the June 8 launch of the Kern Institute include (l-r) Catherine Lucey, MD, University of California San Francisco School of Medicine; Elizabeth Nelson, MD, University of Texas at Austin Dell Medical School; Sue Cox, MD, University of Texas at Austin Dell Medical School; Stephanie Starr, MD, Mayo Clinic School of Medicine; Bonnie Miller, MD, MMHC, Vanderbilt University School of Medicine; Bill Cutrer, MD, Vanderbilt University School of Medicine; Rand Swenson, MD, Geisel School of Medicine at Dartmouth; Greg Ogrinc, MD, Geisel School of Medicine at Dartmouth; and Elizabeth Petty, MD, University of Wisconsin School of Medicine and Public Health.

Kern Institute: Transforming Medical Education

The next milestone in the Medical College of Wisconsin's journey to lead the way in transformational healthcare education is the recent establishment of the Robert D. and Patricia E. Kern Institute for the Transformation of Medical Education (Kern Institute). The Kern Institute is supported by an exceptionally generous gift of \$37.9 million (the largest individual non-corporate gift ever given to MCW) by the Kern Family and the Kern Family Foundation.

In addition, Steve and Shelagh Roell provided a generous gift to establish the

Steven and Shelagh Roell Endowed Chair of the Institute for the Transformation of Medical Education. These transformative gifts demonstrate how philanthropic partnerships enable MCW to drive innovation and solutions.

The Kern Institute, in partnership with a new National Transformation Network (a dedicated group of seven well-respected medical schools) will lead a movement to transform medical education across the continuum from pre-medical school to physician practice.

The Kern Institute at MCW will redefine medical education through the

development of the Triple Aim for Medical Education, which will integrate core characteristics of physicians including character, caring and competence. The Triple Aim for Medical Education parallels and complements the Triple Aim for Health Care – better care, better value, better health – and will allow MCW to set a new standard for medical education.

Cheryl A. Maurana, PhD, has been named the Stephen and Shelagh Roell Endowed Chair, professor and founding director of the Kern Institute for a two-year term. Jose Franco, MD '90, GME '95, will serve as associate director. ■



MCW President and CEO Dr. John R. Raymond, Sr. (at right) chats with National Transformation Network Partners Dr. Stephanie Starr, Dr. Bonnie Miller and Dr. Bill Cutrer at the June 8 launch event at MCW.

Photo courtesy of Jay Wechtauser



More than 200 MCW faculty, staff, students and guests attended the official launch of the Robert D. and Patricia E. Kern Institute for the Transformation of Medical Education.

Photo courtesy of Sara L. Wilkins

NEW FACULTY LEADERS

»»SHEKAR N. KURPAD, MD, PHD

CHAIR OF THE DEPARTMENT OF NEUROSURGERY Dr. Kurpad served as Interim Chair of MCW's department of neurosurgery from March 2016 to March 2017, and also serves as professor of neurosurgery; medical director, Spinal Cord Injury Center; and clinical director, SpineCare. He was acting chair of neurosurgery from September 2015-March 2016.



»»JONATHAN S. MARCHANT, PHD

CHAIR, DEPARTMENT OF CELL BIOLOGY, NEUROBIOLOGY & ANATOMY (effective September 1, 2017) Dr. Marchant has served as professor (with tenure), department of pharmacology, at the University of Minnesota Medical School (Minneapolis) since 2015, and is a member of the executive leadership team, University of Minnesota Stem Cell Institute.



»»JOHN R. SCHREIBER, MD, MPH

CEO, MEDICAL COLLEGE PHYSICIANS AND SENIOR ASSOCIATE DEAN FOR CLINICAL AFFAIRS – ADULT PRACTICE From 2014-2016, Dr. Schreiber served as president, Baystate Medical Practices (Springfield, Mass.) and chief physician executive at Baystate Health. He also served as regional executive dean, University of Massachusetts-Baystate and professor of pediatrics at the University of Massachusetts Medical School.



»»RAUL A. URRUTIA, MD

DIRECTOR, HUMAN & MOLECULAR GENETICS CENTER Dr. Urrutia served as professor in the department of biochemistry and molecular biology, biophysics and medicine at the Mayo Clinic College of Medicine and director of epigenomics education and academic relationships in the epigenomics program, Mayo Clinic Center for Individualized Medicine. At Mayo Clinic, he also was consultant, division of gastroenterology and hepatology, department of internal medicine; and consultant, department of physiology and biomedical engineering.





Memorial Service Evokes Lessons Learned in Anatomy Lab

“He wanted to give back to science so they could learn more about the lymphoma he had,” a grandmother of one family said through welled-up tears as she recalled her husband of more than 60 years. “I want to be doctor,” shared an elementary school son of another family as he showed interest in science and learning more about the disease his family donor had.



These poignant words, spoken at MCW’s Anatomical Gift Registry’s Memorial Service in April, underscore the greatest gift body donors provide – the gift of giving. These special donors help future clinicians learn and inspire not just students currently in medical school, but also those with many years of schooling ahead of them.

During the Memorial Service, I thought back to my Clinical Human Anatomy course – one of the first we took as new medical students at MCW. It covered the human body in four sections, starting with the back to upper trunk, followed by the lower body and ending with the head and neck. The morning of our first Anatomy lab session, aware though I was of the cadaver dissection, I was nervous. I had mentally prepared myself, knowing that this was part of the medical training needed to understand the human body. After all, the most important step in reaching a diagnosis is by assessing the body. It would be my first time seeing a cadaver, however.

I put aside any worries after having learned that the individuals whom we were dissecting had donated their bodies for the purpose of educating medical students. Ultimately, these donors are making a significant impact on young minds that will be responsible for many lives in the future.

My first cut to the back of the cadaver was timid. It wasn’t until several attempts that I dissected deeply enough to reach the



Photo courtesy of Jeff Zmania

Sai-Suma Samudrala (fourth from left) and her medical school classmates pay tribute to body donors at MCW’s Anatomical Gift Registry’s Memorial Service in April 2017.

trapezius muscle. From that very cut until the end of the course, I was constantly reminded of the rigidity and complexity of our body. Our bodies define the parallel necessities of structure and function, one guiding the other. On occasion, when seeing painted fingernails or eyes, or noticing the crossed fingers on my donor’s left hand, I was overwhelmed with the realization that I was dissecting a human body.

Recognizing that the vagus nerve runs in parallel to the common carotid artery along with the internal jugular vein in the carotid sheath, or that the uniquely designed quadratus plantae muscle on the foot has no homolog in the hand, or that the pulse can be felt by placing two fingers at the middle of the lower jawline, allowed me to answer many questions of pathology simply based on the organization of the body.

Perhaps one body part for which I truly gained appreciation is the skull, with its intricate openings, or foramen, that methodically allow purposeful passage of arteries, nerves or the spinal cord; of the 289 structures we had to identify for the lab exam of the head and neck region, 94 were located on the skull!

At the Memorial Service, standing with my fellow students and members of the MCW community to thank families for their selfless donations to help further my education, I was reminded once again of the crossed fingers I first encountered in Anatomy lab – an image of hope that has since guided my medical school education. ■



For more, visit mcw.edu/memorialservice

– SAI-SUMA K. SAMUDRALA

Sai-Suma K. Samudrala recently completed her first year at MCW’s Medical School, and has been accepted into MCW’s Medical Scientist Training Program (MSTP), which supports medical education and research training culminating in the receipt of both the MD and PhD degrees. A former resident of Brookfield, Wis., Samudrala graduated from the University of Wisconsin-Madison in May 2016 and hopes to pursue a career in pediatric cardiology.

Going forward, Samudrala will share her thoughts on various aspects of her education and training through this “Voice of the Student” column.



MCW Spring Celebrations!

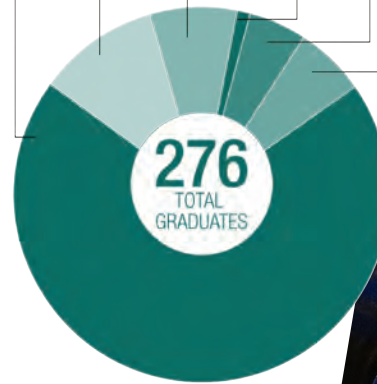
MATCH DAY



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COMMENCEMENT

192 MD 29 PHD 21 MS 3 MA 14 MMP 17 MPH

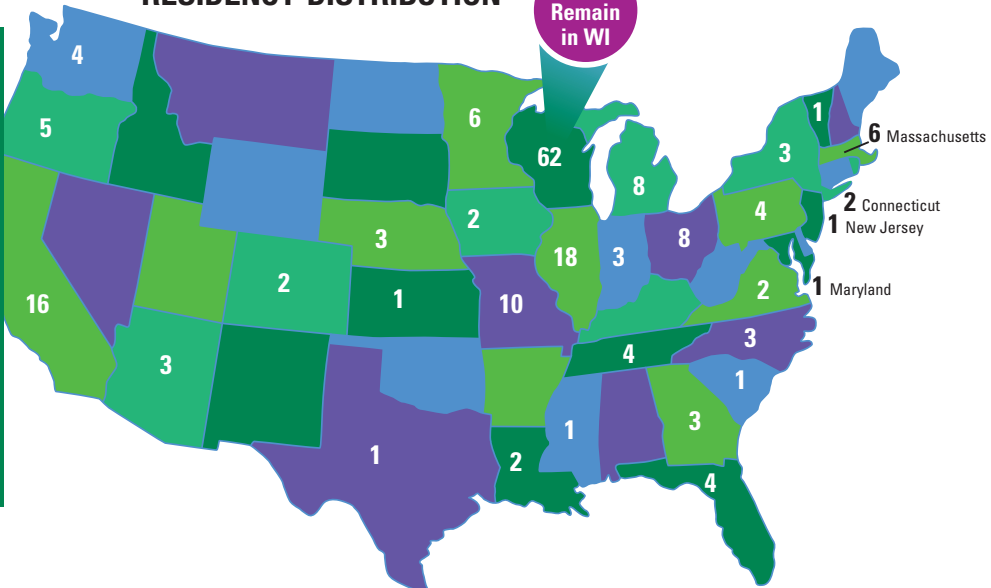


For more, visit mcw.edu/2017commencement

RESIDENCY DISTRIBUTION

32% Remain in WI

Summary of PG1 Programs	
Internal Medicine	40
Pediatrics	22
Transitional	17
Family Medicine	16
Anesthesiology	13
Emergency Medicine	13
Surgery	12
Obstetrics/Gynecology	10
Orthopaedic Surgery	10
Psychiatry	10





Form and Function

Scientists Study the 3D Structures of Proteins to Discover New Drugs

Brian Volkman, PhD, MCW professor of biochemistry, sees the world at a unique scale. He looks far beyond the proverbial forest and its trees in order to view the structure of proteins, atom-by-atom, with an understanding that the smallest of details about how proteins are ordered may lead to sizable benefits in the form of new drugs to treat disease.

“The three-dimensional structures of proteins are central to their function and the role they play in complex biological systems,” says Dr. Volkman.

Dr. Volkman’s interest in science began to grow during a fifth-grade science project. “My mom was an organic chemist, so she helped me study the effects of salt on melting and freezing points,” he recalls. Using plastic tubs of water and thermometers, the young scientist conducted his first experiment by comparing the effects of salt to other solutions made from household products.

“There were other family influences as well, including my aunt serving as a faculty member in California and both of my grandfathers with careers in science and engineering. I grew up with the notion that science was a worthwhile topic of study,” he adds.

Dr. Volkman was recruited to Butler University in Indianapolis on a chemistry fellowship. Mentors on the faculty there trained him to begin helping with research early in his undergraduate career, including inviting him to work in the laboratories over the summers after his freshman and sophomore years. After his junior year, however, he spent the summer in a science program at the University of Iowa.

“I had the opportunity to work with structural biologists, which helped cement my interest in protein structure and also crystallized my plans to go to graduate school,” shares Dr. Volkman. During one

of his graduate school visits, he was introduced to the emerging field of nuclear magnetic resonance spectroscopy. This technique, typically used by chemists and biochemists to study the characteristics of organic molecules, involves sending signals from a radio-frequency emitter at a sample positioned at the center of a very strong magnetic field. By gathering data on the frequency and intensity at which the sample absorbs and releases electromagnetic radiation, scientists can measure the interactions of atoms within the sample molecule and use those details to infer the molecule’s chemical architecture. Obtaining the three-dimensional structure of a protein molecule in this manner is especially useful for understanding its biological function.

After earning his PhD in biochemistry at the University of California-Berkeley and serving as postdoctoral fellow, assistant scientist and associate scientist at the University of Wisconsin’s National Magnetic Resonance Facility, Dr. Volkman joined MCW’s faculty in 2000. It was in Madison that he began research on the chemokine family of proteins, writing his first successful National Institutes of Health grant proposal on the topic of chemokines and their potential involvement in the spread of HIV infection from cell-to-cell throughout the body. His laboratory’s research on chemokines continues today at MCW with an additional emphasis on the protein family’s role in cancer.

For nearly 15 years, Dr. Volkman has studied the chemokine protein CXCL12 – known to be a key biological player in the metastasis of breast cancer cells (moving beyond the original tumor). His team had uncovered that the protein naturally exist-

ed in two forms. “In 2008, we learned that the two forms had very different properties. While one promoted the migration of cells, the second form inhibited cell migration,” says Dr. Volkman. This finding came with an opportunity to potentially reduce or delay metastasis, buying more time for surgery and other therapies to eliminate the original tumor before it spread and became more difficult to treat.

In 2011, Dr. Volkman’s lab and the group led by Michael Dwinell, PhD, MCW professor of microbiology and immunology, published a paper which built upon the earlier structural studies by testing the effects of a small molecule designed to block CXCL12’s activity. The investigators demonstrated that this molecule was

effective at reducing metastasis in

a rodent model of cancer. MCW has patented this molecule, and Drs. Volkman and Dwinell continue to work closely with MCW’s Office of Technology Development to advance this line of research and translate their laboratory findings into a product that may one day pass clinical trials and benefit patients.

Drs. Volkman and Dwinell’s relationship with the Office of Technology Development helped them seize on a related opportunity to create a company, Protein Foundry, which produces custom chemokine proteins purchased by researchers throughout the world for use in their respective experiments. Co-founders include Francis Peterson, PhD, associate professor of biochemistry, and Chad Koplinski, laboratory coordinator. “The founding of Protein Foundry was awesome and I’m happy to say that it is profitable. Working with MCW’s director of research commercialization, Dr. Bill Clarke, has been invaluable – as he’s been a great supporter

“MCW attracts talented and highly motivated students who teach me something new every day.”

