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QUARTERLY

The Magazine for Alumni, Friends, Faculty and Students of the University of Wisconsin School of Medicine and Public Health

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AUGUST 2019

Friday, August 23

Wednesday, August 28

SMPH White Coat Ceremony Memorial Union, Shannon Hall

M1 Stethoscope Presentation and Badger Cookout Health Sciences Learning Center

SEPTEMBER 2019

Friday, September 13

Middleton Society Dinner Memorial Union, Great Hall

OCTOBER 2019

Friday, October 11,

Fall WMAA Board Meeting and Saturday, October 12 Reunions for the Classes of 1974, '79, '84, '89, '94, '99, 2004, '09 and '14 Homecoming Football Game Wisconsin vs. Michigan State

Wednesday, October 30

Green Bay alumni event, Lambeau Field

NOVEMBER 2019

Saturday, November 9

Phoenix alumni and donor event in conjunction with the Association of American Medical Colleges' annual meeting

DECEMBER 2019

Tuesday, December 17

Unfazed Dinner with M2s and residents

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Reducing Opioid and Addiction's Impact

Faculty and staff aim to help quell the epidemic of substance abuse.



Campus Scene (above)

Colorful landscapes, including a garden of brilliant purple salvia, adorn the University of Wisconsin-Madison campus throughout the summer.

On the Cover

Medical school graduates (left to right) Caleb Hart, Jessica Chung and Matt Guerrieri celebrate near the Memorial Union, with the Red Gym in the background. —*Photo by Todd Brown, Media Solutions*

Rites of Passage

Medical school graduates celebrate their Match Day results and graduation as they look toward the future as physicians.

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Affective Neuroscience

The HealthEmotions Research Institute lauds 25 years of progress studying adversity, resilience and psychopathology.

ROBERT N. GOLDEN, MD



popular bumper sticker in the 1960s encouraged us to "Think Globally, Act Locally." The Wisconsin Idea carries a similar message: we want the impact of our school and university to extend throughout our state, and in doing so, we will advance the well-being of our nation and the global village. This issue of *Quarterly* contains several articles that echo the sentiments of that iconic bumper sticker.

We were delighted to welcome home a distinguished alumna of the University of Wisconsin School of Medicine and Public Health (SMPH), Dr. Mary Wilson. She has taken to heart the expansive view of the Wisconsin Idea and applied it during her groundbreaking international work that addresses the rise of drug-resistant infections. During her visit, she described her experiences working with populations in underdeveloped nations with limited resources. Dr. Wilson's career serves as an inspiration to our students and faculty as we continue to define what it means to be a school of medicine and public health. Another article describes an explosive epidemic—opioid and other addictions that is destroying the lives of people and communities across the United States. We are proud to describe the ways in which SMPH faculty members, departments and programs are addressing this devastating crisis. We hope their innovative work serves as a model for others.

The SMPH's 11th annual Bioethics Symposium focused on another critical health-related concern: the ethical dilemma related to the inclusion of pregnant women in clinical trials. The winner of the fifth annual student essay contest, Dr. Amelia Haj, then a fourth-year medical student, wrote about the two-sided coin of this complex issue. Her sophisticated analysis helped educate the educators who attended the symposium. This controversial topic has important local, national and global implications.

The Student Life article tells the story of a dedicated 2019 graduate, Dr. Mary Finta, who earned her medical degree through our Wisconsin Academy for Rural Medicine (WARM) program. During a study abroad program in Spain, her global health work sparked an interest in participating in rural health in the Midwest. Dr. Finta is entering one of the nation's best internal medicine residency programs in the nation—outside of ours, of course—and we hope to welcome her back home to Wisconsin after the completion of her training.

About 18 months ago, we welcomed to our faculty Dr. Stephen Meyn, an internationally renowned leader in personalized medicine and genomics. We were delighted to recruit him to lead the launch of our Center for Human Genomics and Precision Medicine. I believe you will enjoy reading his Perspectives column, which outlines his vision for this innovative program and its potential to have a meaningful impact on patients in Wisconsin and beyond.

The Middleton Society continues to have an enormous impact in advancing our educational and research programs. As described on page 25, we are celebrating the record number of individuals and families who joined the philanthropic organization in 2018.

As you read this column, we will have finally welcomed the transition from a long, cold winter into a glorious summer. This is a wonderful time to visit your alma mater! Whether you travel by land or by lake—perhaps docking your craft at the Alumni Pier near the Memorial Union on Lake Mendota—we will be delighted to add to your itinerary a personalized tour of your school of medicine and public health.

Robert N. Golden, MD

Dean, University of Wisconsin School of Medicine and Public Health Vice Chancellor for Medical Affairs, UW-Madison

DANIEL JACKSON, MD '03 (PG '10)

t is hard to believe that my first of two years as president of the Wisconsin Medical Alumni Association (WMAA) is coming to a close. As I reflect on the past year, I am truly humbled by the opportunity to represent this great University of Wisconsin School of Medicine and Public Health (SMPH). The year was bookended by the White Coat Ceremony, at which we welcomed the entering medical school class, and graduation, when we said farewell to the MD Class of 2019. The SMPH continues to attract talented people—the future is bright!

One of the highlights of the year was the WMAA Awards Banquet. This event was particularly special to me because one of my teachers (and my physician), Dr. Patrick McBride (MD '80, MPH), was honored with the WMAA Citation Award (see pages 20 and 21). The honorees and their collective accomplishments are really staggering. One cannot leave that event without feeling a tremendous sense of pride in the SMPH.

In 2018, the WMAA reached unprecedented success in boosting membership in the Middleton Society. Members of this philanthropic organization provide substantial support to the SMPH through student scholarships and support for programs during this time of stagnant state support for our school. These needs continue to grow, and to help address them, the WMAA has developed the "build your class fund" initiative, with a goal for every SMPH MD class to start a scholarship fund if it doesn't already have one. In the past eight years, 21 of our MD classes have taken on this challenge, and they've committed \$1.7 million to date. Nearly half of these

class scholarship funds have been created by our alums from the classes of 2012 through 2021. If you are interested in working with your classmates to establish a scholarship fund, please contact our superb staff at the WMAA.

We have an exciting Homecoming Weekend planned for October 11 and 12, 2019, when nine MD classes will celebrate reunions; they are the Classes of 1974, '79, '84, '89, '94, '99, 2004, '09 and '14. Please join us for events on that Friday, including a tour of the MedFlight hangar and aircraft and an opportunity to experience the ForWard Curriculum as a "medical student" for the afternoon. And, of course, we hope you will join us for the party on Friday night, as well as the tailgate and Wisconsin vs. Michigan State football game on Saturday.

Every time I read *Quarterly* magazine, I am struck by the amazing things that our alumni are doing and the fantastic accomplishments that occur every day at the University of Wisconsin School of Medicine and Public Health. We want to hear from you, our alums, so please tell us how your experiences at the school have helped you impact your community.

I am excited for the upcoming year. I hope to see all of you at our WMAA events, supporting this great school and the unique programs at UW-Madison. On, Wisconsin!

Daniel Jackson, MD '03 (PG '10)

President, Wisconsin Medical Alumni Association



Reducing Opioid and Addiction's Impact

OUTREACH, EDUCATION, ADVOCACY AND RESEARCH SUPPORT RECOVERY ccording to the National Institute on Drug Abuse, overdose deaths involving opioids in the United States rose from 8,048 in 1999 to 47,600 in 2017. The Midwest has been particularly challenged. As reported by the Centers for Disease Control and Prevention (CDC), between July 2016 and September 2017, opioid overdoses in the region jumped 70 percent, compared to an average national increase of 30 percent. In Wisconsin, emergency department visits for opioid overdose increased 109 percent—among the highest in the nation.

"Further contributing to the need for action and impact in our most vulnerable communities is the fact that 70 percent of rural Wisconsin counties lack any opioid treatment program or licensed buprenorphine prescribers," notes Randall Brown, MD, PhD '09, DFASAM (PG '04), associate professor, Department of Family Medicine and Community Health (DFMCH) at the University of Wisconsin School of Medicine and Public Health (SMPH). "And rural communities are home to more than 30 percent of our state's 5.8 million residents."

Aiming to be part of the solution to this crisis, faculty in several SMPH departments and programs dedicate their work toward raising awareness about and reducing the impact of opioid-use disorders and other addictions. A sampling of these programs is described below.

Outreach Events

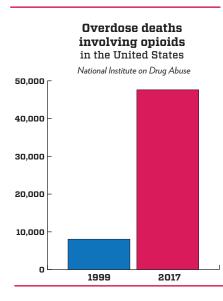
The SMPH and UW-Madison Division of Extension co-sponsored "A Multifaceted Approach to Addressing the Opioid Crisis in Wisconsin: Catalyzing Opportunities for Engaged Scholarship," in March 2019 at the Health Sciences Learning Center. Noting that the rise of opioid misuse to epidemic levels is deeply rooted in complex social, economic and medical systems and negatively impacts all sectors of society, speakers and panelists explored myriad factors of this issue.

"A problem as complex, insidious and deadly as the opioid epidemic requires strong collaboration among the full spectrum of Overdoses in the Midwest 2016-2017 Up 70%

diverse scholars, and that was clearly the case among participants," shares SMPH Dean Robert N. Golden, MD, who co-hosted the event with UW-Madison Division of Extension Dean Karl J. Martin, PhD.

Reflecting on the transformation of the SMPH—surrounding its 2005 name change—to become the nation's first school of medicine and public health, Golden adds, "We believe that the integration of medicine and public health in all of our missions allows us to tackle the most important, complicated challenges that affect the health and wellbeing of people in our state and beyond."

He continues, "Clearly the opioid crisis drives this point home. Only by bringing together public policy, population health perspectives and informed clinical practice can we tackle this beast, which has already devoured countless lives."



Sharing this philosophy, personnel from the UW Population Health Institute's Evidence-Based Health Policy Project hosted an open house at the State Capitol Assembly Parlor in May 2019 to help Wisconsin legislators, health care professionals and the public learn about opioid- and substance abuse-related work, including research, taking place at UW-Madison, and to give investigators a chance to learn from participants how best to focus their efforts.

Addiction Medicine Fellowship

In 2010, Brown established and began directing the multidisciplinary Addiction Medicine Fellowship in the DFMCH. Recognized as a National Model Program by the American Board of Addiction Medicine (ABAM), it is among the first programs in the nation created to train physicians to become board-certified in addiction medicine. Trainees learn strategies to prevent, assess and manage patients with substance-use disorders and related illnesses, focusing on medication-assisted treatment and evidence-based models for integrating addiction treatment into primary care and hospital settings.

As a member of the ABAM Board of Directors and its foundation, Brown advocated nationally for years in support of creating and accrediting addiction medicine fellowships. At the White House in 2016, he explained that it takes 17 years, on average, for evidence-based interventions to make their way into clinical practice and noted that only 11 percent of people with substanceuse issues who require treatment have access to appropriate specialty care.

He told the White House audience, "The combination of research and addiction medicine training ... benefits not only our fellows, but residents, medical students, community physicians and other service providers who thirst for the opportunity to examine this illness through a modern lens, with evidence-based interventions."

Noting that the Addiction Medicine Fellowship was accredited by the Accreditation Council for Graduate Medical Education in 2018, Brown says, "This fellowship has helped us move addiction medicine education more into the mainstream, so we are better able to improve the lives of individuals, families and communities struggling with addiction and related issues."

Consultation Hotline

Brown also leads the UW-Madison Addiction Consultation Provider Hotline, believed to be a national first, which provides daily on-call support to help Wisconsin primary care providers who seek support and direction to help their patients manage substance-abuse problems. Created through a grant from the Wisconsin Department of Health Services (DHS) and operational support from UW Health, the hotline's team consults about acute, clinic-based care of the full range of addictions—including alcohol, opioids, stimulants, marijuana and synthetics—and advises on long-term care and follow-up.

"The misuse of substances and the complications that flow from that misuse represent the single largest preventable and treatable contributors to morbidity and mortality in this state and nation," states Brown. "And research shows that appropriate care for these patients can be effectively delivered in primary care settings."

Brown's team worked closely with the Rural Wisconsin Health Cooperative and the Wisconsin Society of Addiction Medicine to launch the program, which has been available since summer 2018 on weekdays, 8 a.m. to 5 p.m., for Wisconsin providers at (800) 472-0111.

"We offer real-time support and expertise from specialists in addiction medicine and addiction psychiatry. I am confident that we can reduce the enormous suffering that substance abuse produces," asserts Brown.

Continuing Education

The Department of Surgery launched a pertinent telementoring series in March 2019. Offered for continuing education credits, the Safer Prescribing of Opioids after Trauma and Surgery (SPOTS) program focuses on best practices for physicians, nurses and other health care professionals. Copioid overdose ED visits in Wisconsin 7/2016-9/2017 UP 109%

SPOTS organizers note that most opioid naïve patients receive their first dose of opioids in conjunction with a medical procedure, and surgery and traumatic injuries are among the most common indications for a first prescription of opioid pain medications. Their goal is to help address prescribing practices to reduce opioid supply and first exposures.

Participants learn how to implement up-to-date, evidence-based guidelines for opioid prescribing for acute pain; identify and encourage the spread of opioid-related emergency health system innovations; and take part in clinical specialty collaboratives to develop methods for providing feedback to providers on opioid prescribing.

Similarly, the DFMCH offers a free monthly video-conference series called ACCEPT (Addiction and Co-morbid Conditions: Enhancing Prevention and Therapeutics) to connect addiction medicine experts with providers statewide. Led by Brown and funded by the Wisconsin DHS, the series follows the Wisconsin Project ECHO® model.

Originally developed by the University of New Mexico Health Sciences Department, the ECHO model helps experts effectively share knowledge at the community level. In the Wisconsin program, each session includes a collaborative, multidisciplinary case discussion and didactic presentation. As of January 2019, clinicians in 38 locations statewide have participated in the DFMCH's Project ECHO® videoconferences, which provide continuing education credits to physicians, nurses, pharmacists and pharmacy technicians who attend the live session.

"Through these conferences, we train providers, especially those in high-need, underserved areas, on evidence-based practices for opioid treatment and recovery. This improves individual patient outcomes and increases communities' capacity to support prevention and treatment strategies for opioid-use disorders," states Brown.

Connections with Public Health

Participation in community health engagement projects deepens medical students' understanding of local and regional issues that affect health care, health disparities and awareness of how community organizations work with the SMPH to address health priorities.

For instance, as part of the ForWard Curriculum, SMPH medical students can participate in a 12-week project through Wisconsin Voices for Recovery—a statewide network funded by Wisconsin DHS with support from the DFMCH—that offers education, connections to community resources and an advocacy platform focused on reducing stigma and promoting recovery.

A volunteer-run partner organization, Stop Heroin Now, provides funding for people who otherwise can't access coaching on recovery and sober living.

At a July 2018 Stop Heroin Now fundraising event—Drop the Needle—in Milwaukee, third-year medical student Bryce Tyler de Venecia conducted video interviews through which he heard stories that drove home the importance of destigmatizing addiction. He met people who had driven for hours to receive addiction treatment and those who had fought for years to get children back after overcoming addiction, and he learned about resources that helped them the most.

"Many people end up in the emergency department secondary to diseases of addiction," he notes. "As someone who wants to go into emergency medicine, it was great to see what these organizations do for policy and community outreach—all the tiers that it takes to enact public change." Membership in Wisconsin Voices for Recovery is free and open to anyone interested in improving recovery support services in Wisconsin, says Aleksandra Zgierska, MD, PhD (PG '05, '08), a DFMCH associate professor and the network's principal investigator (PI).

Its ED2Recovery Program awards seed funding to organizations involved with recovery so they can provide sustainable, peer-to-peer services for individuals with opioid-use disorder who are referred by emergency departments and other health care entities.

Innovative Research and Implementation

SMPH faculty members, some of whom also provide addiction-related clinical care, focus on research into prevention, treatment innovations and system-level improvements that can help ease addiction's impact on individuals, families and communities.

For instance, Zgierska is the PI of a U.S. Department of Justice-funded Madison Addiction Recovery Initiative. This city-wide program, conducted with the City of Madison Police Department, aims to divert individuals who committed a non-violent, minor drug-related crime from criminal justice to treatment.

Zgierska also is the PI on a five-year, multi-site clinical trial supported by the Patient-Centered Outcomes Research Institute to compare the effectiveness of mindfulness meditation with cognitive behavioral therapy in patients who have opioid-treated chronic low back pain. Although this type of pain is often treated with long-term opioid therapy, it does not work well for many patients and can cause serious side effects, including addiction and the risk of overdose. Many clinicians, patients and their families are interested in complementary and integrative treatments.

"Mindfulness meditation trains the mind to bring nonjudgmental and accepting attention to present-moment experiences, such as pain," explains Zgierska. "We hypothesize that training in mindfulness meditation will lead to a reduction in pain



Left to right: Andrew Quanbeck, PhD; Aleksandra Zgierska, MD, PhD (PG '05, '08); and Randall Brown, MD, PhD '09, DFASAM (PG '04), of the Department of Family Medicine and Community Health, are involved in several programs related to addiction medicine.

intensity and to improved function, and will result in better quality of life and help patients decrease opioid use."

For the trial, patients at UW Health, Brigham and Women's Hospital/Harvard Medical School and the University of Utah are randomly assigned to one of two eight-week treatment groups, either mindfulness meditation or cognitive behavioral therapy. Outcomes are being compared over 12-month periods, and investigators interview participants to gather information about the interventions' effects on pain, function, quality of life and opioid use.

In another study, Zgierska, Brown and Andrew Quanbeck, PhD, an assistant professor in the DFMCH, are collaborating on a National Institutes of Health-funded project aimed at better integrating opioid prescribing guidelines into 38 Wisconsin primary care

> By distilling guidelines and coaching teams, opioid doses were

down 11% clinics. This project is building on a pilot study, which determined that distilling clinical guidelines into an implementation guide, along with six months of coaching for clinical teams at four family medicine clinics, resulted in an 11 percent reduction in opioid doses in those clinics.

"Clinical guidelines are often difficult for practitioners to interpret and hard to implement. This is meant to be a model that could be used nationwide," says Quanbeck.