– Dr. Brian Volkman

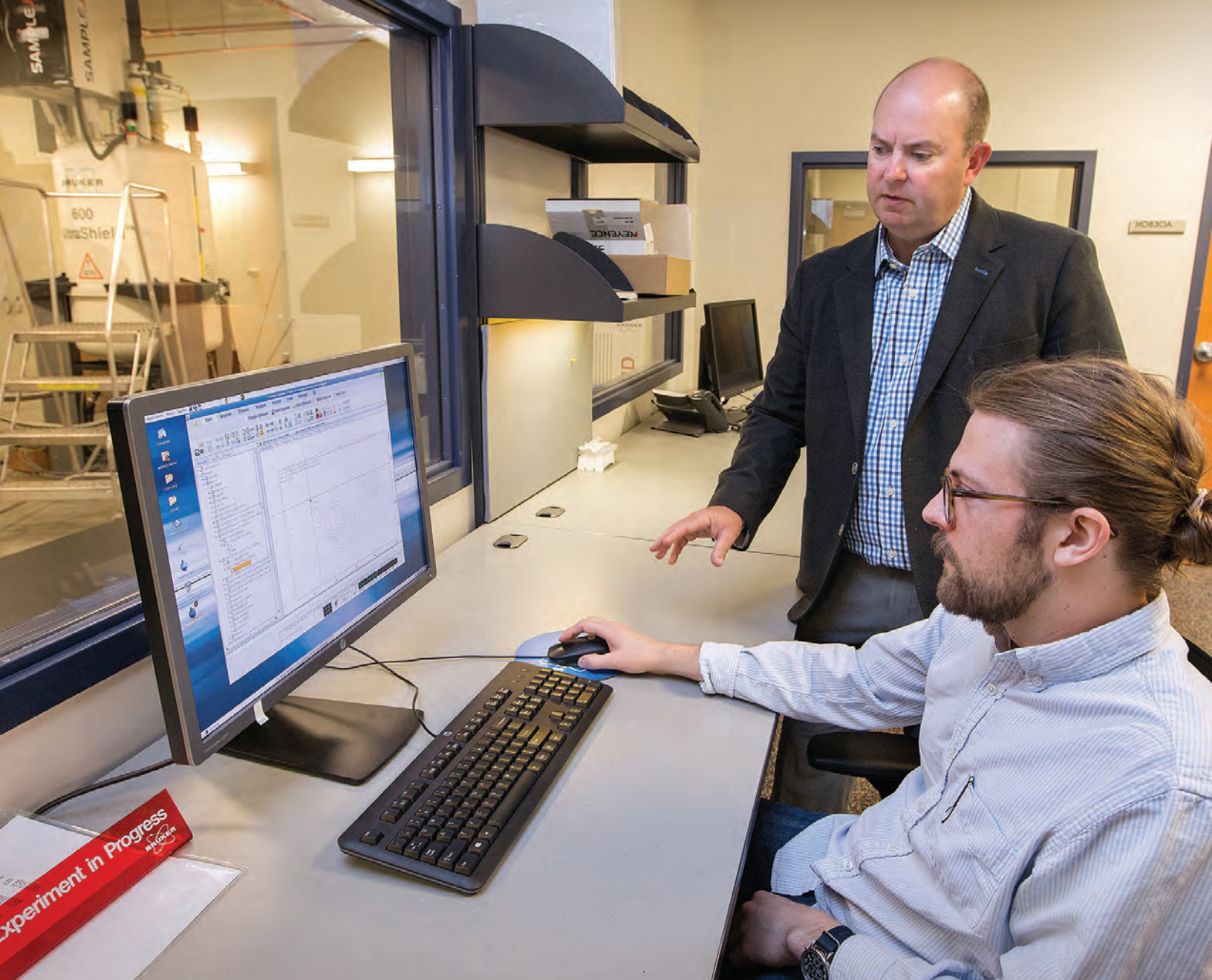


Photo courtesy of Gary Porter

Structural biologist Dr. Brian Volkman (standing) discusses nuclear magnetic resonance spectroscopy results with Andrew Kleist, an MCW medical student and doctoral candidate.

and a constructive critic,” comments Dr. Volkman.

For Dr. Volkman and his colleagues, developing a company from the ground up was a significant learning experience – and it helped having experienced mentors available within MCW. Beginning with his undergraduate years and moving through scientific training to his current work with the Protein Foundry, Dr. Volkman has understood the value of mentorship. He strives to share his expertise with post-doctoral fellows and graduate students in his lab, such as Andrew Kleist, a medical student and doctoral candidate in MCW’s Medical Scientist Training Program.

“MCW attracts talented and highly motivated students who teach me something

new every day, and Andy is one of the brightest young investigators I’ve encountered here or anywhere,” adds Dr. Volkman.

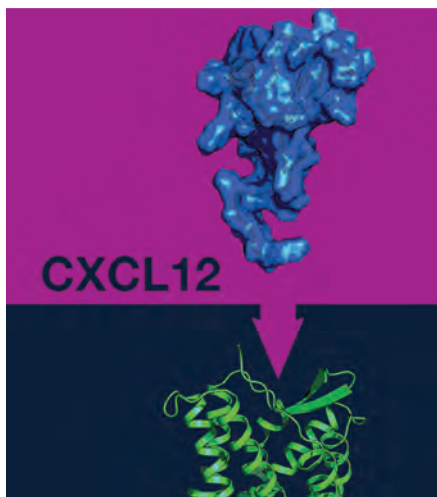
“Dr. Volkman gives us a lot of freedom in our experiments, and he expects us to lead the conversation in our project

meetings before he makes his own suggestions,” says Kleist. “He’s also been really supportive in sending us to workshops and conferences. All of this is paying off now, as I feel confident in making decisions about my research – which I will have to do in the future as an independent scientist.” Kleist notes that his dissertation project is gaining momentum, and he remains enthusiastic about his work in the Volkman lab and a future career that includes biomedical research. “I love structural biology, and I think I want to keep doing research in this field throughout my career.” ■

– GREG CALHOUN



For more, visit mcw.edu/proteins





Sleep

Appreciated Mostly
When It's Lacking

Sleep is something we often take for granted and something one does not appreciate or think about much...until it is unattainable. When it is absent or elusive, it becomes almost an obsession.

Although understanding of all the benefits of sleep continues to emerge, the topic has been trending for quite some time. In fact, it is one of the most common questions parents have at pediatrician visits, and, according to the Centers for Disease Control and Prevention (CDC), an estimated 50-70 million adults in the US alone have sleep or wakefulness disorders.



MCW's faculty includes several physicians who are board-certified in sleep medicine – all from different disciplines – who provide a breadth and depth of sleep specialty expertise. Physicians in the department of pediatrics (pediatric pulmonary and sleep medicine) practice at Children's Hospital of Wisconsin (Children's), while physicians in the departments of medicine (pulmonary and critical care), neurology and otolaryngology practice at Froedtert Hospital. This broad reach and the size and scope of an academic health system allow physicians to take a multi-disciplinary approach to treating sleep disorders.

These pediatric and adult teams work closely with other MCW departments/divisions including psychology and behavioral medicine, oral/maxillofacial surgery and plastic surgery. Through collaboration, new methods and guidelines have been established, such as screening children for sleep apnea in the Down's Syndrome Clinic. There also is an accredited sleep medicine fellowship that provides training for several fellows per year.

The most common sleep disorders for children are obstructive sleep apnea, insomnia, restless leg syndrome and narcolepsy. Adults who lack sleep are tired – but children with sleep loss become overactive to overcome their sleepiness and exhibit fidgeting, restlessness and lack of focus.

"As a result of their symptoms, children who have sleep disorders are oftentimes misdiagnosed with Attention Deficit Hyperactivity Disorder (ADHD)," says Hari Bandla, MD, MCW associate professor in pulmonary and sleep medicine (pediatric) and medical director of the Sleep Program. "Thus, we share with primary care providers that patients with ADHD should be evaluated for sleep problems. Discussions on sleep should be encouraged at every well-child visit."

Several environmental factors contribute to insomnia or poor sleep, including 24/7 technology and competing priorities.

"We know that children who sleep well at night have more energy and are able to learn better the next day in school. We teach parents and children techniques to become good sleepers," said Lynn D'Andrea, MD, medical director of pulmonary services for Children's and section chief of the division of pediatric pulmonary and sleep medicine at MCW. "Often, if our recommendations are followed, children should be sleeping better in two to three months." Adults with insomnia also are treated with cognitive behavioral therapy techniques – in addition to medication – to improve their sleep.

Sometimes poor sleep occurs because of obstructive sleep apnea (OSA), the most common sleep disorders in adults and children. OSA is characterized by repeated episodes of upper airway narrowing or collapse during sleep. Patients with OSA stop breathing repetitively during sleep; this is known as

apnea. Repeated episodes of apnea can lead to daytime fatigue and

increase a person's risk for heart attack, stroke, high blood pressure and even death. In children, the most common cause of sleep apnea is enlarged tonsils and adenoids; many adults with OSA are overweight.

"As a pulmonologist and sleep specialist, there is a natural intellectual curiosity for the interplay between sleep and breathing," Dr. Bandla shares. "The opportunity and resources to conduct research on sleep disorders enhances treatment options, helps gain a greater awareness of the consequences of the disorder, and allows the ability to better identify those at risk to begin treating them faster and avoid further health issues."

B. Tucker Woodson, MD, MCW professor of otolaryngology and communication sciences, is a nationally and internationally recognized expert in OSA. In the past, surgical treatment for adult sleep apnea was incisional and focused on taking out tissue to make the airway bigger. Dr. Woodson, however, was at the forefront of developing and advancing more minimally

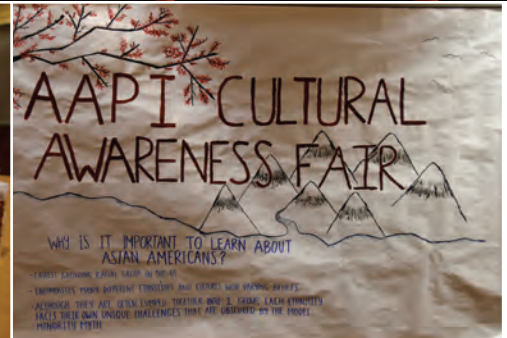
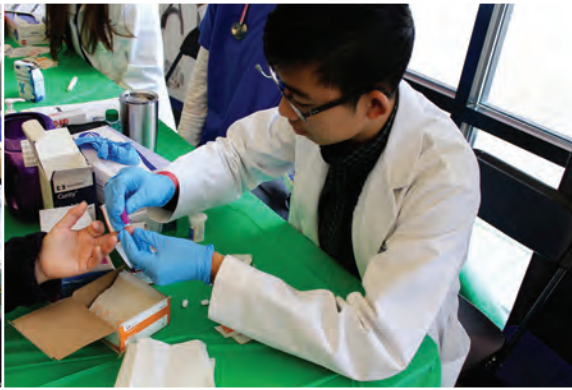
invasive ways to alleviate the symptoms, including reconstructing or rearranging the tissue versus taking it out. This tactic proved more successful, and led the way for additional research and treatments, including innovations in minimally invasive radiofrequency and plasma surgical techniques, novel transformative methods of palato-pharyngoplasty, tongue and hyoid suspension, and soft tissue tongue surgery.

Dr. Woodson also has been at the forefront of the exciting technology of nerve stimulation therapies for sleep apnea. Dr. Woodson and colleagues at MCW were the first to implant and treat a patient with an electronic pacemaker for sleep apnea. This nerve implant, when simplified, is a pacemaker that opens the airway during sleep. This novel and groundbreaking therapy gives patients who fail or cannot tolerate CPAP (the most common therapy) another option. "Instead of modifying tissue or bone, this is a physiologic approach to increase muscle tone and stimulate nerves to open up the airway," Dr. Woodson says.

Dr. Woodson, one of the lead investigators in international studies evaluating the device, helped demonstrate that neuromodulation and stimulation therapy can lead to significant improvements for patients with OSA, according to the "STAR Trial" published in the *New England Journal of Medicine*. After a year, patients using the device had a nearly 70 percent reduction in sleep apnea severity, as well as significant reductions in daytime sleepiness. "What is really exciting is that many patients who have the implant seem to do clinically better than those with successful CPAP treatment," notes Dr. Woodson. "Those with the implants have improved snoring, daytime sleepiness and sleep-related quality of life."

Technology is on the forefront of sleep disorder research – which is slightly ironic, considering technology is a contributing component to increased sleep disorders. The best advice for children and adults? "Make sleep a priority; don't cut corners on it," remarks Dr. D'Andrea. "The whole family benefits when everyone has good sleep." ■ – HOLLY BOTSFORD

Dr. Tucker Woodson and colleagues at MCW were the first to implant/treat a patient with an electronic pacemaker for sleep apnea.



APAMSA: Advocating for Better Health

Med Students Help Address Health Disparities in State's Hmong Population

Hmong Americans are an ethnic group that traces its descendants from the mountainous regions of China, Vietnam, Laos and Thailand. According to the 2010 US census, Wisconsin has the third-largest population of Hmong Americans in the country (behind California and Minnesota).

Despite its prevalence, and due to cultural and language barriers, this ethnic group has little representation in healthcare – either as providers or patients. Luckily, the Medical College of Wisconsin's chapter of the Asian Pacific American Medical Student Association (APAMSA) is working hard to ameliorate some of the health disparities that exist for Hmong Americans.

APAMSA is a national organization that aims to address issues important to Asian American and Pacific Islander (AAPI) medical students. It also works to bring together the AAPI community and others interested in the health issues that affect AAPI Americans in order to build a strong, collective, public and political voice. APAMSA is interested in both directly promoting the health and well-being of the AAPI community as well as in helping all healthcare workers within these communities understand how to care for patients of AAPI Asian descent in a culturally sensitive manner.

Given the size of the Hmong American population in Wisconsin, the MCW chapter of APAMSA has a particular focus on addressing health disparities across this particular ethnic group.

Jiyeon Park, a rising third-year medical student and co-president of MCW's

APAMSA chapter for the 2016-2017 year, is of Korean descent. She understands, however, some of the hardships that come with being a member of an often marginalized group. "Typically, Asian Americans are stereotyped. They say we study and work hard, but don't give back to the community," notes Park. "In my experience, that is not at all accurate. In APAMSA, we want to do away with stereotypes and show that we do care about the community – especially the Hmong population in Wisconsin."

MCW's APAMSA chapter boasts more than 200 students, with many touch-points in the community. One of the group's largest projects is a student-run health clinic held each Saturday at the Phongsavan Hmong Market in Milwaukee. MCW medical students, typically in their first or second years of study, provide pro bono glucose, blood and eye screenings to the public.