Further, Brown is the PI for Screening in Trauma for Opioid Misuse Prevention (STOMP), a Wisconsin Partnership Programfunded study to assess the needs of victims of traumatic injury, who often are prescribed opioids for pain. The research team developed a screening tool to predict risk for opioid misuse and related complications after traumatic injury. As they pilot the tool at University Hospital in Madison and four Wisconsin trauma centers, they are studying the number of procedures the patient had, the severity of pain upon discharge, the patient's social support network and post-discharge opioid-use patterns, among other factors.

Brown concludes, "Ultimately, if we can learn how to identify and support people at risk for opioid misuse, we can reduce the risk of addiction, overdose and death and be one step closer to solving Wisconsin's opioid crisis." PHOTOS BY TODD BROWN

Rites of Passage

CELEBRATING MATCH RESULTS AND MD GRADUATION

n their final months at the University of Wisconsin School of Medicine and Public Health (SMPH), medical students celebrated two exciting rites of passage: Match Day and graduation, March 26 and May 10, 2019, respectively.

In total, 189 students graduated from the MD program. Of them, 24 were part of the Wisconsin Academy for Rural Medicine (WARM); 16 were part of the Training in Urban Medicine and Public Health (TRIUMPH) program; 11 were in the Medical Scientist Training Program (MD-PhD); and 11 earned dual MD and Master of Public Health (MPH) degrees.

Brittany McAdams earned her MD and MPH degrees and will be heading to Oregon Health and Science University with her classmate and husband, Max Rusek, for their residencies.

"I feel immense gratitude for the quality and depth of my peer group, and all of the inspiring mentors who I met throughout my five years at the SMPH. These relationships have shown me a model for blending clinical care and public health, and have been foundational for my decision to become a family medicine physician," says McAdams.

The graduation ceremony included speeches by faculty members and students chosen by the 2019 MD class. Among them was Matt Guerrieri, who provided the student address. His key message was to bear witness to and be present for people in their most vulnerable moments.

"The value of being humble is one of the most important lessons we have learned," Guerrieri told his classmates.

















Top row (left to right): Sarah Weiss, Sherry Tang; Thuy-Linh Nguyen and family. Second row: Katherine "Katie" Pellino being hooded by Meghan Cotter, PhD, and Sana Waheed, MD; Chinou Vang being hooded by Cotter and Waheed; Christine Seibert, MD (center), WMAA President Daniel Jackson, MD '03 (PG '10). Third row: Charles "Patrick" Bach, Kimberly Aut; Kofi Fosu. Bottom row: Joohee Son and family.



EDIA SOLUTIONS

FEATURE STORY

Richard J. Davidson, PhD (left), and Ned H. Kalin, MD (PG '79), met in the early 1980s as new faculty members. Twenty-five years ago, they co-founded the annual Wisconsin Symposium on Emotion, which continues to attract a broad array of presenters and learners in the fields of psychology and psychiatry.

Affective Neuroscience

25 YEARS OF PROGRESS STUDYING ADVERSITY, RESILIENCE AND PSYCHOPATHOLOGY

Level by passion for their complementary fields of study, 25 years ago, Ned H. Kalin, MD (PG '79), and Richard J. Davidson, PhD, founded and hosted the Wisconsin Symposium on Emotion. Each year since then, that passion has been palpable among participants, including psychiatrists, psychologists, scientists, clinicians, mental health professionals and all levels of trainees.

Such was the case in April 2019, when nearly 300 participants from within and beyond the University of Wisconsin-Madison gathered at Union South for a two-day meeting of the minds, sponsored by the HealthEmotions Research Institute (HERI) and co-hosted by Kalin and Davidson.

"The 25th annual symposium attracted leading experts to share insights on a range of topics related to the neurobiology of emotion and the complex interplay between the brain, psychiatric illness and health," explains Kalin, the Hedberg Professor and Chair of the Department of Psychiatry at the UW School of Medicine and Public Health (SMPH) and director of the HERI.

The event's focus on affective neuroscience—the study of the neural

mechanisms underlying emotion—drew participants who are interested in the interdisciplinary field that combines neuroscience with the study of emotion, mood, personality, attention, learning, cognition and behavior.

At the symposium, internationally renowned experts tell one-hour stories about their research programs, giving the audience a glimpse into their processes, findings and intellectual trajectories. This format, followed by a discussion period led by Wisconsin trainees, offers a unique opportunity for scientists and clinicians-in-training to interact with leaders in affective neuroscience. Poster sessions and break-out sessions provide further opportunities for developing researchers to learn, receive feedback and network, notes Davidson, the William James and Vilas Professor of Psychology and Psychiatry.

Another highlight of the meeting—its competitive Travel Award Program—boosts attendance among student researchers from throughout the United States. Grants allow 25 of the next generation of scholars to attend and present their research posters.

In the words of a 2019 travel award winner, Patricia Pehme, "It was one of the

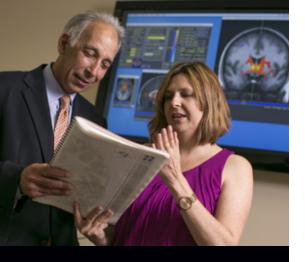
most exciting, intellectually stimulating and fun conferences I have attended."

A doctoral student at the City University of New York, Pehme adds, "Many conferences claim to be 'trainee-friendly,' however, they remain impermeable to budding attendees. Here, I felt welcomed and respected as an aspiring professional. . . . All the wonderful speakers made us feel like we belonged by giving a platform to speak intimately with leading thinkers and fellow trainees—an indispensable opportunity to boost our confidence and stir the wheels of creativity, which then gives harvest to good science."

Kalin and Davidson note that the Symposium on Emotion helped establish UW-Madison as a world leader in emotion



Symposium participants share their knowledge.



Spotlight: Kalin

Ned H. Kalin, MD (PG '79)—pictured above, on the left, with Lisa Williams, PhD, a scientist in the Kalin laboratory—is an international leader in the field of biological psychiatry and a pioneer in the pathophysiology of mood and anxiety disorders. He is the new editor in chief of the *American Journal of Psychiatry*, the premier scientific journal of the American Psychiatric Association.

Kalin joined the SMPH faculty in 1981 and has served as chair of the Department of Psychiatry for the past 28 years—making him the longest standing department chair at the SMPH. He is the director of the HealthEmotions Research Institute and Lane Neuroimaging Laboratory, and an affiliate scientist at the Wisconsin Regional Primate Research Center and the Harlow Primate Laboratory.

In 2015, Kalin was elected to the National Academy of Medicine, and in 2017, he was inducted as a Distinguished Life Fellow of the American Psychiatric Association. He is the principal investigator for several ongoing National Institutes of Health-funded research projects, has published more than 200 peerreviewed journal articles, and has received numerous national and international awards.

Kalin is a world-renowned expert in translating basic behavioral neuroscience studies for the understanding of psychiatric illnesses. His lab utilizes molecular, genetic, behavioral, physiological and multimodal neuroimaging methods in humans and nonhuman primates. His experience puts him in a position to aid in initiatives focusing on improving the mental health of the nation. and health research. Over the past 25 years, the symposium has attracted more than 700 travel award winners from over 300 institutions worldwide, including 40 states, the District of Columbia and Puerto Rico; six Canadian provinces; and 40 countries.

"The innovative program has provided an unparalleled opportunity for some of the best and brightest young clinicians and scientists-in-training to network with peers and learn from leading scholars in emotion research. Participants come away with renewed focus and inspiration for their research and academic pursuits, often with novel ideas on possibilities," says Davidson, who credits the symposium's dedicated co-sponsors over the years with its success.

At the 2019 event, SMPH Dean Robert N. Golden, MD, greeted attendees and congratulated Kalin and Davidson on their contributions as leaders in this field.

"Their work has had profound consequences for our understanding of the biology of emotion, our concept of health, the prevention of disease and the promotion of resilience. The work of these scholars is emblematic of the Wisconsin Idea—the notion that our discoveries will benefit the people of our state, the nation and the world," Golden told the participants.

Kalin and Davidson met as new faculty members in the early 1980s. Although they came from different academic backgrounds—medical research and psychiatry for Kalin and psychology and neuroscience for Davidson—they quickly discovered a shared interest in understanding the complex relationship between the mind, disease and health.

"In the academic world, there seems to be an unnecessary chasm between the disciplines of psychiatry and psychology, which made our alliance unique," observes Kalin.

Davidson describes the era when these collaborations began as "a time when we were just beginning to get a glimpse into the human brain in more detail, propelled by developments in neuroimaging."

He explains, "For the first time, using MRI, we were able to view the structure of

the brain in detail and assess the function of specific brain regions."

Further, as the understanding of the human genome increased, it provided more tools that helped give insight into how the heritability of people's traits and emotional styles influenced their risks to develop psychiatric problems.

"The idea of studying emotion was not at the forefront. Emotion was seen, more or less, as a derivative of bodily functions and stress, and the focus was predominantly on perception, cognition and mechanisms related to learning," Davidson explains. "Ned and I were among the first scientists in the world to study the neural mechanisms of human emotion."

In 1993, building on this dual focus and with philanthropic support from the Hedberg family, they co-founded the HERI. It calls upon state-of-the-art methods developed for the study of illness to analyze relationships between emotions and health. Recognizing that understanding how states of mind influence the body is part of the next great frontier in brain research, HERI investigators aim to influence the overall understanding of the biology of emotion, concepts of health, prevention of disease and promotion of resilience.

Around this time, Davidson received a training grant from the National Institute of Mental Health (NIMH), which supports faculty in psychiatry and psychology and funds trainees who participate in discussion panels at the annual symposium. The T32



In the Lane Neuroimaging Laboratory, created through philanthropic support from the Lane family, researchers are able to study, in detail, the structure and function of the brain.

grant, for which Davidson has served as principal investigator for more than 20 years, is the longest standing training grant on emotion research at the NIMH.

Davidson and Kalin's alliance influenced the trajectory of their careers and spurred collaboration between the UW-Madison Department of Psychology and the SMPH Department of Psychiatry; established a strong foundation for philanthropic support; and broadened opportunities for connections with other disciplines—such as the Neuroscience Training Program, which



Left to right, Richard J. Davidson, PhD, Don Hedberg and Ned H. Kalin, MD (PG '79), celebrate the opening of the HealthEmotions Research Institute building, funded by the Hedberg family.

trains students for careers in research and teaching through doctoral degree work in neuroscience or MD/PhD degrees.

Kalin and Davidson gravitated toward studies that would provide a better understanding of the risk for psychiatric problems and negative impacts to physical health, as well as the flip side of examining the interplay between positive emotion and resilience in promoting longevity and health.

"We now understand that both negative and positive emotions are critical to our physiology and how we experience the world," says Kalin, who stresses that these insights have resulted from studies not only in humans but also in animals, including the valuable use of nonhuman primates.

"Imaging lets us know which brain areas and mechanisms are involved in emotion processing, and animal models allow us to test hypotheses about the causal involvement of specific cells and neural circuits that relate to adaptive and maladaptive behavior, emotion and psychiatric illnesses," he explains.

Federal grants, private donations, and SMPH and UW-Madison support combine as the foundation for Kalin and Davidson's work. Case in point, the HERI building funded by the Hedberg family—is home to the Wisconsin Institute for Sleep and Consciousness, Wisconsin Sleep and the Lane Neuroimaging Laboratory.

"Philanthropic support has made an extraordinary difference," observes Kalin. "It has provided seed funding which allowed us to acquire the crucial resources that made these developments possible."

He adds, "Thanks to support from the Lane family, the Department of Psychiatry is the only department in the nation with a 3T MRI scanner housed in immediate proximity to our clinics, allowing us to work with patients in a clinic and enter them into research projects to study brain alterations that underlie their suffering, with the goal of developing better treatments."

Another advancement is the creation of the Center for Healthy Minds, which Davidson founded 10 years ago as his work focused increasingly on the scientific study of well-being and meditation, and how mindfulness and other ancient practices can be harnessed to help people flourish.

"By studying the mind in both illness and health, and examining the role that both negative and positive emotions play in brain functioning, we are developing a more comprehensive understanding of the complex relationship between emotions, health and illness," says Kalin. "It is important to understand the mechanisms underlying anxiety and depression so we can develop better prevention and treatment strategies, including early interventions."

Davidson concludes, "Equally, it's valuable to understand the mechanisms underlying positive qualities of the mind—such as kindness and gratitude—which can play an important role in the process of recovering from psychological disorders because they can be cultivated to support healthy minds and thriving communities."

There's more online!

psychiatry.wisc.edu/research/heri



Spotlight: Davidson

Richard J. Davidson, PhD, is best known for his groundbreaking work studying emotion and the brain. A friend and confidante of the Dalai Lama (pictured with Davidson), he is highly sought after as a speaker, leading conversations about well-being on international stages such as the World Economic Forum, where he serves on the Global Council on Mental Health. In 2006, *Time* magazine named him among "The 100 Most Influential People in the World."

His research is broadly focused on the neural bases of emotion and emotional style, as well as methods to promote human flourishing, such as meditation and related contemplative practices. His studies have centered on people across the lifespan. He also has conducted studies with individuals with emotional disorders—including mood and anxiety disorders and autism as well as expert meditation practitioners. His research uses a wide range of imaging methods.

Davidson has published hundreds of scientific papers, and many chapters and reviews. He is the co-author, with Sharon Begley, of *The New York Times* bestseller *The Emotional Life of Your Brain*. He has been featured widely in popular media, including *National Geographic Magazine, Time* magazine, and additional national and international news outlets.

Davidson earned his doctorate in psychology at Harvard University. He has received numerous awards, including the Distinguished Scientific Contribution Award from the American Psychological Association. He was elected in 2003 to the American Academy of Arts and Sciences; in 2004 to the Wisconsin Academy of Sciences, Arts and Letters; and in 2017 to the National Academy of Medicine.



Know Your Class Representatives

Each University of Wisconsin School of Medicine and Public Health (SMPH) graduating class has one or more class representatives who play an integral role in working with the Wisconsin Medical Alumni Association (WMAA) to plan class reunions. Those featured here and online hope classmates will join them at their reunions in fall 2019. To view more entries, please visit med.wisc.edu/class-reps

Milton McMillen, MD '74

What type of practice are you in now, and where?

I established my emergency medicine career in La Crosse, Wisconsin, at

St. Francis Hospital, which became part of



the Mayo system. I worked in La Crosse and Sparta until I retired in 2014, and I continued as supplemental staff through 2017. I was able to see patients with a variety of medical conditions; teach American Heart Association (AHA) life support classes; train paramedics; and participate in Wisconsin leadership endeavors with the AHA and the American College of Emergency Medicine. I was the first emergency physician to become the chief of staff for St. Francis Medical Center.

What's your fondest memory of medical school?

I'll always remember working with my anatomy tank partners; playing cards over lunch; seeing patients at the Veterans Administration and Mendota hospitals; and learning with such a great group of classmates and teachers.

What are your hobbies/interests?

My partner and I have a fleet of colorful late '50s to early '60s restored cars that we take to shows, and we live in an 1886 lumber baron's Queen Anne Victorian home that we restored in La Crosse. We also have a winter home in California. We stay active with gardening, hiking and an occasional boat outing on the Mississippi River.

What SMPH faculty do you remember the most, and why?

I recall many experiences with the legendary Drs. Otto Mortenson, Helen Dickie and William Middleton.

What are your plans for your reunion?

Our reunion will include festivities planned by the WMAA—we'll have special tables for our gatherings—and the Badger football game. Hopefully, our classmates have more freedom now to attend. It has always been delightful to catch up and renew friendships. I believe we all would like to see what we look like in our maturity and share memories.

Other updates

After my medical training, I was quite career oriented until I came to accept being gay. I was fortunate to meet my life partner, Paul, 32 years ago.

Ann Bartos Merkow, MD '79

What type of practice are you in now, and where?

I completed my internship at Boston City Hospital and my residency at Hennepin County Medical Center in Minneapolis. After

working with my father in private practice, I joined QuadMed in West Allis, Wisconsin, to see complex patients with multiple chronic problems. I am now the senior medical director and care for retirees with complex medical needs.

What's your fondest memory of medical school?

One of my funniest memories is when my husband, Steve Merkow (MD '80), raised his hand in class and asked if I would marry him, when he was a second-year medical student and I was presenting to his class about what it was like in the clinical years. We'll celebrate our 41st anniversary in 2019.

What are your hobbies/interests?

We have four children and one grandchild. Our children all work and/or are training in health care fields. My life is focused first on them and our strong family unit, and second on my career. In my "spare time," I like to participate in a long-standing reading group, tootle on Beaver Lake, cook and enjoy fine wine. I was a tomboy and an athlete when it was totally "uncool," and I love to watch Wisconsin college and pro sports.

What SMPH faculty do you remember the most, and why?

I enjoyed participating in the Independent Study Program. I loved Dr. R.H. Wasserburger, who taught me how to read ECGs, and I enjoy being the ECG expert in my workplace.

What are your plans for your reunion?

As we approach the end of our active careers, let's reminisce and reconnect. Relationships are everything!

Other updates

My husband and I support the Stethoscope Program and other aspects of the SMPH and WMAA. We feel good supporting the medical students and reading their notes. We encourage you to help give others the chance to have what you have and do what you do.

Kathryn Schaus, MD '89

What type of practice are you in now, and where?

I have been a general pediatrician with Marshfield Clinic since 1993, first in Chippewa Falls and now in Hayward, Wisconsin.



As the only pediatrician in this rural area, I love the patients and families, and I feel fortunate to live and work in the northwoods!

What's your fondest memory of medical school?

My best memories are the Friday night parties, at which our medical school class band provided the musical entertainment!

What are your hobbies/interests?

I have a blended family, with six adult children and six grandchildren, which keeps my husband and me busy! In our spare time, we love to cross-country ski, run, bike, swim, camp and paddle. I am on the board of directors for the American Birkebeiner Ski Foundation, and we participate in its annual cross-country ski race. I also enjoy cooking, traveling and gardening.

What SMPH faculty do you remember the most, and why?

I most remember Dr. Bill Segar, our class mentor. I recall how he would connect what we were learning with a clinical perspective.

What are your plans for your reunion?