"I love the way I can use the skills and knowledge I am learning in school to provide a service to the community," says James Wu, a rising second-year medical student at MCW-Milwaukee. "APAMSA allows us the opportunity to help Hmong Americans, which is a population that faces many barriers to healthcare."

APAMSA's efforts also extend to helping to educate young Hmong Americans about opportunities in the field of medicine. Each year, the organization hosts a workshop at MCW for students at the Hmong Peace Academy, a charter school located in Milwaukee. This year, more than 80 students visited MCW for a workshop where they received hands-on training in dissection techniques and learned about career paths in the medical field.

APAMSA members also participate in the

community through the airwaves. Every other month, several APAMSA members broadcast a radio show on JOY Radio (1340AM), providing listeners with pertinent health information specific to Hmong Americans. "The radio station caters to the Hmong population and talks directly about health issues that are more prevalent within the Hmong population, such as diabetes and Hepatitis B," Park shares. "The real value of the radio show is that rather than waiting for the patients to come to us, we communicate to them wherever they are located...and in their own language."

There is more progress to be made, according to Park. The organization, however, is on the right track. "I'm most proud of how far we have gotten. We all have worked tirelessly to bring APAMSA to where it is today," reflects Park.

Park and the APAMSA's diligence was validated this past year, receiving the "Chapter of the Year" award out of 87 active national chapters. This marked the third year that the MCW chapter has received this honor.

Another reason for this prestigious award was the chapter's 300+ hours of community service in 2016 and its efforts within the Milwaukee's Hmong community. B. Li, MD, professor of pediatrics (gastroenterology) and national founder of APAMSA; Clarence Chou, MD '77; and Andy Hsu, MD, MPH, assistant professor of physical medicine and rehabilitation, are the chapter's advisors.

Park believes APAMSA has come a long way in changing perceptions of Asian Americans. "I think we have really showcased who we are as an organization and have altered many people's stereotypes about our heritage. We are proud to be carrying out our mission to bring together the AAPI community." ■ – ALEX KROUSE

"I love the way I can use the skills and knowledge I am learning in school to provide a service to the community"

– James Wu,
MCW medical student





Cullen Family Runs for Heart Health and Research

On a brisk but relatively seasonal day in February 2017, hundreds of people gather a few miles northwest of the Medical College of Wisconsin (MCW) to honor the life of a former Milwaukee alderman and to raise money for the MCW Cardiovascular Center (CVC). But they're not at a traditional fundraising venue – inside a ballroom and safe from the harsh Wisconsin winter temperatures. Rather, they're outside in scenic Underwood Park, ready to participate in the annual Steve Cullen Healthy Heart Club Run/Walk.

"Steve was a runner, so there are things about our event that have to be a certain way," says Gael Cullen, Steve's widow. "We must offer the long-sleeve running shirt, and we have to offer a longer length, so in addition to the two-mile fun run/walk, there is an 8K, which is almost five miles – a minimum distance for Steve. And the course we run is one that he ran countless times."

Now in its 21st year, the Steve Cullen Healthy Heart Club Run/Walk has

raised more than \$400,000 for heart disease research and awareness, including more than \$380,000 donated to the CVC since MCW began partnering with the Cullen family for the event in 2004.

The concept for the run began January 5, 1996, on what would have been Steve's 41st birthday. Just months prior, and only three days after finishing a marathon, Steve left Milwaukee on a business trip and never came home. He died in his hotel room of a sudden cardiac arrhythmia. While he had a family history of heart disease – his father died of a heart attack at age 41 – Steve's cardiac arrest wasn't due to any artery blockage, but rather a malfunction of his heart's electrical system.

So in memory of Steve on his birthday, Gael, their four young daughters, family and friends gathered that day to take a run around the neighborhood. That could have been the beginning and end of it, but instead, Steve's younger brother, David, had an idea. "After we got done, David said to me, 'We should try to do this again next year, invite

some friends and see if we can raise some money,'" Gael recalls. "So we did, and that first year, I was flabbergasted when 167 people showed up in the cold of winter in Milwaukee to run in Steve's honor." The Run/Walk now averages about 700 registrants year after year.

Unfortunately for the Cullen family, the tragic impact of heart disease didn't end with Steve. His two older brothers also died after suffering heart attacks, one at the age of 51 and the other at 53. "I have four daughters and two grandsons who have a family history of heart disease," Gael notes. "So the idea of supporting research that can look into cardiac-related disease is very important."

And they've been successful so far, according to Ivor J. Benjamin MD, MCW professor of medicine and director of the CVC. "Gael Cullen and her family have been tremendous partners with the CVC," he says. "They are truly the epitome of turning a tragic situation – losing Steve Cullen to premature heart disease – into surrounding themselves with friends and family to help fund





Before his death due to heart disease in 1995, Steve Cullen was an avid runner. To honor his memory, his wife, Gael Cullen, and her family established the annual Steve Cullen Healthy Heart Club Run/Walk, with proceeds going to cardiovascular research at MCW.

**The Steve Cullen
Healthy Heart Club
Run/Walk has
raised more than
\$400,000**

research to advance promising new treatments for others who suffer from cardiovascular disease.”

With the help of MCW, Gael and her family have been able to direct the funds raised through the Cullen Run/Walk. The money has supported research projects to identify genetic risk factors of heart disease, helped underwrite a medical history project to provide insights into cardiovascular risk factors and backed stem cell research with promising impact on heart disease treatment. While all the research has been fascinating to Gael, some studies have more significance to her personally. “I particularly have a soft spot for projects that are looking at genetic research into heart disease, because obviously there is something in my husband’s genes to make it such a huge issue for his family,” she says.

By 2015, the event had grown sufficiently to establish an annual \$25,000 award for the Steve Cullen Healthy Heart Scholar – an MCW junior or mid-career scientist involved in cardiovascular research. The first recipient was Aron Geurts, PhD, associate professor of physiology, whose lab pioneers and applies cutting-edge genetic engineering technologies in stem cells and whole animals to model human cardiovascular diseases. “I was honored to be the inaugural recipient of the award,” Dr. Geurts remarks. “And I

am quite pleased with the results of the funding. A postdoctoral fellow in my lab used the award to develop a novel strategy to accelerate the production of disease models using human stem cells, an advancement which we have since been able to leverage into other exciting opportunities.”

In 2016, the family bestowed the second Steve Cullen Healthy Heart Scholar award on Peter C. Frommelt, MD, professor of pediatrics (cardiology), and began a three-year commitment to support the Cullen Summer Research Fellowship for Medical Students. “We’re encouraging up-and-coming researchers who might find the next genetic marker of cardiovascular disease or who might find a cure for some aspect of heart disease,” Gael says.

“The Cullen family has become one of the CVC’s family members,” Dr. Benjamin shares, “and with their continued

support, we will continue our innovative research to improve cardiovascular health and reduce deaths from cardiovascular disease in southeast Wisconsin and beyond.”

As the funds from this past February’s run are disseminated, including \$25,000 to the most recent Steve Cullen Healthy Heart Scholar, Andrew S. Greene, PhD, interim vice chair, chief and professor in the department of biomedical engineering, Gael Cullen can’t help but reflect on another successful year. “It’s very gratifying to see so many people come out and support their own heart health by participating – but also support the cause. This is a winter run; to have people come out year after year after year to support this, it’s – purposefully to include a pun – very, very heart-warming.” ■ – KARRI STOCK

Photos courtesy of Gael Cullen



For more, visit mcw.edu/cullenfamily



Personalized Approach

Bringing Innovation, Discovery and Hope to the Care of Pancreatic Cancer Patients

John R. Couvillon was on top of the world in early 2014. The successful founder, president and CEO of Atlanta-based Pinnacle Health Group was happily married to Jacqui Fisch, MD, (an obstetrician/gynecologist), father to Alex, 16, and Victoria, 9. The family enjoyed weekend getaways in North Carolina, where they spent quality time together and participated in water sports. A survivor of melanoma in 2007 and noncancerous brain tumors in 2008, Couvillon thought he had overcome the worst curveball fate could throw at him.

Alas, it was not to be. Couvillon began feeling fullness and abdominal discomfort, and in March of 2014, was diagnosed with stage II (operable) pancreatic cancer. His internist sent Couvillon to see a surgeon at nearby Emory University, but Couvillon's wife did online research into the disease and quickly found world-renowned pancreatic cancer surgeon Douglas Evans, MD, chair and the Donald C. Ausman Family Foundation Professor of Surgery at the Medical College of Wisconsin (MCW). Dr. Evans is based at Froedtert Hospital and holds appointments at Children's Hospital of Wisconsin and the Clement J. Zablocki VA Medical Center.

After joining MCW in 2009, Dr. Evans co-established the translational Pancreatic Cancer Research Program with Susan Tsai, MD, MHS, associate professor of surgery; and Michael Dwinell, PhD, professor of microbiology and immunology, through funding from the Advancing a Healthier Wisconsin Endowment. The Program's team of physician scientists and researchers undertakes state-of-the-

art work to understand the basic biology of the disease to translate this knowledge into new treatments, diagnostic tools and a better outcome for patients. "Clinical application of research is very important," Dr. Evans says. "Dedication to the patients of today – and importantly, also the patients of tomorrow – is the responsibility of academic medicine." The translational research program, which now spans many other departments and institutions, is supported by a robust clinical database and tissue bank developed by Dr. Tsai. The We Care Fund for Medical Innovation and Research (*see sidebar on page 18*) also has been instrumental in support of the Pancreatic Cancer Program.

The Couvillons were especially interested in the department of surgery's phase II clinical trial for early-stage pancreatic cancer, which takes a personalized neoadjuvant approach to the treatment of pancreatic cancer. The neoadjuvant approach, pioneered by Dr. Evans, involves chemotherapy, radiation therapy or both given as a first step prior to surgery. "More and more physicians are realizing that this is the best approach – which has led to a huge shift in the paradigm of treatment of pancreas cancer in the past five years," Dr. Evans says.

In June 2016, Drs. Tsai and Evans co-authored an article in *JAMA Surgery* on "Therapeutic Advances in Localized Pancreatic Cancer," which was based on their efforts at MCW. The physicians concluded that "patients who complete all intended neoadjuvant therapy, including surgery, experience an overall survival benefit that is unmatched by a surgery-first approach." According to Dr. Tsai, the median surviv-

al for patients with operable pancreatic cancer treated with neoadjuvant therapy is 45 months – which is more than double the survival of a surgery-first approach. "A median survival of 45 months is unheard of," she explains. "There are very few institutions in the US that have published this type of data." These results strongly suggested that MCW physicians were on the right track: treatment sequencing matters. The pancreatic cancer team of physicians at MCW then hypothesized that patient outcomes could be further improved by personalizing their neoadjuvant approach to individual patients.

Before the clinical trial could be designed, however, the investigators had to clear a major scientific hurdle. No technique existed to obtain the amount of tissue from a living patient needed to analyze the genes in a pancreatic cancer tumor. A diverse team of MCW specialists, under the leadership of Kulwinder Dua, MD; Abdul Khan, MD; and A. Craig Mackinnon, Jr., MD, PhD, capitalized on a new, safe and minimally invasive procedure which uses endoscopic ultrasound to guide a needle into the tumor. Using the biopsy material obtained in this way, the pancreatic cancer research team creates genetic profiles of each patient's tumor to determine the type of chemotherapy most likely to be effective for an individual patient. To enhance the collection of research specimens, Dr. Tsai developed the Pancreatic Cancer Biorepository, which includes a tissue bank with blood and tissue gathered at multiple stages of pancreatic cancer treatment. MCW is one of only a

» please see pages 18-19 for more



MCW's Multidisciplinary Pancreatic Cancer Clinical Conference meets weekly. Members include (sitting bottom left, clockwise) Dr. Callisia Clark; Dr. Kathleen Christians; Dr. Murad Aburajab; Dr. Susan Tsai; Dr. Paul Ritch; Dr. Kulwinder Dua; Dr. Beth Erickson; Shannon Lahiff, NP; Dr. William Hall; and (standing, l-r) Dr. Abdul Khan; Dr. Ben George; Dr. Darren Ballard; and Dr. A. Craig Mackinnon, Jr.

PANCREATIC CANCER STATS

53,670

ESTIMATED NEW CASES, 2017

43,090

ESTIMATED DEATHS, 2017

7%

OF ALL CANCER DEATHS

3%

OF ALL CANCERS IN THE US

Source: American Cancer Society

Photo courtesy of Jay Westhauser

Personalized Approach

» continued from pages 16-17

few institutions with this sampling procedure – which gives scientists the ability to assess the disease over time.

For the clinical trial, physicians identified six specific molecular targets that are predictive of chemosensitivity to agents commonly used to treat solid tumors (pancreas cancer and other diseases). As part of the trial, investigators analyze each patient's tumor for these molecular target(s) and subsequently individualize the neoadjuvant treatment based on the tumor's molecular profile. Those patients who demonstrate stable/responding disease as assessed by biochemical, clinical and radiologic measures are then taken to surgery. This unique personalized medicine trial is the first of its kind for operable pancreatic cancer. The research team, which includes medical oncologists Paul Ritch, MD; Ben George, MD; and James Thomas, MD, PhD; radiation oncologists Beth Erickson, MD; and William Hall, MD; surgical oncologists Kathleen Christians, MD; Callisia Clarke, MD; and Drs. Tsai and Evans; advanced practice providers; and research nurses, meets each Friday at 6:30 am to review the progress of all patients on the trial. This is followed at 7:00 am by the weekly Multidisciplinary Pancreatic Cancer Clinical Conference, which is supported by dedicated faculty from the departments of radiology and pathology, and the division of gastroenterology (department of medicine). It truly "takes a village" to bring innovation, discovery and hope for a better tomorrow to the care of the pancreatic cancer patient.

Begun in late 2011, the clinical trial recently closed after enrolling 130 patients. Ten individuals are still receiving the assigned neoadjuvant treatment and have not yet been evaluated for surgery. "There has been a huge push for precision medicine, especially in oncology," notes Dr. Tsai. Physicians involved in the clinical trial are looking at protein expression from samples that are taken directly from the tumor from each patient. "We are transforming conventional chemotherapy into a more targeted approach and view our efforts as 'personalized medicine' rather than 'precision medicine' – as each patient may receive a different drug therapy. If we can match the patient to the treatment a little bit better, we can improve how many people complete all intended therapy including surgery – and importantly, decrease the number who develop metastatic disease."

Dr. Tsai shares that patients such as John Couvillon are looking for personalized therapies, especially in cancer – so it makes sense to try to tailor the therapy specifically to the tumor. "Historically, the efficacy of standard therapies for pancreas cancer were quite limited, so everyone is eager to participate in clinical trials," she adds.

In MCW's pancreatic cancer clinical trial, a needle biopsy is done on each patient's tumor at time of the diagnostic endoscopy. Tissue is taken to MCW's Clinical Translational Research Core Laboratory, where Dr. Mackinnon, associate professor of pathology and director of the lab, does the staining and interpre-

tation. The staining is fairly technical, but turnaround time averages one week. "In most other centers, the median time from diagnosis to treatment is three to four weeks, so we actually are ahead of the game," Dr. Tsai notes. "Based on the staining, MCW physicians utilize different chemotherapy regimens, many of which are already on the market. And since the drug discovery time period can be 10-13 years, taking advantage of drugs that we already have available and know to be efficacious seemed to make sense."

As a result of the clinical trial, MCW's Pancreatic Cancer Biorepository has grown to more than 450 specimens. Collected at various stages of treatment, these human specimens (from the patient's tumor as well as DNA and proteins from blood) provide valuable insights into how pancreatic cancer develops and how it can be treated.

After meeting with the team at MCW, Couvillon enrolled in the clinical trial and received between two and three months of chemotherapy in Atlanta, based on his individualized protocol prescribed by Dr. Ritch and the MCW physician team. "My wife and I felt great about my being under the care of Dr. Evans. We knew I didn't need to go elsewhere for my treatment," Couvillon recalls. On June 16, 2014, he underwent a pancreaticoduodenectomy performed by Dr. Evans at Froedtert Hospital. Known as the "Whipple procedure," the surgery involved removing the head of the pancreas (the site of Couvillon's tumor), his duodenum (the first part of the small intestine), gallbladder, part of the common bile duct, and more than 30 nearby lymph nodes.

Couvillon remained hospitalized for five days, and spent another five days recuperating at a nearby hotel. "After surgery, Dr. Evans gives you a purple card (purple is the color of pancreatic cancer awareness), which is a plethora of knowledge," Couvillon shares. "Shannon Lahiff, NP, and Beth Krzywda, NP, were very helpful to work with after surgery. Your body goes into shock. It took me a few months before I could eat a meal similar to before diagnosis. I lost about 20 pounds and learned that I needed to eat small meals often. The entire support staff was absolutely amazing. I can't say enough about them."

Pancreatic cancer is the third-leading cause of cancer deaths in the US. More than 53,000 individuals will be diagnosed with the disease this year; southeastern Wisconsin has an unusually high incidence, which is something the research team here is examining. Couvillon's gratitude for surviving this relentless disease, and his desire to provide hope to others suffering with it, prompted him to establish

We Care Fund

Patients with cancer, organ failure and complications from trauma or cardiovascular diseases are searching for two things: hope and a clear plan of treatment. Bringing hope and innovative treatment plans to patients and their families depends on translating new medical discoveries from the laboratory for use in the operating room, the bedside and the clinic. The mission of the We Care Fund for Medical Innovation and Research (developed by Arlene Lee and Dr. Evans) is to support researchers and physicians who are creating cutting-edge therapies and clinical programs that benefit patients.

The Fund supports research in the fields of cancer, cardiovascular disease, organ transplantation, fetal concerns and trauma, and its goal is to accelerate the development of those advanced, life-saving solutions by engaging the local community to help bring the best healthcare to Wisconsin. For more information or to make a gift, please contact Meg Bilicki, director of development, department of surgery, at mbilicki@mcw.edu or 414-805-5731.

Destroy Pancreatic Cancer, a non-profit organization to fund and advance research and clinical trials that lead to earlier detection and improved treatment options.

As a result of this collaboration, Destroy Pancreatic Cancer has proposed a series of innovative clinical trials (to begin in October 2017) to advance care for pancreatic cancer patients by bringing an additional cutting-edge combination drug treatment protocol to patients and to develop a center of excellence for pancreatic cancer care in Atlanta. The clinical trials will be coordinated by Dr. Evans; Daniel D. Von Hoff, MD, physician-in-chief and director of translational research at the Translational Genomics Research Institute (TGen) in Phoenix, Ariz.; and W. Perry Ballard, III, MD, co-founder of Piedmont Cancer Institute (PCI) in Atlanta. The organization has pledged significant support to pay expenses outside the standard of care such as research nurses, correlative laboratory studies, pre-treatment tumor biopsies, tumor sequencing and genome analysis. "I also want to fund a surgical clinical trial," Couvillon remarks.

"Dr. Evans is the doctor every pancreatic cancer patient deserves, and it is his personal mission to train and share his knowledge with medical professionals who have dedicated their careers to destroying pancreatic cancer," Couvillon says. For the two-and-one-half years following his surgery, Couvillon's scans, performed every three months, were clean. In January 2017, however, a scan showed a return of the cancer – and he immediately began another chemotherapy protocol. He is doing well, staying positive and determined to continue his quest to destroy pancreatic cancer.

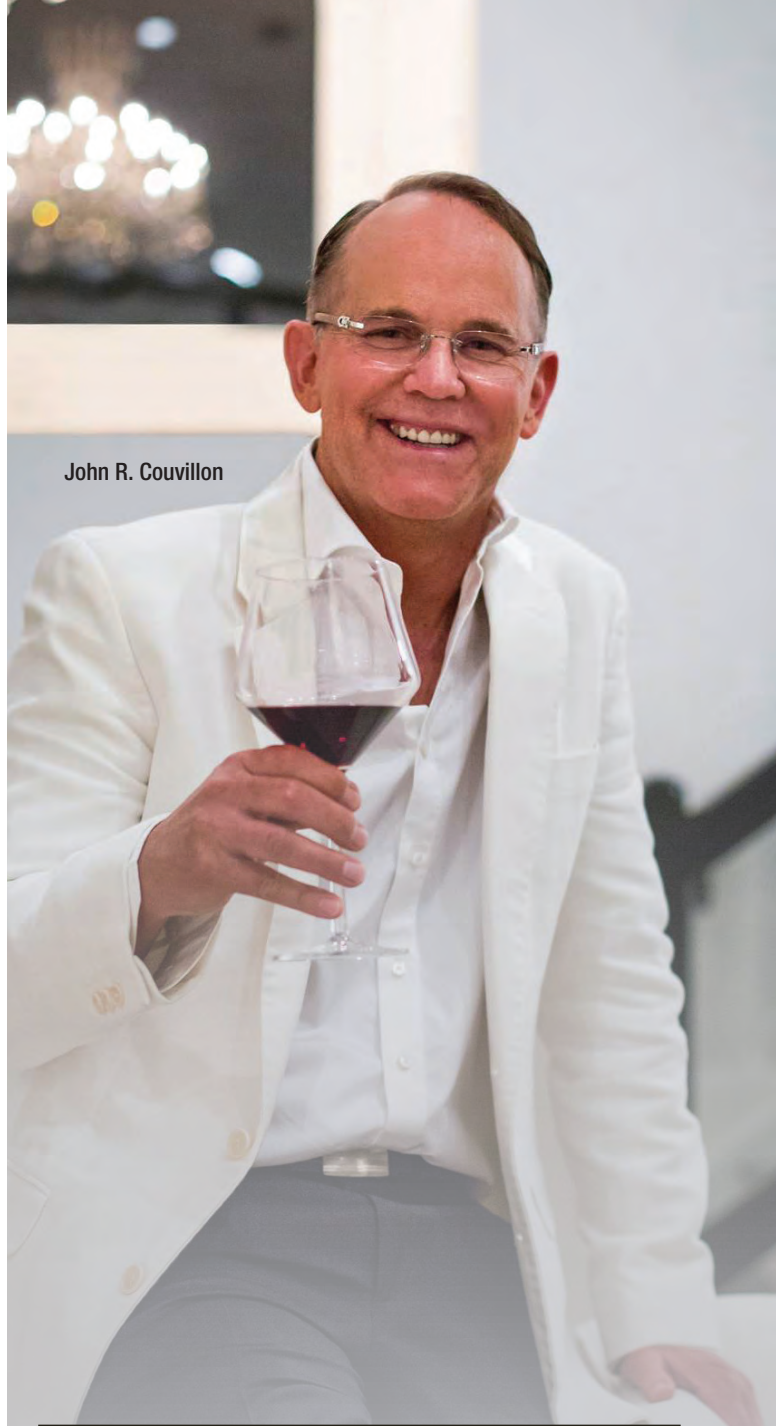
The entire MCW pancreatic cancer team is feeling good about the progress of the clinical trial – the results of which are expected to be published by the end of 2017. "We are hopeful for a positive outcome, as things look very encouraging compared to conventional therapies," Dr. Tsai says.

She shares that a follow-up trial, which builds upon the molecular profiling of the trial just completed, currently is going through MCW's Institutional Review Board (which reviews research protocols and related materials to ensure that diseases such as pancreatic cancer receive cutting-edge innovations as quickly and safely as possible). "What's unique about the next trial is it's more of an adaptive trial to see very quickly if the drug therapy is working, and if not, to switch to another therapy right away," Dr. Tsai notes. This next clinical trial, when approved, will involve approximately 150 patients over a six-year span.

There are many reasons for physician scientists and researchers to tackle this devastating disease, according to Dr. Tsai. "When you take care of pancreas cancer patients, it's pretty compelling to participate in research. There is a real need for this kind of meaningful translational research, especially when you get to know the patient and her/his family. We must make progress for the patients of tomorrow. In 30 years we hadn't made any significant improvements in overall survival, except for the past six to seven years. We're on the cusp of many great advances, and it's an exciting time because the awareness of pancreas cancer is improving and we're seeing more and more survivors – which gives us momentum to make some change in the disease."

John Couvillon couldn't agree more – and is determined to help move progress along at the fastest rate possible. ■

– SARA L. WILKINS



John R. Couvillon

Postscript:

As this article went to print, John Couvillon died suddenly and unexpectedly on a Saturday morning after an uneventful week of work, much of which was spent further developing his foundation (www.destroypancreaticcancer.org). While his sudden death remains a mystery, his resolve to make a difference for future patients with pancreatic cancer leaves no question in the hearts and minds of family, friends, physicians and scientists who will ensure that Destroy Pancreatic Cancer leaves a legacy of life-saving discoveries for a man whose goodness and generosity may change the landscape of cancer care. ■

– DR. DOUGLAS EVANS

Dialing Back on Pain

Comprehensive Approach to Pain Management Provides Long-Term Relief to Patients

By Anthony Braza • Greg Calhoun • Sara L. Wilkins

What exactly is pain? We've all felt it to varying degrees, so are very familiar with it on a personal level. But what you might not be aware of is the science behind why you hurt. Pain involves a complex interaction between specialized nerves, your spinal cord and your brain – and thus the experience of pain varies from individual to individual. Pain is your body's way of alerting you to danger and letting you know what's happening.

Acute pain is severe, lasts a relatively short time and usually is a signal that body tissue is being injured in some way; the pain generally disappears when the injury heals. Chronic pain may range from mild to severe, and is present to some degree for long periods of time – often without a clear reason. According to *Relieving Pain in America*, a 2011 report by the Health and Medicine Division of the US National Academies of Sciences, Engineering and Medicine, "Chronic pain has a distinct pathology, causing changes throughout the nervous system that worsens over time. It has significant psychological and cognitive correlates and can constitute a serious, separate disease entity."

Some forms of chronic pain can be treated with therapy which may include medication or surgery. Other types of chronic pain, however, may be far more difficult to diagnose and treat. Left untreated, chronic pain can have a devastating impact on all aspects of sufferers' lives. About 65 percent of individuals with chronic pain report a high level of anxiety and interference with daily activities including sleep, intimacy, work, exercise and routine self-care, which can have a negative effect on personal relationships, social interactions and lifestyle. Although the greatest incidence of chronic pain occurs in women ages 50-54 and men ages 55-59, it also occurs in children and adolescents.

An injury or illness that is extremely painful for one person might be only slightly bothersome for another. This is because each person's response to pain is heavily influenced by many individual traits, as well as psychological, emotional and social factors.

This is the primary reason pain management is a vital area of focus for the Medical College of Wisconsin (MCW) and its clinical partners in the Milwaukee area, including Froedtert Hospital, Children's Hospital of Wisconsin (Children's) and the Clement J. Zablocki VA Medical Center.



This simplified pain assessment tool for pediatric patients was developed by Amy Drendel, DO, associate professor of pediatrics (emergency medicine) at MCW. See page 23 for more.

What follows is a glimpse into several endeavors being undertaken at MCW related to pain management and providing long-term relief to patients.

Understanding hypersensitivity to pain

Cheryl Stucky, PhD, professor of cell biology, neurobiology and anatomy, and director of MCW's neuroscience doctoral program, does not think society adequately recognizes the cost of chronic pain. In addition to the tremendous physical and mental burden patients bear, communities also incur fiscal costs in the form of healthcare bills, sick days and lost wages adding up to \$600 billion annually, according to *Relieving Pain in America*.

"About one in three individuals in the US will suffer from chronic pain at some point, and about 40 million of these people will have severe pain," says Dr. Stucky. While the opioid addiction crisis rightly seizes headlines for the toll it continues to take, there are other unintended side effects of these widely-prescribed drugs.

"While opioids can cause respiratory depression, gastrointestinal dysfunction and chronic itch, among other side effects, the most counterintuitive one is opioid-induced hypersensitivity to pain," notes Dr. Stucky. The human body is wrapped by layers of skin which, along with providing insulation and protection against the elements, also includes thousands of nerve endings that facilitate the sensation of touch and provide the brain with feedback about the ambient temperature. Occurring in roughly one-third of patients taking opioids, this opioid-induced hypersensitivity is caused by the body responding to the presence of a pain-killing drug by creating less of the receptor proteins that interact with the drug.

"We have a hard-wired evolutionary response to harm in the form of a natural pain-fighting system, which allows us to get away from danger after we

"About one in three individuals in the US will suffer from chronic pain at some point and about 40 million of these people will have severe pain."

– Dr. Cheryl Stucky

suffer an injury. When this system adapts in some patients to the use of opioids and becomes down-regulated, this can cause previously benign sensations of touch, heat and/or cold to become painful," adds Dr. Stucky. In addition to being caused by opioids, hypersensitivity to pain also has other causes, including the inflammation that occurs as part of the body's recovery from injury or because of diseases like arthritis.

A major area of research in Dr. Stucky's lab focuses on the receptor proteins TRPA1 and TRPV1. Along with allowing culinary diners to sense the taste of wasabi with their sushi (through TRPA1) and the capsaicin in chili peppers (through TRPV1), Dr. Stucky

has shown that these receptor proteins also play a key part in the development of hypersensitivity to sensory pain, as well as sustaining the hypersensitive state over time.