We had a very fun and close class! Please put this year's 30-year class reunion on your calendar! It seems that three decades have gone by in the blink of an eye! It will be great to reconnect and share memories.

Nikhil Wagle, MD '94

What type of practice are you in now, and where?

I am an ophthalmologist specializing in glaucoma and cataracts at Eye Surgeons Associates, a large eye-care group in the Quad Cities of Iowa

and Illinois, where I have been practicing for the past 20 years.

What's your fondest memory of medical school?

Memories that stick out the most are orientation week (when we met our small groups), TGIF gatherings and Match Day.

What are your hobbies/interests?

I am the president of the Pleasant Valley Community School District in Bettendorf, Iowa, and was appointed by the governor to serve on the Iowa Board of Medicine. I also serve on the boards of our local hospital and ambulatory surgery center. Along with work and my family, all of this keeps me busy!

What SMPH faculty do you remember the most, and why?

All of the faculty members in gross anatomy and histology were nurturing and shared their enthusiasm about their disciplines.

What are your plans for your reunion?

I'm excited about the Friday night reception, the Saturday pregame festivities and the Homecoming game. I also hope we can arrange a get-together after the game at a memorable venue, such as the Memorial Union. Please plan to attend our 25-year reunion so we can talk about our progress in our careers and personal lives, and reminisce about memorable times we had at the SMPH!

Kent Kramer, MD '99

What type of practice are you in now, and where?

I recently transitioned from full-spectrum family medicine with emergency medicine to exclusively emergency



medicine. I practice at Southwest Health in Platteville, Wisconsin.

What's your fondest memory of medical school?

I'll never forget the first day of gross anatomy when two classmates passed out. Getting to know classmates during those early mornings was pretty spectacular.

What are your hobbies/interests?

I enjoy any activity involving my wife and kids. I appreciate fine woodworking, campfires, bow hunting, basketball and Badger athletics.

What SMPH faculty do you remember the most, and why?

Dr. Philip Farrell always was approachable and interested in who we were as individuals and what we were experiencing as trainees. Through the HealthStar initiative, he was instrumental in developing what would become the new campus and the integrated UW School of Medicine and Public Health.

What are your plans for your reunion?

I plan to reconnect with as many friends as possible on the Friday and Saturday of Homecoming Weekend. I don't use Facebook, so a reunion is pretty essential for me.

Message to your classmates?

I think we all took a little piece of each other with us when we left campus 20 years ago. Let's leave work behind for a weekend and meet up for the alumni reunion, at which we can relive some of our great memories!

CLASS REPRESENTATIVES WHO ARE PLANNING REUNIONS

These classes will hold reunions on Friday and Saturday, October 11 and 12, 2019.

1974: Milton McMillen 1979: Ann Bartos Merkow, Susan Turney 1984: Mark Fenlon 1989: Kathryn Schaus, Jeanine Swenson 1994: Nikhil Wagle 1999: Kent Kramer 2004: Jen Foster, Andy Kastenmeier 2009: Rachel Loomans, Crystal Weis 2014: Trista Stankowksi-Drengler, Barrett Wagner



There's more online! med.wisc.edu/oncall

Kimberly Stepien, MD '02, director of the Adult Inherited Retinal Degeneration Clinic, examines a patient at the UW Health University Station Eye Clinic.

WILLIAM F. MIELER, MD '79

ollowing medical school and an internship, I completed an ophthalmology residency at the Bascom Palmer Eye Institute in Miami. I then completed a vitreoretinal surgery fellowship at the Medical College of Wisconsin in Milwaukee and an ocular oncology fellowship at Wills Eye Hospital in Philadelphia. I have been involved in academic ophthalmology for my entire career, and currently I am the Cless Family Professor of Ophthalmology, vice chair for education, head of ocular oncology, and director of the Vitreoretinal Fellowship Program

at the University of Illinois at Chicago. My interests are in the diagnosis and management of complex retinal diseases and ocular tumors, as well as vitreoretinal surgery.

During medical school, I became fascinated with the eye, and during my residency, I began to focus on the retina. Advances in technology for microsurgical intervention and pharmacologic treatment of many conditions have been astounding.

Over the years, I have had the opportunity to work with many great ophthalmologists at wonderful academic institutions. This has led to authorship of 370 scientific papers, 88 book chapters, and seven textbooks, including most recently Macular Surgery (2019). I have presented 28 named lectures, participated in more than 60 scientific grants and collaborative studies, and been a co-investigator on National Institutes of Healthfunded studies. I served as chair of the American Board of Ophthalmology and president of the Association for Research in Vision and Ophthalmology. I am a member of the board of trustees for the American Academy of Ophthalmology, and serve on the council for the American Ophthalmological Society.



My wife, Jennifer J. Kang-Mieler, PhD, is a biomedical engineer, and we have conducted numerous collaborative research projects dealing with ocular drug delivery. While I have not been back to Madison for a few years, I always monitor UW-Madison activities. Go Badgers!

AMY MOSCHELL, MD '98

or the past 16 years, I have been practicing ophthalmology in an independent practice located in West Allis, Wisconsin. I started as an employee of the practice and am now the majority owner.

I am thankful that the University of Wisconsin School of Medicine and Public Health allowed us to experience ophthalmology as a clinical rotation during medical school. I knew that I wanted to pursue a specialty with a surgical component and quickly realized that ophthalmology would offer a great mix of clinical, surgical and technology elements. During my ophthalmology residency at Saint Louis University, I decided to pursue general ophthalmology with a focus on cataract surgery. It has been an honor to help patients have a better quality of life through improved vision. The constantly improving technical advances in cataract surgery have kept the field exciting.

Daily, I see a wide variety of patients—from those who come to the clinic for everything from routine, healthy exams for glasses to those who are severely ill with ophthalmologic manifestations of systemic diseases. Because my practice is located in a hospital, I see a wide variety of emergent eye issues referred from primary doctors' offices, the emergency room and the inpatient wards. This allows me to have a mix of autonomous practice and collaboration with other physicians.

One of my most memorable patients is someone who I diagnosed with a brain tumor at age 6. Fortunately, I have been able to see her heal, grow and thrive for the past 12 years.

I have memberships in national and local ophthalmology organizations to help keep me up to date on the practice of and politics surrounding medicine.



For me, the field of ophthalmology has allowed an awesome mix of practicing medicine, owning a business and maintaining a work-life balance.

MARY JO OYEN, MD '93 (PG '97)

fter I completed an internal medicine internship and ophthalmology residency at UW Health, I moved back to my hometown, Platteville, Wisconsin, and have practiced ophthalmology in a community hospital for 21 years. I first practiced with Davis Duehr Dean in Platteville, Lancaster and Dodgeville. Since Dean was sold to SSM, I have worked for Southwest Health Center in Platteville and continue to care for many of the same patients.

I have a comprehensive practice, and the majority of my surgical cases are cataracts. This type of surgery has become refractive in nature. We correct astigmatism with toric lenses, and multifocal lenses are able to give patients good near and distance vision. I also do various glaucoma surgeries.

I have had amazing experiences when I operated in India, the Philippines, Kenya, Brazil, Kosovo and Belize. My most memorable case, as a senior resident, was when I was teaching phacoemulsification to a Filipino ophthalmologist and the case got complex, requiring teamwork to finish it. We had to improvise making and modifying instruments as we went. The patient had a great outcome. It was truly a case of "see one," "do one," "teach one." Serving those less fortunate really puts

everything into perspective and outlines why I went into medicine. Operation Blessing and the Mercy Ships are great organizations.

I'm a fellow of the American Academy of Ophthalmology and a member of the Christian Ophthalmology Society.

While I had considered various specialties, I chose ophthalmology because I wanted to serve people of a variety of ages and provide both medical and surgical care. I also needed work-life balance because I started medical school with two sons under age 5, and I had a daughter while I was in medical school. Now that our children are



grown, we have been blessed with 10 grandchildren.

I encourage medical students to pursue the desires of their hearts because we spend so much time at work.

I think ophthalmology is a great opportunity to be a blessing to patients by restoring or preserving their sight. We take a lot of things for granted in the United States, but cataracts are still the leading cause of blindness in the world.

Class Notes compiled by Andrea Larson

We want to hear from you! med.wisc.edu/shareyournews

Class of **1958**

Darold Treffert was

awarded the Wisconsin Medical Society's highest honor—the Director's Award—in April 2019. A past society president and board chair, Treffert is a



world-renowned expert on autism and savant syndrome. The Director's Award is granted only on occasion to those who have served with outstanding distinction the art and science of medicine, their fellow physicians and the public. Treffert was recognized for his groundbreaking research, education and public outreach regarding autism, savant syndrome and hyperlexia. In 2016, he and Agnesian HealthCare opened the Treffert Center as a place for individuals, families and communities worldwide to explore the potential of the human mind, focusing on strengths rather than limitations. He also has been instrumental in developing the Treffert Way School for Exceptional Minds, which is scheduled to open in the North Fond du Lac (Wisconsin) School District in fall 2019.

Class of **1971**

George Pantely

earned the Health Volunteer Overseas (HVO) Golden Apple, an award to recognize and thank individuals and health educators who make exceptional

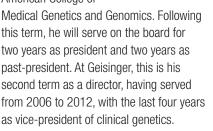


contributions toward improving global health. A cardiologist with a special interest in cardiac ultrasound, Pantely regularly travels to several HVO internal medicine project sites. Since joining HVO in 2010, he has completed 11 volunteer assignments in six countries, including Bhutan, Cambodia, Costa Rica, Nepal, Nicaragua and Peru. Two of these assignments were to conduct site assessments to determine the viability of new HVO projects. In his work overseas, Pantely has become an advocate for bedside ultrasound as an extension of the physical examination; he teaches the technique overseas. Pantely plans to return to Cambodia and Nepal in 2019. He is an active member of the HVO Internal Medicine Steering Committee. In addition, he and his wife have staffed the HVO booth at the American College of Physicians' annual meeting for several years. Colleagues note

that Pantely contributes to HVO's Internal Medicine Program as a superb teacher and advocate of its activities around the world.



Marc Williams, director of the Genomic Medicine Institute at Geisinger in Danville, Pennsylvania, began a two-year term as president-elect of the American College of



Editor's note: On page 12 of *Quarterly*, Volume 21, Number 1, 2019, we listed an incorrect date. V. Craig Jordan, PhD, developed tamoxifen as a breast cancer drug, with much of this work being done while he worked at UW-Madison in the 1980s and early 1990s.

IN MEMORIAM

Alfred J. Herlitzka, MD '51 Mason City, Iowa February 9, 2019

Donald L. Wood, MD '54 Eagle River, Wisconsin April 13, 2019 Marvin L. Hinke, MD '55 Minneapolis, Minnesota February 1, 2019

Monte H. Liebman, MD '57 Milwaukee, Wisconsin April 16, 2019

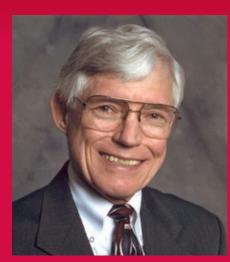
Douglas D. Dahl, MD '58 Great Falls, Montana February 5, 2019 Reynolds A. Frank, MD '60 Spokane, Washington February 20, 2019

Carl E. Natter, MD '60 Portland, Oregon April 2, 2019

James S. Shafer, MD '63 Covina, California March 15, 2019 Lee L. Dannenberg, MD '69 Devil's Lake, North Dakota May 2, 2019

Jeffrey R. Kunz, MD '77 Monona, Wisconsin April 1, 2019

Goodbye Dear Friend JAMES WALTER JEFFERSON, MD '64 (PG '67, '74)



ames Walter Jefferson, MD '64 (PG '67, '74), age 81, died on March 31, 2019, at his home in Captiva, Florida. Known as "Jeff," he was a professor emeritus in the University of Wisconsin School of Medicine and Public Health's (SMPH) Department of Psychiatry.

A native of New York, Jefferson earned his medical degree from the SMPH, where he was inducted into Alpha Omega Alpha. Following his internship at St. Luke's Hospital, New York City, he completed an internal medicine residency at UW Hospital and Clinics (now UW Health) and a cardiology fellowship at the University of Chicago. Jefferson served as a research cardiologist in the U.S. Army and went on to complete a psychiatry residency at UW Health.

"Dr. Jeff Jefferson was a consummate clinician, colleague, academician, gentleman, husband, parent and friend," notes John Greist, MD (PG '69, '71), professor emeritus, SMPH Department of Psychiatry, who worked with Jefferson for 53 years except during sabbaticals and military service.

Jefferson had a distinguished career in clinical medicine, teaching and research that spanned more than five decades. While at the SMPH, he also was the president of Healthcare Technology Systems in Madison, Wisconsin, and a distinguished senior scientist at the Madison Institute of Medicine.

"Dr. Jefferson taught generations of psychiatrists how to provide high-quality, evidence-based care to people suffering from mental illness. He was widely seen as an expert in the use of lithium, the gold standard treatment of bipolar disorder," says Art Walaszek, MD, professor, Department of Psychiatry. "His background in cardiology helped inform an approach that took into account medical and psychiatric problems, as well as their interactions."

Jefferson evaluated the effects of lithium on the heart, brain, kidney, skin, liver, blood cells and other organs. He played a leading role in understanding how to manage its risks, which made it possible for millions of patients with bipolar disorder worldwide to be effectively and safely treated with lithium. In 1973, he established the Lithium Clinic at UW Hospital and Clinics.

Calling Jefferson a highly valued member of the Department of Psychiatry, with a wry sense of humor, and noting that he collected the rapidly growing literature on the use of lithium, Ned H. Kalin, MD—chair of that department and Hedberg Professor at the SMPH—credited him for bringing the scientific basis of psychopharmacology to a multitude of medical students and psychiatry residents when the use of medications to treat mental illness was taking hold.

"Dr. Jefferson developed the well-known Lithium Information Center, which developed an international reputation because the use of lithium was new and could be difficult to administer, with serious side effects," says Kalin, adding that the center ultimately contained more than 40,000 articles for patients and professionals.

Jefferson published many articles in major journals, created patient guides and co-authored notable books, including, in 1973, *Primer of Lithium Therapy*.

Walaszek adds that Jefferson and Greist developed and ran a successful continuing medical education conference, a tradition the Department of Psychiatry now maintains.

Jefferson received numerous awards and traveled the world to lecture on many topics on all seven continents, including twice in Antarctica.

His wife, Susan Jefferson, recalls a 2003 trip they took to West Virginia, where they visited numerous springs, including Lithia Springs. Some of the springs had been discovered in the 1700s, and by the 1850s, people had built resorts around them. There, the couple collected lithia water bottles and other artifacts for his historical collection which includes commonly available products that contained lithium, such as beer and soft drinks—some of which are pictured below.

A Celebration of his Life will be held on Wednesday, August 21, 2019, 5:30 to 8 pm, at Blackhawk Country Club in Madison.



WMAA Awards Banquet MCBRIDE, TARIOT AND NADEAU TAKE TOP HONORS

t the Wisconsin Medical Alumni Association (WMAA) Awards Banquet in April 2019, several notable alumni, faculty and staff of the University of Wisconsin School of Medicine and Public Health (SMPH) received awards. See the full list on the next page, and read here about the top three award winners.



PATRICK E. MCBRIDE, MD '80, MPH

An SMPH emeritus professor, McBride (pictured to the right of Dean Robert N. Golden, MD) earned the Medical Alumni Citation–Distinguished Alumni Award, which honors an MD alum who has achieved distinction in academic activities and in the practice of medicine.

"Dr. McBride—a wonderfully accomplished physician, educator and researcher—has had an enormous impact locally and nationally over several decades. Myriad programs, awards, grants, curricula, publications and clinical guidelines are associated with his name, particularly in the field of preventive cardiology, which he helped launch," says Golden. "His legacy includes his passionate mentoring of countless medical students, residents and faculty members at the UW School of Medicine and Public Health."

Having dedicated his career to the SMPH's missions of education, research and clinical care, McBride has long been a champion and role model for integrating medicine and public health, and was one of the leaders to help transform the school into the UW School of Medicine and Public Health.

After earning his medical degree at the SMPH, he received a master of public health degree and completed his family medicine residency at the University of South Carolina. McBride returned to Wisconsin in 1984 and applied perspectives as a faculty member in the SMPH Departments of Medicine and of Family Medicine and Community Health.

He played a leadership role in creating one of the nation's first preventive cardiology programs and helped develop clinical programs aimed at lowering cardiovascular disease risk in people and populations.

In addition to his work locally and throughout Wisconsin, McBride led national efforts to address the epidemic of coronary artery disease. His research, teaching, practice and advocacy focused on cholesterol and hypertension treatment and cardiovascular disease prevention, as reflected in his more than 200 scientific publications. He has earned numerous local and national teaching awards, including a Distinguished Educator Award from UW-Madison and a lifetime position in the university's Teaching Academy.

Further, McBride served with distinction for more than 10 years as the SMPH associate dean for students.



PIERRE N. TARIOT, MD (PG '81) Tariot (pictured to the right of Golden) received the Resident Citation–Distinguished Resident Award, which honors an outstanding alum from an SMPH or

UW Health residency or fellowship program who has achieved distinction in academic activities and in the practice of medicine.

His career focuses on the care and study of people who have or are at risk for brain diseases, such as Alzheimer's disease (AD). He has had a significant impact on the field through his leadership on more than 50 AD-related clinical trials, including some that resulted in approval of new medications. He participated in the key trials of all four U.S. Food and Drug Administration-approved treatments of AD, as well as clinical studies that focus on the management of challenging dementia-related symptoms.

Tariot's more than 350 publications have advanced the development of new approaches, and he has participated in groundbreaking public-private partnerships.

Having earned his medical degree from the University of Rochester School of Medicine and Dentistry in New York, Tariot completed internal medicine and psychiatry residencies at UW Health. He did an intramural research fellowship at the National Institute of Mental Health before joining the University of Rochester faculty as an assistant professor of psychiatry and medicine. He quickly rose through the ranks, becoming a full professor of psychiatry, medicine and neurology.