"The evidence continues to support the idea that TRPA1, in particular, acts as an amplifier for touch pain," remarks Dr. Stucky. This is an important distinction because this receptor would be a less viable option for modification by potential new treatments if it directly transmitted touch or danger signals to the nervous system. "You want to block the amplification of the signal without blocking the direct sense of touch or pinch," explains Dr. Stucky. By weakening the signal, the goal of new therapies based on this research would be to limit the amount of pain people experience while retaining normal touch and pressure and pinch sensation, which are important for movement,

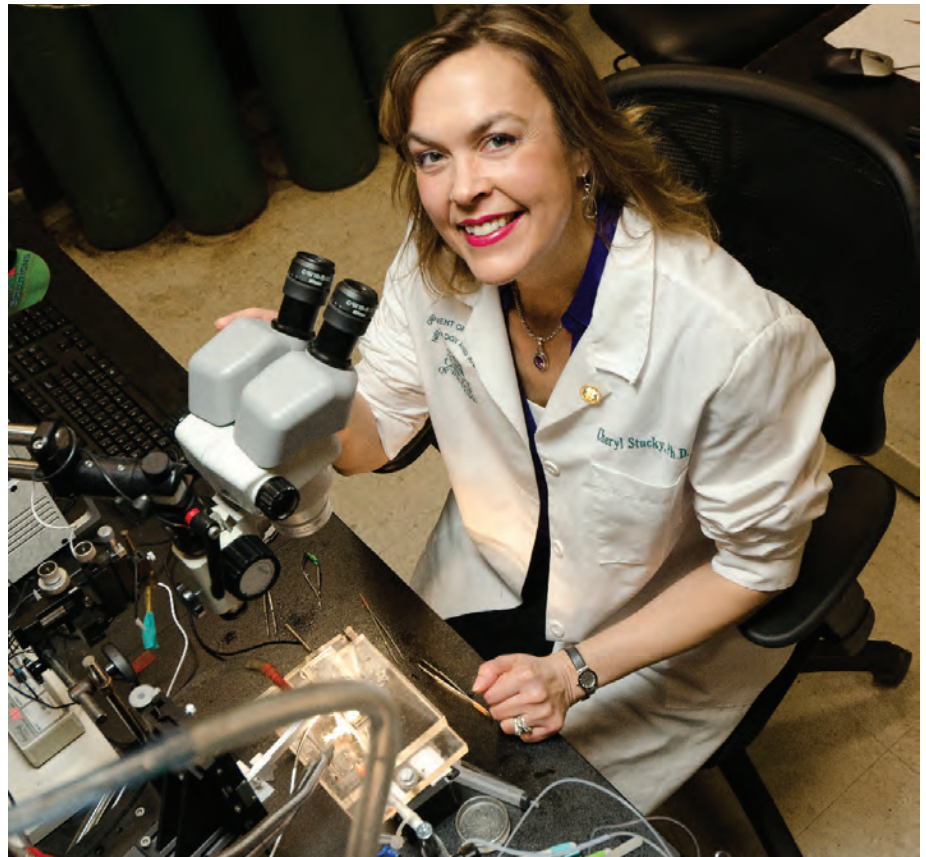


Photo courtesy of Jay Westhauser

Dr. Cheryl Stucky focuses her research on touch hypersensitivity and the causes of acute and chronic pain in patients suffering from sickle cell disease.

manipulating objects and other routine activities.

In addition to her work on touch hypersensitivity, Dr. Stucky also has conducted extensive study into the causes of acute and chronic pain in patients suffering from sickle cell disease. By comparing her laboratory's results with data on pain collected from sickle cell patients, she has made progress on defining the origins of sickle cell pain alongside physician-scientists such as Amanda Brandow, DO, associate professor of pediatrics (hematology/oncology).

"MCW is the perfect place to study chronic pain with a comprehensive approach due to the culture of bench-to-bedside collaboration. Since we desperately need new therapies, I am passionate about my work and find it meaningful because I believe it will one day help people who suffer from chronic pain," says Dr. Stucky.

Changing the experience of pain – without drugs

Dr. Stucky mentioned that an important untapped area of chronic pain research, especially within clinical and translational science, is called neuromodulation. This term describes the use of electrical impulses that stimulate nerves for a desired effect. In the case of pain management, the goal is to alter how the brain perceives chronic pain signals to reduce how severe the pain feels to a patient. The concept is used in a treatment known as Deep Brain Stimulation, which has been in use since 1987 in patients who no longer find adequate relief from Parkinson's disease symptoms.

While effective, Deep Brain Stimulation requires invasive surgery to implant the medical device that directly stimulates the brain. Dr. Stucky's colleagues at MCW, Adrian Miranda, MD, professor of pediatrics (gastroenterology), and Katja Kovacic, MD, assistant professor of pediatrics (gastroenterology), are investigating a method for providing a significant benefit from a device that stimulates the nervous system without the need for a single incision.

"It began with basic science experiments in our lab testing the idea of stimulating the vagus nerve to reduce chronic pain. Following our promising results, we contacted a small startup company producing a non-invasive device that



Photo courtesy of Dr. Katja Kovacic

A pediatric patient wears the Neuro-Stim system as part of a clinical trial conducted by Dr. Katja Kovacic, under the supervision of Dr. Adrian Miranda.

uses percutaneous electrical nerve field stimulation," says Dr. Miranda. The Neuro-Stim system, developed by Innovative Health Solutions in Versailles, Ind., sits behind the ear similar to some hearing aid models and sends electrical impulses through four wires attached at different points around the ear.

"While there were other devices built in the past, this is the first device to use field stimulation and to actually pierce the skin of the ear, which we hypothesized would be more effective," notes Dr. Kovacic.

"Our pre-clinical data now show that we can communicate with the brain through the periphery, like a USB port via the ear, particularly in areas of the brain involved in pain modulation. This technology has been cleared by the Food and Drug Administration with an indication for acute and chronic pain," adds Dr. Miranda.

Once the clinical research team determined that a specific part of the brain called the amygdala was being modulated with the device, they hypothesized that it would work in patients with chronic pain and began to test it in a number of potential scenarios, including most recently in a clinical trial for pediatric patients suffering from chronic abdominal pain. Irritable bowel syndrome is the most well-known disorder faced by a portion of these patients, while others suffer from a less-common but potentially debilitating condition called functional abdominal pain syndrome.

"There is insufficient evidence regarding effectiveness for using pharmaco-

therapy in this population, but drugs are often prescribed because other alternatives are not readily available," laments Dr. Miranda. Determined to find out if neuromodulation could change the status quo, Dr. Miranda supervised a clinical trial that Dr. Kovacic conducted among 115 pediatric participants.

"The excitement for new approaches is clear. Some of our patients drove four hours to enroll in the trial even with the possibility of a placebo," comments Dr. Kovacic. The placebo was a dummy version of the Neuro-Stim device which allows at the end of a trial for a comparison between the results of participants receiving treatment and those who did not – known as the control group.

"We saw patients make steady improvements each week over the four-week trial," shares Dr. Kovacic. The results showed that this treatment is not only safe but also significantly improves pain and functioning in children. Encouraged by the findings, which are currently being prepared for submission to a scholarly journal, the investigators look forward to continuing to test and refine this potential treatment for pediatric functional abdominal pain, as well as for post-operative pain, concussion symptoms, and easing withdrawal symptoms during drug rehab, among other possible conditions.

"This is new technology and we're leading the charge here at MCW," says Dr. Miranda. "We're just knocking on the door of pain management research. This could be a major milestone in changing how we treat pain by reducing the use of narcotics and the addiction potential and other side effects that come with them."

Novel therapies for neuropathic pain

For the past 25 years, the pain research team in MCW's department of anesthesiology, headed by Quinn Hogan MD, professor and vice chair for research, has explored mechanisms underlying chronic pain. This group focusses on pain related to nerve injury ("neuropathic pain") through collaborative research and commercial affiliations. Dr. Hogan's current work emphasizes the development of novel approaches to treat neuropathic pain and limit its development. He and Hongwei Yu, MD, associate professor,

are developing genetic therapies to block the specific molecular interactions that underlie pain after nerve injury – which, in a clinical setting, would eliminate the need for ongoing medication and its associated side effects.

Assistant professor Bin Pan, MD, PhD, is defining the interactions in the brain by which chronic pain causes depression in order to develop selective pharmacological approaches to prevent this common complication of chronic pain. He and Dr. Hogan also have discovered a means to control rheumatoid arthritis. The sensory neurons that deliver sensations from the joints also can release chemicals into them, producing swelling and joint damage. Drs. Hogan and Pan knew from their prior work that electrical stimulation of the dorsal root ganglion, an acorn-sized swelling at the base of the peripheral nerves as they exit the spine, can block out impulses as they pass through the ganglion. They discovered that this approach can also inhibit joint inflammation and prevent rheumatoid arthritis in animals. These experimental findings indicate that this treatment not only could limit pain in patients, but actually prevent structural damage to the joints that causes rheumatoid arthritis.

Dr. Hogan is collaborating with associate professor Caron Dean-Bernhoft, PhD, to discover how to separate two key regulatory processes that take place in the base of the brain. Dr. Dean-Bernhoft's work on responses to stress have indicated that a special part of the brain stem drives the fast heart beat and vigorous pumping of the heart during stress. This area also sends signals to the spinal cord to reduce pain. Drs. Dean-Bernhoft and Hogan are now exploring how the good parts of this reflex (controlling pain) might be separated from the bad part (stressing the heart) to allow safer rehabilitation and to limit the development of chronic pain. And assistant professor Christopher Pawela, PhD '08, has joined with Dr. Hogan to explore how peripheral nerve injury affects connections within the brain.

Pain research drives many of our patient care efforts

MCW physicians are conducting and translating research to improve pain care for both adults and pediatric patients.

On the pediatric side, Amy Drendel, DO, has developed a simplified pain assessment tool based around a construct widely understood by parents and pediatric patients alike – the stoplight. The pain assessment tool (*see graphic on page 20*) has three options for pain reporting: “green” (the child feels OK); “yellow” (the child is not sure and should be reassessed); and “red” (the child is hurting and something is needed to make the child feel better). The goal of the project is to get this assessment tool in the hands of parents and improve the treatment of pain for children after they have been discharged from the emergency department.

“The child’s self-report has come to the forefront because as medical providers, we often don’t do a good job assessing children’s pain severity by observing them,” says Dr. Drendel. “The gold standard for pain assessment is the traditional 10-point pain scale. For children, a pain scale with faces has been used to simplify pain assessment. Even though there are pain assessment tools made specifically for children, kids have historically been undertreated for pain.” The project to validate the Stoplight Pain Tool is a collaboration with Keri Hainsworth, MS, PhD, MCW associate professor of anesthesiology, and has been tested on pediatric patients with arm fractures because they are common (more than 700 children per year are treated for arm fractures at Children’s), and because they all experience similar acute pain – but the goal is to use the tool for any child experiencing pain.

Another tool Dr. Drendel created to more effectively manage pediatric pain is a two-page comic designed to provide discharge instructions to kids and conveys three main points about pain care. The comic has proven to be likeable, easy to read and effective in educating both patients and parents about how to manage pain at home; 86 percent of parents had accurate recall of the three main points 72 hours after their child was provided the comic. Dr. Drendel and Aaron Hanson, MD, are now evaluating the best distribution model for the comic.

Dr. Drendel also has developed an automated texting tool with Sheikh Iqbal Ahamed, PhD, and members of the Marquette University department of mathematics, statistics and computer science



25.3 Million
American adults
suffer from daily pain



23.4 Million
American adults
report a lot of pain

to collect patient-reported outcomes after discharge from emergency departments. The texts serve as daily check-ins to evaluate pain levels and medication use. “Texting has totally changed how I do research,” notes Dr. Drendel. “No research staff is needed to call parents, and these research queries don’t interrupt the patient’s daily activities; they can respond to the texts on their time, so participants like it – and it opens up my research to multi-site studies because we can follow outcomes for patients anywhere in the country centrally. Texting has the potential to supercharge our efforts to better understand the at-home pain for children and more effectively improve their functional outcomes – especially in the outpatient setting, which historically has been tougher because we can’t keep an eye on the patient.”

On the adult side, Robert Hurley, MD, PhD; Meredith Adams, MD; Sarah Endrizzi, MD; Stacy Peterson, MD, GME '11, FEL '12 and '13; and Gwynne Kirchen, MD, are conducting a variety of research projects to improve the treatment of adult patients with acute and chronic pain.

Dr. Adams recently was awarded a grant to identify opioid response phenotypes in low back pain electronic health data. Lower back pain is the leading cause of disability worldwide, but not much data exists to develop predictive models for clinical care. As part of the

MILWAUKEE COMMUNITY OPIOID PREVENTION EFFORT (COPE)

While opioids play an important role in the treatment of patients who experience acute pain, with their use comes the risk of addiction. MCW physicians have developed care protocols and educational tools to reduce the number of opioids prescribed, but the problem extends out beyond the walls of our clinics. Since 2005, Milwaukee County has seen a 495 percent increase in heroin-related deaths (heroin is an opioid), and in 2015, the county experienced 231 opioid-related



E. Brooke Lerner, PhD

deaths and 1,442 opioid overdoses.

To combat this, MCW's department of emergency medicine has partnered with the City of Milwaukee and the Zilber Family Foundation to launch the

Milwaukee Community Opioid Prevention Effort (COPE). Formed in April 2016 and led by E. Brooke Lerner, PhD, professor of emergency medicine and director of the department's research efforts, COPE is charged with identifying evidence-based, targeted prevention efforts that will help reduce the number of opioid and heroin overdose deaths in our community.

"The more you talk to people, the more you hear how many lives are impacted by the opioid epidemic," says Dr. Lerner. "I have funds from the Advancing a Healthier Wisconsin Endowment to track 911 dispatcher calls, and when I first listened to the tapes, it was sad how many calls they received related to opioid overdoses. It was difficult to hear."

Dr. Lerner and her team are working to build partnerships across the community by learning from those already involved in this effort about their needs and what they think is the best way is to address them. From there, Dr. Lerner develops a working plan for the city, and presents it every six months.

COPE's efforts, while ongoing, have had some early results. Based on the rise in overdose deaths, the group conducted a review of the literature on pre-hospital overdose treatments as well as a review of the current emergency medical service (EMS) naloxone administration protocol (naloxone is a drug that reverses the effects of an opioid overdose) – and then recommended changes to the maximum dose protocol. These changes are now being implemented.

project, Dr. Adams will examine opioid response patterns for patients with lower back pain and translate their clinical experiences into discrete and analyzable data. The database created from this effort will provide a foundation for advancing clinical care as well as future approaches to genomic and personalized medicine.

Dr. Hurley introduced a clinical research warehouse bank to collect and store electronically obtained patient-reported outcomes using the Collaborative Health Outcomes Information Registry platform from Froedtert and the Medical College of Wisconsin health network (F&MCW) and Children's patients. The primary benefit of this registry is to bring together patient-reported clinical data from disparate clinical sources into a single repository and store it in a manner easily accessible by researchers. Data from this will enhance future pain research efforts, and as a result, improve pain care. Currently the Pain Psychology Service also has two ongoing research projects to assess outcomes of heart rate variability biofeedback training and functional improvement during Spinal Cord Stimulator trials to determine if this combined therapy increases the efficacy of pain management.

Additionally, a pilot program being developed with MCW's department of orthopedic surgery will include a "prehabilitation" model. This is based on the observation that when the care team takes better and more consistent care of patients, patients are happier, their satisfaction scores increase and fewer opioids are used. It is common for patients to be taking opioids before surgery, so this model will optimize patient physical function and medication regimen from a pain standpoint in order to reduce opioid use prior to surgery – which, in turn, should reduce opioid use post-surgery.

Educating physicians about pain

MCW offers a one-year Pain Medicine Fellowship that provides instruction and experience in managing acute, chronic and cancer pain. Fellows rotate through the Pain Clinics at Froedtert Hospital, the Clement J. Zablocki VA Medical Center and Children's. Comprehensive, multidisciplinary pain management is provided at all three institutions.

As part of a project involving the development of a pain education app to

help millennial learners more effectively acquire core pain knowledge, the entire pain curriculum for anesthesiology residents at MCW has been broken down into five-minute lessons that are turned into games so the residents can compete against each other. The app has been made available for both Android and Apple phones, and if the pilot shows the tool improves engagement, learning and performance, it will be made available nationwide to other anesthesiology residency programs.

Another program designed to educate practicing clinicians involves designing and implementing evidence-based electronic resources and decision-support tools to more effectively guide care for patients with complex medical problems that are not part of the clinician's primary expertise. The goal of clinician education projects such as this is to help patients suffering from chronic pain and improve patient satisfaction scores.

An additional education app is focused on non-opioid alternatives for pain care, and provides the information the physician needs in less than two minutes – uses, doses and contraindications to non-opioid medications in the management of pain. It will soon be made available to MCW's primary care physicians. Another pain education resource in development will assess the effectiveness of clinician pain education. Similarly, an electronic patient-reported outcomes tool in primary care practices focuses on enhancing patient satisfaction and pain relief.

MCW's Pain Management Center provides comprehensive chronic pain services

The MCW Pain Management Center is a multidisciplinary clinic that provides patients with the most comprehensive chronic pain services in the area. Pain-certified physicians in the clinic use the latest techniques in interventional pain procedures, medication options (focusing on non-opioid analgesics), physical therapy and pain-focused psychological therapy. Physicians in the clinic work closely with primary care, specialty and surgery groups within F&MCW, as well as with community providers. All are committed to finding solutions to the current opioid crisis through education and legislative efforts. A few areas that make the Pain

Management Clinic approach unique include: using leading-edge technology to provide more treatment options for patients with difficult-to-treat pain conditions; providing comprehensive mental health services specifically tailored for pain patients; and Heart Rate Variability biofeedback.

The Center integrates pain psychology and health psychology and looks at a patient's psychiatric and social function as well as the medical causes of the chronic or acute pain. This approach helps patients address issues such as anxiety and sleeplessness that can accompany their pain and slow down relief. Prior to their initial visits to the Center, patients are asked to complete a chronic pain registry that asks about depression, anxiety and pain levels – which gives doctors a chance to hear about the patient's pain experience in her/his own words. Doctors review the reports before the visit and then talk to the patient about next steps in the treatment. This approach has been very effective and well received, and plans are in place to expand it the care of pediatric patients.

The Center also teaches patients how to better cope with and control their pain through practices such as mindful meditation, yoga and tai chi, biofeedback and cognitive behavioral therapy, and offering neuromodulation using a device similar to a pacemaker. The neuromodulation device's lead is placed in the spinal cord and delivers electric stimulation that stimulates the "no pain" signal from the brain and helps the patient's spinal cord not listen to its chronic pain signals. This device helps patients better manage their own pain and helps reduce opioid use.

Pushing back on pain with a pain psychologist

Fifty-six-year-old Kathy Burlingham's challenging journey through debilitating chronic pain began in late 2012 with stiffness in her right shoulder that was diagnosed by her physician as a "frozen shoulder." She then saw an orthopaedic surgeon who recommended physical therapy, which did not help. She underwent a capsular release for the frozen shoulder, and during surgery a full tear of the rotator cuff was revealed and subsequently repaired.

Rotator cuff and frozen shoulder repairs required differing rehabilita-

tion, complicating her recovery. Despite extensive physical therapy combined with traditional pain management, the shoulder refroze twice over the course of seven months, resulting in two additional release surgeries. Burlingham returned to work six weeks later, continuing physical therapy. About a year later, an unfortunate fall off a raised-platform floor resulted in re-injury to the shoulder, including a detached bicep that greatly increased her pain level. Several weeks of physical therapy followed to prepare her for surgery to repair the damage to the bicep and shoulder. Burlingham went through multiple phases of physical therapy combined with pain management that often utilized medication. In late 2015, however, she realized this course of action was not effective for her. "The accident and subsequent shoulder surgery was a game-changer for me. I was in a quandary about how to move forward because this was clearly now a chronic pain condition and I needed an alternative to popping pills. I was looking for a different way of managing my pain," Burlingham says.

Burlingham, a resident of Muskego, Wis., learned that F&MCW was offering an alternative approach to pain management focusing on pain psychology. In early 2016, she met with Rebecca Anderson, PhD, professor and psychologist in MCW's department of anesthesiology. "We talked about my concerns and my frustration around dealing with this level of daily pain and finding limited resources to deal with the pain other than prescribed meds. Dr. Anderson was optimistic that she could help, and as part of her team approach, I began working with one of her graduate students on non-drug-related therapies such as biofeedback, deep breathing and imagery to help put my mind in a better place."

"I was so encouraged," remarks Burlingham. "There was very marked improvement in how I would feel coming in and leaving the sessions. I also continued to meet with Dr. Anderson and in between our sessions, I practiced the techniques I had learned to help control my pain. Even putting temporary pain into perspective was an important step for me."

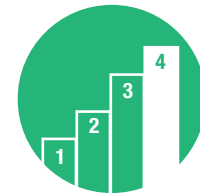
Burlingham shared that there are significant psychological challenges about living with chronic pain. "You lose a little bit of your life and have to give up certain plea-

ures," she says. "But Dr. Anderson really helped me to navigate through this; it was almost like going through a grieving process. She helped me come to terms with my chronic pain and it has allowed me to move forward by integrating the acceptance of pain without it running my life. Dr. Anderson is an incredible healthcare provider, an awesome support mechanism and a great and compassionate listener. I could articulate the pain and how it took over my life, but we always worked through it – and I always felt when I left her office that I was a step closer to regaining my life as I had known it. She made me feel hopeful for a future that wasn't all about the pain. For that I am forever grateful to her."

Burlingham took a leave of absence from the workforce for the better part of two years to work on her pain management challenges. Recently, she was able to begin a new part-time opportunity in a wellness field. "I thought I would never get back into the workforce because of the chronic pain I live with every day," she remarks. "Had I gone through traditional pain management, I would have been terribly unhappy. I was so thrilled to find this program offered through F&MCW. I would recommend that anyone look into this life-changing option for dealing with chronic pain." ■



25.4 Million
American adults
experience category 3
(moderate) pain



14.4 Million
American adults
experience category 4
(severe) pain

Source: National Institutes of Health, 2015



For more, visit mcw.edu/painmanagement



Honoring a Valued Partnership: Dr. William and Marlene Listwan

William Listwan, MD '68, GME '74, always insists that he did not attend medical school alone. "I always say that 'we' went to medical school," says Dr. Listwan. His wife, Marlene, was at his side through the entire journey – and it was a team effort.

Dr. Listwan's medical school years were busier than the typical student's. While attending the Marquette University School of Medicine (the Medical College of Wisconsin's predecessor institution), Dr. Listwan had to juggle his coursework, working and a rapidly growing family.

During his first year of medical school, Dr. Listwan married Marlene. Ten months later, they had their first daughter. By his final year of medical school, Dr. Listwan and Marlene had welcomed a second daughter.

"I was always busy. Whether it was school, work or family, something was always going on," says Dr. Listwan. "Marlene was the rock that held our family together. In addition to the household chores, she worked outside of the home to help cover our expenses. If it wasn't for the strength of Marlene, I never would have gotten through."

Even though the expenses of medical school were significantly less when Dr. Listwan was a student, the tuition he paid covered only part of the cost of his education. A good part of the rest was paid by the financial contributions of others who were supporting the medical school with their donations. With a little help from his family, and Dr. Listwan and Marlene both working, they were able to pay the medical school bills.

"I have great appreciation for the fact that medical school costs can be a heavy financial burden for the current students," remarks Dr. Listwan. "I love the idea of paying it forward and helping out the current medical students so that they can thrive in school and beyond." To that end, this year the Listwans have made a commitment of \$100,000 to his Class of 1968 Endowed Scholarship Fund. This gift will be leveraged as a challenge grant to inspire his classmates to give as they celebrate their 50-year graduation anniversary in 2018.

Dr. Listwan and Marlene also drew from their personal experience with breast cancer to guide their generosity. Marlene, who has battled the disease, felt it was important to give back to a cause – cancer research.

Dr. Listwan and Marlene also bestowed a challenge grant when they established the Dr. William J. and Mrs. Marlene F. Listwan Fund in Cancer Imaging Research at the Medical College of Wisconsin Cancer Center with a \$200,000 commitment. "We wanted to give to a cause that could make a difference – as well as one that we can believe in," says Dr. Listwan. Their gift will match funds – dollar for dollar – that are raised for the MCW Cancer Center.

"We wanted to give to a cause that could make a difference – as well as one that we can believe in."

– Dr. William Listwan

The Listwans want to support the institution that helped launch his career. Dr. Listwan credits the experiences that he had at MCW's predecessor and at MCW for his long and successful career. "My experience here was instrumental in my success," says Dr. Listwan. The Listwans are members of MCW's Walter Zeit Fellowship, established in 1980 to increase contributions from alumni, as philanthropic support was critical for MCW to become a nationally recognized institution – and of which Dr. Listwan has served as chair for more than 17 years.

As chair, Dr. Listwan was given the task of providing the inspiration and leadership needed to swell the ranks of the Zeit Fellows. The Listwans continue to do this with their matching gifts – a perfect way to mark Dr. Listwan's service as he steps down as chair following this year's Zeit Recognition Dinner on Friday, October 6, 2017, at Discovery World in Milwaukee.

MCW is grateful for his service and leadership on the Alumni Association Board and MCW Board of Trustees, and for securing new and continued philanthropic support for the institution. In recognition of his outstanding service to the profession, to MCW and to the Medical College of Wisconsin/ Marquette Alumni Association, Dr. Listwan received the Association's *Distinguished Service Award* in 1992.

Since graduating from medical school, Dr. Listwan has been guided by a philosophy of compassion and care. "I have found that the best thing a physician can do is listen," says Dr. Listwan. "Often the real reason a patient comes to see me is completely different than the reason he or she puts down on the registration form or tells the nurse. You just have to listen and find out who they are and what their concerns really are." ■

– ALEX KROUSE

Photo courtesy of Jay Westhauser



2017 Alumni Weekend Celebration

CLASSMATES RECONNECT
AND HONOR SPECIAL COLLEAGUES





To see more photos, visit mcw.edu/reunion

ALUMNI HONOREES



WILLIAM VALENTI, MD '72
**ALUMNUS
OF THE YEAR**



DONALD HACKBARTH, MD '77,
GME '82
**HUMANITARIAN
AWARD**



GERALD DORFF, MD '64, FEL '70
**DISTINGUISHED
SERVICE AWARD**



For more, visit mcw.edu/2017alumniweekend

1967



Front row (l-r) Joseph M. Gasik, John P. Walsh, Barry J. Seidel, Peter P. La Torre, Robert J. Brusky, Wallace W. McLean, John B. Stanchfield, Joseph P. Padayhag and James A. Rydlewicz.

Middle row (l-r) Gerard G. Koehn, Douglas W. Olen, Richard M. Bergen, John J. Kelly, Anna M. Ledgerwood, Roger C. Bond, Donald G. Seitz, George J. Ferguson, Edward G. Kelly and Robert A. Haushalter.

Back row (l-r) Gerald R. Sylvain, James R. Beix, Robert J. Meli, David S. Haskell, Thomas A. Lyons, Donald C. Turner, William G. Wagner, Robert J. Foerster, Vincent P. Savaglio, Harold A. Jacobsohn, Kenneth F. Preimesberger and John B. Giedraitis.



ALUMNI ASSOCIATION PRESIDENT'S MESSAGE

NEIL GUENTHER, MD '83, GME '88

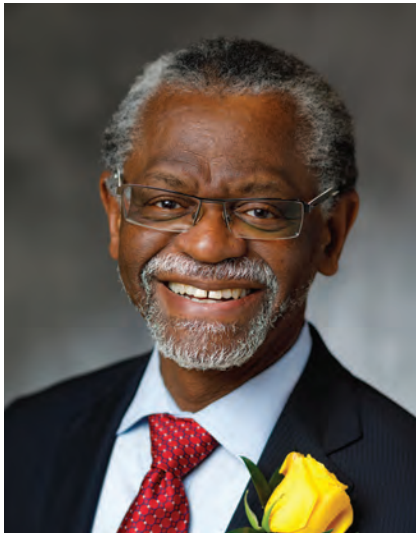
As I sat through May's Commencement Ceremony, I was overwhelmed with an enormous sense of pride – but not just because one of my children was receiving his MCW medical degree. It was mindboggling to hear what the Class of 2017 already has accomplished. And yet they are just starting their respective journeys of what will undoubtedly be illustrious careers.

On Commencement Day, as is tradition, alumni celebrating their 50-year reunion (in this case, the Class of 1967) also participated in the festivities. It truly was a momentous occasion – seeing our new graduates standing beside those who, some 50 years later, are still practicing physicians. The combined medical knowledge and wisdom in that auditorium was immeasurable.

My pride continued to grow significantly as I realized my own place in our institution's storied history and boundless future. I want to share these thoughts now, as they align well with the course that the Alumni Association Board of Directors is now charting.

During my time as president, I will champion the following initiatives as the Alumni Association's 2017-2018 priorities: 1) complete the Alumni Association's Vision for the 2020 Strategic Plan; 2) launch MCW's first online alumni networking platform; and 3) encourage all alumni to participate in our 125th Anniversary festivities.