Next, he took the position of director of the Banner Alzheimer's Institute in Phoenix, and he is a research professor of psychiatry at the University of Arizona College of Medicine. Tariot serves as co-director of the Alzheimer's Prevention Initiative, a National Institutes of Health-funded, global program to study therapies that may delay or prevent the onset of AD symptoms.

Having taught and mentored countless graduate and medical students, residents and fellows, Tariot is highly sought-after as a speaker, and he has received numerous awards and recognitions.



KRISTEN J. NADEAU, MD '98, MS

Nadeau (pictured between Golden and Michael Kappy, MD '67, PhD '67) earned the Early Career Achievement Award, which honors an outstanding alum who has attained exemplary success within 20 years of earning a medical degree from the SMPH. The recipient will have made outstanding contributions through clinical service, research, education and/or administrative leadership, and show great promise for future success.

She is Prairie Band Potawatomi on her father's side, and her heritage fueled her interest in American Indian health. In medical school, she recognized the intrinsic link between clinical care and research when she worked at Native American reservations and saw children with Type 2 diabetes and young pregnant mothers with diabetes. This inspired her to combine research and clinical care in her career.

Nadeau completed a pediatrics residency at Oregon Health Sciences University and a pediatric endocrinology fellowship at the University of Colorado Health Sciences Center, where she also obtained a master's degree in clinical sciences. She joined the Department of Pediatrics at the Colorado Health Sciences Center in Denver and is one of the youngest people to become a tenured professor in that department's history.

An accomplished lecturer and teacher, she champions Native American health programs and is known internationally in the field of cardiometabolic abnormalities in children with obesity and diabetes. Nadeau has published more than 200 publications and is the PI or co-PI on 15 grants. She volunteers on the American Academy of Pediatrics Committee on Native American Child Health, including annual Indian Health Service Site visits and yearly advocacy in Washington, DC.

2019 WMAA Awards

MEDICAL ALUMNI CITATION—DISTINGUISHED ALUMNI AWARD Patrick E. McBride, MD '80, MPH

RESIDENT CITATION—DISTINGUISHED RESIDENT AWARD Pierre N. Tariot, MD (PG '81)

- EARLY CAREER ACHIEVEMENT AWARD Kristen J. Nadeau, MD '98, MS
- BASIC SCIENCES EMERITUS FACULTY AWARD John F. Fallon, PhD
- CLINICAL SCIENCES EMERITUS FACULTY AWARD Charles N. Ford, MD
- SIGURD SIVERTSON MEDICAL EDUCATION AWARD John R. Brill, MD, MPH (PG '94)

RALPH HAWLEY DISTINGUISHED SERVICE AWARD Mary S. Landry, MD '92

WMAA SERVICE AWARD

Steven J. Merkow, MD '80

HONORARY LIFE MEMBERSHIP IN THE WMAA

Christopher M. Stillwell



There's more online! med.wisc.edu/alumni/awards/

2019 WMAA Teaching Awards

Given on behalf of the WMAA, these awards recognize SMPH faculty and house staff for their outstanding teaching efforts

DISTINGUISHED CLINICAL SCIENCE TEACHING AWARDS

These awards recognize clinical teachers from each of the SMPH's major teaching locations (La Crosse, Madison, Marshfield, Milwaukee and Green Bay, Wisconsin) who are highly regarded by students for outstanding teaching efforts.

Andrea Van Wyk, MD '07 (La Crosse) Nicholas Haun, MD '11 (Madison) Matthew Jensen, MD (Marshfield) Anne Getzin, MD '11 (Milwaukee) Robert Zemple, MD '12 (Green Bay)

RESIDENT TEACHING AWARD

This award recognizes the superlative teaching efforts of a resident.

Emily Rosen, MD

DISTINGUISHED BASIC SCIENCE TEACHING AWARD

This award recognizes the most distinguished teacher in Phase 1 of the SMPH ForWard Curriculum, identified by second-year medical students.

Sana Waheed, MD



There's more online! med.wisc.edu/alumni-teaching-awards

Dean's Teaching and Research Mentorship Awards



Left to right: Ashwani Bhatia, MD, FACP; David F. Schneider, MD, MS, FACS (PG '13); Elise Davis, PhD; Sana Waheed, MD; Scott Mead, MD (PG '05); Dean Robert N. Golden, MD. Not pictured: Neil Salyapongse, MD.

TODD BROWN/MFDIA

ean's Teaching Awards and the Dean's Award for Excellence in Medical Student Research Mentorship honor outstanding contributions by University of Wisconsin School of Medicine and Public Health (SMPH) faculty members.

"I'm pleased to celebrate outstanding faculty members who have been recognized by their peers for contributions in education and research," said Dean Robert N. Golden, MD, who presented the annual awards during the school's Medical Education Day in May 2019. "These awards are special because faculty members who won these awards in the past select the recipients."

He honored the following individuals with Dean's Teaching Awards:

- Ashwani Bhatia, MD, FACP, assistant adjunct professor, Department of Medicine; Chief Medical Officer, BayCare Clinic, Aurora BayCare Medical Center
- Elise Davis, PhD, lecturer, Anatomy Teaching Group, SMPH Academic Affairs
- Scott Mead, MD (PG '05), clinical associate professor, Division of Hospital Medicine, Department of Medicine
- Neil Salyapongse, MD, professor of surgery, Division of Plastic Surgery, Department of Surgery
- Sana Waheed, MD, assistant professor, Division of Nephrology, Department of Medicine

Golden also presented the Dean's Award for Excellence in Medical Student Research Mentorship to:

 David F. Schneider, MD, MS, FACS (PG '13), assistant professor, Division of Endocrine Surgery, Department of Surgery

Bhatia, based at Aurora BayCare Medical Center in Green Bay, has served as a teaching faculty member on the hospitalist service and played a leadership role as the Green Bay site director for the SMPH's Wisconsin Academy for Rural Medicine (WARM).

He helped develop, implement and refine the ForWard Curriculum and served, until recently, as the Phase 2 Acute Care Block Leader in Green Bay. Based on his vast experience as a preceptor, Bhatia created a handbook, "Best of Bhatia," that contains pearls for students on clinical rotations.

Bhatia regularly meets with students to address their questions concerning careerrelated matters and makes extra efforts to work with struggling students.

Over the past seven years, he has received glowing evaluations from students. A student wrote, "Dr. Bhatia is an amazing physician and an amazing teacher. [We] are lucky to have him teaching the WARM students. He inspired me to enter internal medicine, and I know he has a positive impact on every student he encounters." Bhatia recently became BayCare Clinic's chief medical officer, but he will remain involved with SMPH students throughout their clinical education in Green Bay.

He earned his medical degree from Maulana Azad Medical College in New Delhi, India. Following internal medicine training in London, he completed an internal medicine residency at Texas Tech University.

Davis is a skilled anatomist and creative teacher who has motivated learners to reach their highest potential since she joined the faculty in 2012. She has taught gross anatomy to thousands of medical students, physical and occupational therapy students, and undergraduates. As co-director of two gross anatomy courses and a lecturer in five SMPH courses, she impacts all phases of the ForWard Curriculum and other curricula.

Davis teaches beyond memorization of structures and stresses their clinical and functional applications. She developed teambased activities that encourage students to think creatively. She assisted in planning, designing and implementing the ForWard Curriculum's Human Family Tree Block and serves as an assistant block leader.

One student noted, "Dr. Davis is knowledgeable, organized, creative, patient and fun! She is an excellent teacher who is not only an expert in her field, but knows how to help students learn." Additionally, Davis coordinates the Doctors Ought to Care Program, in which health professions students bring models and human organs to schools throughout the Madison area, teach about health and the human body, and promote healthy lifestyles.

She received her doctorate in anatomy and cell biology from the University of California, Los Angeles, School of Medicine.

Mead joined the SMPH faculty in 2005, and has taught medical students, residents and other health professions trainees. He started as a small-group leader in the medical student-required Patient, Doctor and Society course and a clinical preceptor; he was appointed as a co-course director.

Planners of the SMPH ForWard Curriculum noticed Mead's leadership skills and entrusted him as the integrated block leader for the curriculum's first block— Patients, Professionalism and Public Health. He transformed the teaching of pre-clinical skills into effective, integrated sessions.

Mead also is the thread director for the curriculum's areas of patient care; interpersonal communication and skills; ethics; and health information technology. He weaves together fundamental themes and ensures consistent delivery of foundational information across blocks and years.

Students consistently have rated Patients, Professionalism and Public Health the highest among Phase 1 blocks. A medical student wrote, "I learned the best hearing directly from members of the Madison community. Learning from the resources and clinics available to different populations ... opened my eyes to how health care works beyond the hospital doors."

Mead sensitively handles challenging curricular topics. His innovations include an inclusive sexual history simulation, implicit bias training, shared decision-making simulation, and intimate partner violence and sexual assault interview simulation. He is a founding member of the Health Equity Activation Team, which helps assure equity and inclusion across the curriculum.

Mead earned his medical degree at the SMPH; he then completed his internal medicine internship at the University of Minnesota and residency at UW Health. **Salyapongse** joined the faculty in 2006. He has served as an instructor in the Patient, Doctor and Society course; co-directed the Hand Surgery Service Education Program; and mentored the Plastic Surgery Interest Group and Plastic Surgery Clerkship. He is the program director of the UW Health Integrated Plastic Surgery Residency.