Thank you, Dr. Marie Nakata, for your accomplishments as president. Much of what we will achieve this year, especially our strategic plan, was initiated during your tenure. The president serves a one-year term, which comes and goes too fast. Your commitment to initiating something you knew would be realized during someone else's term demonstrates your dedication to MCW and its alumni. ■



ALONZO WALKER, MD
**HONORARY
ALUMNUS**



CECILIA HILLARD, PHD '83
**GRADUATE SCHOOL
ALUMNA OF
THE YEAR**

“The Alumni Association exists to help graduates remain connected to their alma mater. We are a community of physicians, health advocates and researchers, spread out across the country and beyond. We all share a common thread...the foundation of our growth: the Medical College of Wisconsin.”

– Neil R. Guenther, MD '83, GME '88



(l-r) Joseph E. Kerschner, MD '90, FEL '98; Marie L. Nakata, MD '89, GME '93; Neil R. Guenther, MD '83, GME '88; and John R. Raymond, Sr., MD.

CLASS REUNIONS

1957

THANK YOU TO ALL OUR ALUMNI

who attended this year's Alumni Weekend festivities and who made a lasting impact through class gifts! Below is an overview of the class giving campaign as of June 20, 2017. The Medical College of Wisconsin thanks you for making a gift and participating in our successful Alumni Weekend. The MCW/Marquette Medical Alumni Association is happy to report that attendance for this year's reunion classes increased by more than 20 percent compared to 2012. Furthermore, giving participation increased for all classes that celebrated milestone years.

1957	\$57,335
1962	\$384,350
1967	\$425,352
1972	\$44,910
1977	\$52,215
1982	\$186,503
1987	\$82,196
1992	\$36,290
1997	\$51,232
2002	\$78,304
2007	\$19,606

TOTAL OF ALL CLASS GIFTS
\$1,418,292

PLANNED GIFT COMMITMENTS
\$1.7 Million

THANK YOU!



*Front row (l-r) Patrick Noonan and Alfred Meyers.
Back row (l-r) Roger Hepperla, Robert Werra, Ed Winter and John Marta.*

1962



(l-r) Michael Mally, Terrance Fisher, Thomas Russell and Kenneth Ross.

1972



*Front row (l-r) Chuck Reuben, Alan Wartenberg and John Glaspey.
Back row (l-r) Thomas Chatton, Kevin Turley, William Valenti and Bruce Hinrichs.*



1977



Front row (l-r) Sherry Ness-Wenum, Nina Templeton, Cynthia Morgenweck, Victoria Vollrath, Anne Reindl and Ann Babbitt.
Middle row (l-r) Richard Smith, Thomas Templeton, Lawrence Dall, Michael Deeken, Brian Buggy and Donald Hackbarth.
Back row (l-r) Mark Benjamin, Mark O'Meara, Clarence Chou, J. Randy Perry, Daniel Wartinbee, James Heironimus and Philip Tate.

1982



Front row (l-r) Philip Konkel, Theresa Richter, Janis Orlowski and William Reed.
Back row (l-r) Robert Calder, Mark Dykstra, Heidi Jache and Dennis Vincent.

1987



Front row (l-r) Kathy Dallen, Andrew Strigenz, Thomas Bachhuber, Pamela Cartland, Kurt Hegmann, John Iglar, Patricia Liethen, Diane Braza and Janice DaVolio.
Back row (l-r) Paul Halstrom, Joseph Braun, Gary Van Oudenhoven, Deborah Luetzow, Steven Allen, Neil Farber, Sheldon Wasserman, Julianne Newcomer, Janet Muhich, Kathleen Stokes, Gary Steven, Maryam Doyle and Ninette Nassif.

CLASS REUNIONS

1992



*Front row (l-r) Mark Reuter, Catherine Reuter, Padmaja Doniparthi, Julie Webb, Mary Nordstrom, Maelynn Colinco, Asriani Chiu and Eric Luy.
Middle row (l-r) Tiffany Hubbard, Lynn Stanco, Susan Gedanke, Amy Lemke, John Markley and John Connolly.
Back row (l-r) Mark Niedfeldt, Randal Ruvalcaba, Michael Von Rueden, Daniel Holub and Susan Layeux.*

1997



*Front row (l-r) Karrin Stoehr, Joseph McCormick, Maria Tapia Sauerman, Lucie Bianchi, Mark Sauerman, Alizabeth Truong,
Christopher Sobczak, Timothy Crummy, Terrence Endres and Daniel Metz.
Back row (l-r) Karen Mueller, Amy Kelly, Heather Haakenson, Kristen Jahn, Marie Tomasi, Christopher Ott, Michelle Pastorello,
Laura Minikel, Scott Siebel, Nathaniel Simon and Stephen Van Buren.*



2002



Seated (l-r): Katherine Nickels, Carley Davis, Amy Henry and Cecily Dvorak Havert.

Standing: Jonathan Belgrad, Aaron Dall, Eric Holley, Kenneth Jacobsohn, Justin McNamar, Peter Henry, Max Davis, Peggy Stickney, Caroline Wilker, Lee Engelbreth, Megan Staton Tumavicus, Sarah Haroldson, Rachel Tollefsrud and Anne Nagler.

2007



Front row (l-r) Kathryn Lamboume, Leigh Bomstein Lurie, Amy Fisco, Maria Gray, Laura Strickland (and baby Hannah!), Laura Nezworski, Amanda Webb, Ann Lagerlund and James Larson.

Second row (l-r) David Pugh, Frederick Groutage, David Kovacs, Barbara Meinecke, Michael Knudson, Elena Ziamik, Gina Negrette, Sarah Janz, Shana Elman, Soma Kumar, Andrew Palisch, Kavita Naik, Adam Jeffers, Paula Cody, David Prybilla, Cindy Bauer, Eric Luedke, Ryan Hess and Anderson Bauer.

Back/third row (l-r): Jaren Thomas, Joseph Kroner, Virginia Homewood, Dimple Damani, Nicole Chase, Catherine Cahill, John Benson and Brian Matysiak.

HAPPENINGS



The 2017 Steve Cullen Healthy Heart Club Run/Walk held in February raised \$44,300 for the MCW Cardiovascular Center (CVC). Pictured from left to right are Kathleen Cullen; Ivor Benjamin, MD, director of the CVC; and Gael Cullen.

See story
on pages
14-15

Women in Science Lecture Series Continues

MCW's 11th Annual Women in Science Lecture Series continues on August 3, 2017. Lindsay Nelson, PhD, will discuss "Concussions: How Attention to Individual Patient Factors Will Revolutionize Diagnosis and Treatment." She will focus on her research on the clinical and neurobiological effects of concussion, and how she and her colleagues are employing individual differences in research approaches to better understand patient outcomes.

On September 20, 2017, Denise Uyar, MD, will present her research, "The Potential Impact of the Human Papillomavirus (HPV) Vaccination." Dr. Uyar will discuss the HPV vaccination and the barriers and research to HPV vaccination in the community. The luncheon is presented by The Women's Fund of Greater Milwaukee.

Both luncheon events will be held at the Wisconsin Club, 900 West Wisconsin Ave., Milwaukee, from 11:30 am – 1:00 pm.

The Women in Science Pioneers in Research Awards luncheon will be held on October 17, 2017. Two MCW female researchers will be honored for their outstanding research with an award of \$10,000 each. In addition, two female postdoctoral fellows each will receive a \$1,000 scholarship from the Edward J. Lennon, MD Award fund. This event is sponsored by Johnson Bank. ■



MCW Team members show their spirit during the 2016 Ridin' to a Cure.

Ridin' to a Cure Supports Breast Cancer Research

Wisconsin-Harley Davidson (WHD) and the Rock River H.O.G. Chapter will hold the 23rd annual "Ridin' to a Cure" on September 22 and 23 in Oconomowoc. Proceeds from this fundraiser benefit the Rock River Cancer Research Foundation, which supports breast cancer research at the MCW Cancer Center. On Friday, September 22, a pre-registration party and survivor ride will begin at 6:00 pm at the WHD. The following morning, rides will begin at 9:00 am and depart every 20 minutes. A post-ride celebration featuring live entertainment, food and beverage will take place from noon – 10:00 pm. ■

WBCS Fashion Show – October 5

Men and women who have survived a breast cancer or prostate cancer diagnosis will model clothing at the annual Wisconsin Breast Cancer Showhouse "Pinktacular" Luncheon and Fashion Show on October 5, 2017, at the Italian Community Center in Milwaukee to benefit breast cancer and prostate cancer research at MCW. For more information, contact showhouse@mcw.edu. ■

UPCOMING EVENTS

AUGUST

» WOMEN IN SCIENCE LECTURE SERIES

DATE: AUGUST 3, 2017

SPEAKER: LINDSAY NELSON, PHD

» CVC GOLF CHALLENGE – 25TH ANNIVERSARY YEAR

DATE: AUGUST 21, 2017

LOCATION: WISCONSIN COUNTRY CLUB

» TRIUMPH FUND DINNER TO BENEFIT CANCER CLINICAL TRIALS OFFICE

DATE: AUGUST 27, 2017

LOCATION: WISCONSIN CLUB

SEPTEMBER

» DIGESTIVE DISEASE CENTER GOLF PRO-AM

DATE: SEPTEMBER 19, 2017

LOCATION: MILWAUKEE COUNTRY CLUB

» WOMEN IN SCIENCE LECTURE SERIES

DATE: SEPTEMBER 20, 2017

SPEAKER: DENISE UYAR, MD

» RIDIN' TO A CURE MOTORCYCLE RIDE FOR BREAST CANCER RESEARCH

DATE: SEPTEMBER 23, 2017

OCTOBER

» WBCS FASHION SHOW

DATE: OCTOBER 5, 2017

For more information on these events, contact Peggy LeBrun, director, volunteer and event fundraising, at (414) 955-4503 or plebrun@mcw.edu.

STAY CONNECTED WITH MCW

We'd love to hear from you! We'll post your event comments and photos. Or, let us know what's coming up. Send your materials to MCWmagazine@mcw.edu.

Find us on:



ALUMNI NOTES

1960s



George M. Bohigian, MD, GME '66,

received the *Presidential Award* from the St. Louis Ophthalmological Society. This award is

presented to physicians to recognize distinguished contributions and service to the ophthalmic community, both locally and throughout the world. Dr. Bohigian serves as professor of clinical ophthalmology at Washington University School of Medicine in St. Louis.

1970s



Stuart J. Eisendrath, MD, '74,

edited the book, *Mindfulness-Based Cognitive Therapy: Innovative Applications*, which was published by

Springer. He and his co-contributors describe the evidence-based psychiatric applications of mindfulness-based cognitive therapy. Although originally developed as a depression relapse prevention treatment, its applications have broadened to include a wide spectrum of disorders, such as insomnia, somatoform conditions, cancer and generalized anxiety disorder. Dr. Eisendrath has specialized in using mindfulness-based cognitive therapy with patients suffering from treatment-resistant depression. This work has led to several NIH-funded grants to investigate its clinical efficacy as well as effects on the brain viewed

via functional magnetic resonance imaging. Dr. Eisendrath is professor of psychiatry emeritus at the University of California, San Francisco.



Michael F. Nolan, PhD '75,

was appointed assistant dean for basic science education at the Virginia Tech Carilion School of Medicine. He previously

served the Virginia Tech Carilion School of Medicine as professor and vice chair of the department of biomedical science after joining the faculty in 2009. Dr. Nolan was named MCW's *Graduate School Alumnus of the Year* at the MCW/Marquette Alumni Association's 2016 Alumni Weekend. In 2014, he received the *Master Teacher Award* from the International Association of Medical Science Educators in recognition of his scholarship in neuroanatomy education.

1980s

Mark W. Burlingame, MD, FEL '82,

joined WellSpan Cardiothoracic Surgery in York, Pa. He is board-certified by the American Board of Surgery and the American Board of Thoracic Surgery.

1990s



James D. Thomas, MD '91,

was elected as a member of the American Board of Emergency Medicine's (ABEM) Board of Directors. Dr. Thomas

practices emergency medicine at Good Samaritan Medical Center in Brockton, Mass., and has served as a senior oral examiner with ABEM since 2014. He began serving as an ABEM oral examiner in 2002 and as an item writer for the ConCert™ Examination in 2012. ABEM develops and administers the emergency medicine certification examination and has certified more than 33,000 practicing emergency physicians.



Donald C. Hofheins, DDS, GME '96,

was recognized as a "Give Kids A Smile" hero for his service and commitment to the Give Kids

A Smile organization, which has delivered more than \$8.2 million in free comprehensive dental services to more than 15,000 children in the St. Louis, Mo., area. For more than a decade, he has driven over 100 miles from Rolla, Mo., to volunteer his services at Give Kids A Smile's clinics in St. Louis each February and October. Dr. Hofheins was honored during the Greater St. Louis Dental Society's annual installation event on January 28, 2017.



Cathleen M. McCabe, MD '96,

received the newly-created *Castle Connolly Exceptional Women in Medicine Award*. She

also made a return appearance on *Castle Connolly Top Doctors List* for 2017. Dr. McCabe practices ophthalmology at Eye Associates in Bradenton, Fla.

Shawn K. Nelson, MD '96,

formed Wellmont Medical Associates Mountain Empire Neurology along with two physician partners to provide specialty care in neurology throughout the Tri-Cities region of northeast Tennessee and southwest Virginia. Dr. Nelson has served on the medical staff of Bristol Regional Medical Center (Tenn.) since 2000. Prior to joining Wellmont Medical Associates, Dr. Nelson and his partners provided care as part of Mountain Empire Neurology Associates and consulted with patients at their office in Bristol.

Melissa Y. Macias, MD '02, PhD '97, GME '09, joined the South Texas Brain and Spine Center in Corpus Christi, Texas. As a neurosurgeon, she treats every type of spinal disease and disorder, including disc herniations and spinal stenosis. She also treats complex degenerative conditions such as acquired adult scoliosis and basilar invagination, as well as trauma, infections and tumors of the brain and spine.



Laura L. Minikel, MD '97, marked her 10th year as program director of the Kaiser-Permanente Oakland obstetrics and gynecology residency program in Oakland, Calif. Dr. Minikel has been involved in teaching throughout her career and, in 2015, was awarded the *Permanente Medical Group Teaching Award for Excellence in Medical Education*. She was one of two recipients in Northern California.

2000s



Ellen C. Hayes, MD, GME '01, joined the Colorado Center for Reproductive Medicine's Minneapolis practice. Dr. Hayes is a board-certified reproductive endocrinologist with experience in assisted reproductive technology as well as advanced laparoscopic and hysteroscopic surgery. During her residency training at MCW, Dr. Hayes was selected as the *Outstanding Resident in Laparoscopic Surgery*.



Taft Parsons III, MD '01, was named chief medical officer for Molina Healthcare of Michigan. He manages the health plan's clinical operations throughout the state. Dr. Parsons joined Molina Healthcare in 2013 as vice president of behavioral health plans.



Rebecca M. Reim, MD '02, joined the emergency department at Holy Family Memorial Medical Center in Manitowoc, Wis. She is a family medicine physician with extensive experience in obstetrics and in providing inpatient and hospitalist care, as well as serving in urgent care and emergency medicine settings. Her work in emergency medicine includes service at the Arctic Slope in Alaska, where she routinely stabilized and prepared patients for transfers that required a nine-hour plane ride.

2010s



Phillip J. Keith, MD '11, was named a partner at Dermatology Consultants, one of the largest and most historic dermatology practices in the Minneapolis-St. Paul metropolitan area. He treats general dermatology, cosmetic dermatology and skin cancer patients in St. Paul and Vadnais Heights, Minn.



Rachel R. Johnson, MD, GME '13, joined the University of Nebraska Medical Center faculty in July 2016 as assistant professor of internal medicine (pediatrics). Her clinical interests include preventive care for both adults and children, lifestyle medicine for chronic illness, women's health and transitional care for children with chronic diseases. Dr. Johnson served as chief resident in MCW's internal medicine-pediatrics residency program from 2013-14.

IN MEMORIAM

1940s

William B. Frymark, Sr., MD '46, GME '54, of Burr Ridge, Ill., died on April 28, 2017, at the age of 94. He worked as a general surgeon in the Chicago metropolitan area at hospitals in Hinsdale, LaGrange and Elmhurst. Dr. Frymark was a member of the original staff of LaGrange Community Memorial Hospital, where he served as chief of surgery and chief of staff. He was a leader in the DuPage Medical Society, a member of the Chicago Surgical Society and a fellow of the American College of Surgeons, as well as a past president of the MCW/Marquette Medical Alumni Association. Survivors include three children, seven grandchildren and six great-grandchildren.

John E. Sinsky, MD '46, GME '52, of Brookfield, Wis., died on March 1, 2017, at the age of 94. He delivered more than 8,000 babies during his years practicing obstetrics and gynecology in Milwaukee. Dr. Sinsky was a globetrotter whose travels were enhanced by his ability to speak Slovak, Russian and German. He is survived by his wife, Regina, nine children, 26 grandchildren and seven great-grandchildren.

1950s

Ergi J. Pesiri, MD '51, of Melville, N.Y., died on November 19, 2016, at the age of 88. He was co-founder of the Zwanger-Pesiri Radiology Group, which provides radiology services in the Long Island area. Dr. Pesiri is survived by his wife, Nancy, three children and three grandchildren.

James A. Baumgarten, MD '55, of Fort Meyers, Fla., died on April 3, 2016, at the age of 85. Dr. Baumgarten practiced radiology for more than 25 years in Owensboro, Ky., before retiring to Florida and traveling the world. He is survived by his wife, Gail, three sons and 10 grandchildren.

Michael T. Jaekels, MD '55, of Elkhart Lake, Wis., died on February 15, 2017, at the age of 86. He delivered thousands of babies during his career practicing obstetrics and gynecology. Survivors include five children and nine grandchildren.

Marvin W. Nelson, MD '55, of Racine, Wis., died on April 5, 2016, at the age of 91. Dr. Nelson served as an orthopaedic surgeon for more than 40 years and was an active athlete, painter and volunteer. He is survived by six children and 15 grandchildren.

J. Terrence Coyle II, MD '57, of Redmond, Wash., died on July 21, 2016, at the age of 83. He practiced ophthalmology at the Eye Clinic of Bellevue (Wash.) and Seattle Children's Hospital. Dr. Coyle also was a passionate tennis player and outdoorsman. He is survived by his wife, Betty, five children and nine grandchildren.

Alvin L. Smith, MD '57, of Wichita, Kan., died on January 23, 2017, at the age of 88. He directed a pathology lab in Wichita for more than 40 years. Dr. Smith is survived by his wife, Alice, four children, 15 grandchildren and a great-grandchild.

1960s

Ronald E. Grossman, MD '61, GME '65, of River Hills, Wis., died on March 4, 2017, at the age of 82. He practiced radiology and served as the director of radiology at Aurora Sinai Medical Center in Milwaukee, as well as on the State of Wisconsin Medical Examining Board. Dr. Grossman is survived by his wife, Marisa, and seven children.

Philip S. McGinn, MD '62, of Napa, Calif., died on December 15, 2016, at the age of 80. He was an otolaryngologist and a head and neck surgeon, as well as an active sailor, skier, windsurfer and cyclist. He is survived by his wife, Naomi, two sons and a grandson.

Timothy J. Crooks, MD '63, of Pacific Grove, Calif., died on June 30, 2016, at the age of 80. He performed surgery in San Francisco for more than 30 years and was committed to providing free healthcare as a volunteer in the Mission District neighborhood. Survivors include his wife, Christine, two children and two grandchildren.

LeRoy J. Byrd, MD '64, of Spokane, Wash., died on December 22, 2016, at the age of 79. He practiced family medicine and served as a volunteer physician at the House of Charity Providence Free Medical Clinic in Spokane. Dr. Byrd is survived by his wife, Irene, ten children and 15 grandchildren.

**MCW is grateful to these alumni for their Legacy Society memberships.*

Katherine E. Trudnowski*, MD '64, of Tucson, Ariz., died on July 23, 2016, at the age of 78. She served as an anesthesiologist during her career in medicine. In recognition of her generous support of MCW, Dr. Trudnowski was named a Walter Zeit Fellow and a member of the Alumni Golden Circle and MCW Legacy Society. She is survived by her husband, Roderick.

Nicholas G. Papadakes, MD, GME '68, of Houston, Texas, died on June 13, 2016, at the age of 81. During his career, he practiced orthopaedic surgery in Janesville, Wis., and in Houston. Dr. Papadakes was an active hunter and angler, as well as a classical pianist. Survivors include his wife, Anne, three daughters and four grandchildren.

1970s

Edmund F. Centena, MD, GME '78, of Pewaukee, Wis., died on April 2, 2017, at the age of 70. He practiced psychiatry for more than 40 years and was a fifth-degree black belt in taekwondo. Dr. Centena is survived by his wife, Karen, two children and two grandchildren.

1980s

Randall Spaude, MD '82, of Clinton, Iowa, died on October 19, 2014, at the age of 57. Dr. Spaude practiced internal medicine for more than 30 years and loved to garden. He is survived by his wife, Sherrill.

Mary E. Cohan, MD, GME '87, of Brookfield, Wis., died on February 23, 2017, at the age of 60. As a member of MCW's faculty in the department of medicine's division of geriatrics, Dr. Cohan focused on providing the best and most accessible care possible to seniors and those with memory disorders. She led efforts to create a dedicated inpatient geriatrics service at the Clement J. Zablocki VA Medical Center in Milwaukee, and the clinical programs she developed are the cornerstone of MCW's educational programs in geriatrics. Dr. Cohan is survived by two sons.

Will Fenno, MD '87, of Sharon, N.H., died on November 7, 2016, at the age of 68. He practiced family medicine, served the town of Sharon as selectman and selectman's assistant, and was an excellent woodworker and craftsman.

From Our Readers

Dear Editor:

In the winter 2017 issue of *MCW Magazine*, I noted the passing of **W. Dudley Johnson, MD**, on page 33. While the note discussed his contributions, some accomplishments in his life were especially noteworthy.

In November 1968, he and his associates performed the first Wisconsin heart transplant on Ms. Betty Annick, who survived over 11 years (the second longest transplant patient in the US at the time). I was working in the emergency department at the Milwaukee County General Hospital and will never forget the excitement that night prior to and after the surgery. She was one of the first long-term, successful transplant patients in the US.

Dr. Johnson also helped to perfect the heart-lung machine that came to be used for the operation. He later performed thousands of coronary artery bypasses, sometimes incurring criticism for accepting cases that other heart surgeons turned down. His technologies and skills

amounted to one of the lowest redo rates in the specialty, despite the fact that he accepted the most difficult and "hopeless" cases.

I'm proud to have known him and will always remember the celebration by the Nicaraguan people 10 years ago when thousands of them turned out to honor his achievements.

He was particularly concerned regarding the overuse of surgery when he felt strongly that diet, anticholesterol medications and lifestyle changes could save lives.

Among his favorite enterprises were his apple orchards and lecturing to other doctors regarding Omega-3 fatty acids and their role for preventing coronary artery disease.

The world of medicine mourns the passing of one of the "great ones" and we had him here in Milwaukee for most of his career.

— R.J. Wetzler, MD '68

Alonzo Walker, MD



Dr. Walker is the Ruth Teske Professor in Surgical Oncology and professor of surgery at MCW.

What Drives You?

I am driven by the desire to provide the best clinical care possible for the patients who seek care for a breast disorder – particularly breast cancer.

What Has Been the Highlight of Your Career?

The highlight of my career has been the role I have played in the establishment of a comprehensive clinical breast program at Froedtert and the Medical College of Wisconsin.

What Do You Still Hope to Accomplish Over Your Career?

Being a clinician, I hope that the “model of care” that we provide can be changed such that it is truly patient- and family-focused. Economic considerations should not be the primary driver of the quality of care that we provide to our patients in our health systems.

What Would You Like Your MCW Legacy to Be?

I would like for my MCW legacy to be my willingness to work within the system and with leadership to bring about the necessary changes to enhance the image of MCW in the State of Wisconsin.

What One Piece of Advice Would You Like to Share With Your Colleagues?

It has been previously stated by many that with change, it is not always an issue that one initiates change, but rather how one initiates change. I strongly believe that when initiating change, one must sincerely value all individuals, regardless of his or her status.

Change Agent highlights a Medical College of Wisconsin faculty or staff member who has had significant impact on the institution's mission to be a leading innovator in transforming healthcare and advancing the health of our communities.

Dr. Walker is an expert in the diagnosis and management of breast diseases and the treatment of infections in general surgery. He also is a world-class breast cancer surgeon. Within these specializations, Dr. Walker has published more than 80 research publications, chapters and abstracts.

Dr. Walker has received many accolades throughout his career regarding his clinical service. He has been deeply involved in community engagement and has served on many boards and committees throughout Milwaukee and southeastern Wisconsin. Dr. Walker was chief of staff at Froedtert Memorial Lutheran Hospital (2002-2005) and since 2000, has been clinical associate professor, department of physician assistant studies, at Marquette University College of Health Sciences.

Dr. Walker joined the MCW faculty in 1983 and has served in many important leadership roles, including chief, department of surgery, division of general surgery (2005-2011); senior associate dean for faculty affairs and diversity (2011-2016); and interim chief diversity and inclusion officer (January-December 2016). ■

– SAMANTHA ZIMMERMAN



A MOMENT IN HISTORY

Armand J. Quick, MD, PhD, Develops the Quick Test for Blood Clotting (1935)

Armand J. Quick, MD, PhD, now remembered as an international figure in the scientific community for his discoveries in the area of blood coagulation, joined the Medical College of Wisconsin's predecessor institution (Marquette University School of Medicine) in 1935 as assistant professor of pharmacology. Born roughly 50 miles outside of Milwaukee in Theresa, Wisconsin, Dr. Quick returned to southeastern Wisconsin to practice medicine and conduct research after working for several years in New York City at what is now Cornell University's Weill Cornell Graduate School of Medical Sciences and NYC Health + Hospitals/Bellevue. It was there that Dr. Quick became fascinated with blood clotting and began working on a consistent test of the speed of coagulation.

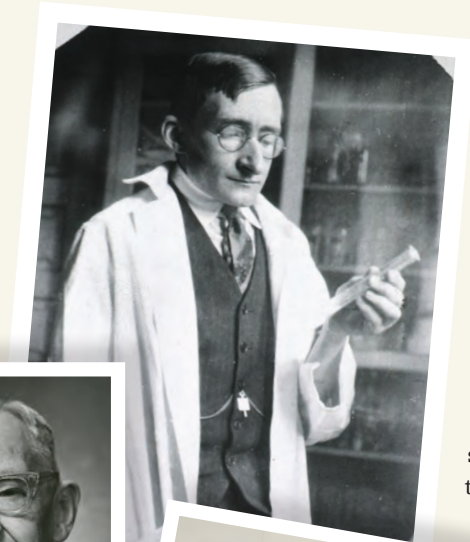
"There was a huge demand for this type of test, certainly in the case of bleeding disorders – but also for liver disease and other conditions that alter blood clotting," says Albert Girotti, PhD, professor of biochemistry at MCW.

Dr. Quick discovered a reagent and testing procedure that, once refined, consistently measured normal blood clotting time at 12 seconds – making it possible for clinicians to measure abnormal coagulation in a quick and affordable manner. These 12 seconds are known as "prothrombin time" because they measure the conversion of the coagulation factor protein prothrombin into the enzyme thrombin, which then actively catalyzes many key reactions required for blood cells to clump and clot. As noted by Dr. John Dirckx in an article published in *Annals of Internal Medicine* in 1980, "prothrombin time as determined by the now standard Quick method has proved to be one of the most constant measurements in human biology."

According to Dr. Girotti, the prothrombin time (or Quick Test) is still used today, albeit in a more sophisticated form. "It has many applications beyond bleeding disorders, including monitoring the proper dosage of blood thinning medications for preventing harmful blood clots," says Dr. Girotti. In addition to developing this important clinical test and serving as chair of the department of biochemistry at Marquette University's School of Medicine from 1944-1964, Dr. Quick

also developed the first quantitative test of liver function, made important findings in hereditary bleeding disorders, contributed to the discovery of the widely-prescribed anticoagulant drug Warfarin and created a tolerance test to identify patients sensitive to the anti-clotting effects of aspirin.

Dr. Quick died on January 26, 1978, and in 1982, MCW's department of biochemistry decided to honor his legacy by establishing the *Armand J. Quick Award* to recognize senior medical students who have demonstrated outstanding scholarship in biochemistry, an aptitude for scientific investigation and a dedication to conduct biomedical research in the future.



ABOVE RIGHT: Dr. Quick is shown about the time he first developed the Quick test for blood clotting.

ABOVE: Dr. Quick, from portrait taken at MCW in 1971.

RIGHT: Dr. Kittipongdaja, an MCW anesthesiology resident, was one of two recipients of the Armand J. Quick Award in 2014.



"It was a great surprise when I found out I had been selected for the award," reflects Wasakorn Kittipongdaja, MD '14, who was one of two recipients in 2014. "I find it interesting that, as an anesthesiology resident, I routinely use the prothrombin time test when preparing for surgeries with patients taking blood thinners," he adds. Dr. Kittipongdaja, like Dr. Quick before him, intends to be a physician scientist helping meet patients' acute needs while also dedicating himself to research that continues pushing forward at the frontier of medical knowledge. ■

– GREG CALHOUN



For more, visit mcw.edu/armandjquick



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