For more than a decade, he has been a regular participant in the medical student forums at the national meeting of the American Society of Plastic Surgery and has mentored students throughout the nation.

Nominators note that Salyapongse has a natural ability to break difficult concepts into understandable components and present material for optimal retention by learners.

Two students noted, "He has cultivated an ability to teach and work with trainees of any level, ability and background. He spends time getting to know individuals to better understand their learning styles, and adjusts his feedback and approach accordingly. He is one of the most agile teachers with whom we have had the pleasure of interacting."

Salyapongse earned his medical degree at Northwestern University School of Medicine, Chicago, followed by general surgery and plastic surgery residencies at the University of Pittsburgh and a hand and upper extremity surgery fellowship at the State University of New York Upstate Medical Center.

Waheed is known as an ambassador in education through her hallmark blend of professionalism, knowledge and skillful information delivery. As a testament to her contributions, fourth-year medical students selected her as one of the faculty members to hood them at their graduation ceremony.

Upon joining the faculty in 2014, Waheed dove into preparing for and teaching in the renal pathophysiology course in the legacy curriculum. Her innate ability to organize difficult, complex material into manageable pieces earned her high ratings by learners.

As an assistant integrated block leader for the Body in Balance Block of the ForWard Curriculum, she assisted in the design of an effective curriculum that includes lectures, flipped classrooms and panel discussions.

A student said, "Can Dr. Waheed just become an expert in everything and come

back for every unit? I don't know if I ever would have understood the intricacies of renal function without her."

Waheed also serves as the renal electives director and associate director of the Nephrology Fellowship. She has mentored medical students or fellows on seven of her 14 research manuscripts since 2014.

Her interest in assisting students with career decisions and overall growth contributed to creation of the Nephrology Interest Group; she is its faculty advisor.

Waheed earned her medical degree at Aga Khan University in Pakistan, followed by an internal medicine residency at the University of Cincinnati and nephrology fellowship at Johns Hopkins Hospital.

Schneider's interests include the optimization of care through the use of electronic health record data and informatics tools. He has demonstrated sustained excellence as a research mentor for medical students, fellows, colleagues and undergraduates.

He has served as the primary mentor for nine medical students since 2013, and he mentored five students in summer research. His medical student trainees have published 22 papers and delivered 23 presentations.

A student wrote, "Dr. Schneider has been an amazing mentor for my research project. He is always there with timely, thoughtful and thorough feedback to guide me on the right path, while allowing me the freedom to take ownership over the project, to be creative, and importantly, to make mistakes. He always is thinking of next steps and ways to get closer to perfection, with a passion that is inspiring, and that shows how much he truly cares about his role as a mentor."

Schneider earned his medical degree at Loyola University Stritch School of Medicine in Illinois. He completed a research fellowship at Loyola's Burn and Shock Trauma Institute, a master's degree in clinical research methods in Loyola's Department of Preventive Medicine and Epidemiology, a surgery residency at Loyola University Medical Center and an endocrine surgery fellowship at the SMPH. He holds dual board certification in surgery and clinical informatics.

Alpha Omega Alpha

NATIONAL HONOR MEDICAL SOCIETY RECOGNIZES EXCELLENCE



Student inductees to the AOA: Front row (left to right): Erin Theisen, Nicole Fennimore, Stephanie Lakritz, Elizabeth Meller, Mary Finta, Katherine Pellino, Jessica Walker, Jeannette Comstock. Middle row: Dean Robert N. Golden, MD, Brittany McAdams, Max Rusek, Nicholas Bohrer, Rachel Lyerla, Sarah Larson, Cole Swiston, Julie Friedman, Miranda Kohli, Jonathan Stefely, Jenny Christl, Coleen Andrews, AOA Councilor Rebecca Sippel, MD (PG '06). Back row: Dylan Lukato, Tyler Etheridge, Maria Rozo, Brett Morris, Abby Debruin, John Matt Guerrieri, Laura McClung, Gina Phillips. Not pictured: Calen Hart, Jonathan Lubin, Kevin Rolnick, Joslyn Strebe, Devin Walsh-Felz.

In spring 2019 at the University of Wisconsin School of Medicine and Public Health, fourth-year medical students, faculty members and fellows (see captions) were inducted into the Alpha Omega Alpha (AOA) Honor Medical Society.

At a ceremony hosted by the Wisconsin Medical Alumni Association, Robert N. Golden, MD, dean, and Rebecca S. Sippel, MD (PG '06)—an associate professor of surgery and the AOA councilor for the Wisconsin Chapter—noted that the AOA



Faculty and house staff inductees to the AOA (left to right): Robert Corliss, MD '00, professor, Department of Pathology and Laboratory Medicine; Mary Westergaard, MD, associate professor, Department of Emergency Medicine; Randall Brown, MD, PhD '09 (PG '04), associate professor, Department of Family Medicine and Community Health; Andrea O'Shea, MD, fellow, Department of Pediatrics; Dean Robert N. Golden, MD.

recognizes honesty, honorable conduct, morality, virtue, unselfishness, ethical ideals, dedication to serving others and leadership.

The AOA Dr. David de Harter and Diane de Harter Visiting Professor was Mary E. Wilson, MD '71 (see profile about her on page 30). In her talk, "Taking a Detour, Finding a Path," Wilson described how she reached medical school after a detour teaching French and English in Madison public schools, and another to Haiti during her infectious diseases fellowship at Harvard. "The detour to Haiti led to a path in global health and lifelong interest in emerging infections, and a deep appreciation for the integration of medicine and public health in creating healthy populations," said Wilson. "Embrace detours. They may have a dead end but can lead to new insights and knowledge. They also may open a way to a new path."

Wilson concluded with this advice: "Find a mentor; be a mentor. ... Build your community; take time to enjoy the community; and take care of yourself!"

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CELEBRATING DONORS WHO JOINED THE SOCIETY IN 2018

Middleton Society members' support is fundamental to the continued success of the University of Wisconsin School of Medicine and Public Health (SMPH).

"The generous gifts from these individuals and families help our school accelerate progress in our mission of improving health without compromise through service, science, scholarship and social responsibility," says SMPH Dean Robert N. Golden, MD. Like the philanthropic society's namesake—Dean William S. Middleton, MD—donors make a lasting impact on the future of the SMPH and the next generation of medical professionals.

The list below includes those who became members in 2018. If you feel that you qualified as a new Middleton Society member during calendar year 2018 but do not see your name, please contact Ericka Balgord at ericka.balgord@supportuw.org.

Anonymous

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"I am giving as a small gesture of gratitude to my brother and fellow alum, Dr. Michael J. Meyer (MD '84), and the other physicians along the path ahead of me who showed me how to do the work with grace, wisdom and balance. I can never repay them or the UW School of Medicine and Public Health for all I received."

> —Thomas Meyer, MD '95, and Rebecca Husband, Berkeley, California



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"We met in 1985 while attending the UW School of Medicine and Public Health. Erin's father, Dr. Gregory J. Beirne—an emeritus associate professor at the SMPH—had the pleasure of having Dr. William S. Middleton as a mentor. We enjoyed hearing many great stories of their time together and are grateful that we were able to make so many of our own memories throughout our years in Madison. We always have been proud of the outstanding education we received. Joining the Middleton Society seemed like the perfect way to give back to the SMPH as we honor the history of great educators and look to the future for the next generation of students."

-Jonathan S. Fain, MD '87, and Erin B. Fain, MD '88, Mansfield, Ohio

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"I am honored to have the opportunity to give back to students at the UW School of Medicine and Public Health through the Middleton Society. During my college and early graduate years, I worked several jobs to make ends meet, and I took time off before medical school to work and pay down loans. I always hoped that if I kept working hard toward my dream of medical school, the rest would follow. When scholarships—as well as the support and camaraderie of SMPH alumni and friends—followed, it bolstered my confidence and helped my fellow students and me focus on the academic rigor and passion that drives 'medicine in Wisconsin' forward! I am thankful to be able to 'pay it forward' to promising future medical students."



-Aurora (Reese) Lybeck, MD '12, Cedarburg, Wisconsin

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If you would like to become a member of the Middleton Society or have questions about your membership, please contact Jill Watson, associate vice president for development, at jill.watson@supportuw.org or (608) 262-4632.

Garding Against Cancer

SIGNATURE EVENT HELPS ADVANCE UW CARBONE CANCER CENTER'S RESEARCH AND STATEWIDE CARE INITIATIVES



by Beth Pinkerton

andy manis (6)

The second secon

drum band and island vibe. In addition, the personal stories, messages of hope and collective gathering in support of all who have been touched by cancer really warmed their hearts.

Gard launched the Garding Against Cancer initiative as a tribute to his father, Glen Gard, who passed away in October 2015 after a six-month battle with glioblastoma multiforme, a form of brain cancer. It's an experience he shares with sports broadcaster Jim Rome, who gave the keynote address, and Zachary Morris, MD, PhD (PG '16), who talked about the impact of gifts. A researcher at UW Carbone, Morris also is an associate professor in the Department of Human Oncology at the UW School of Medicine and Public Health.

In addition to this annual signature event held at UW-Madison's Kohl Center, Garding Against Cancer hosts events throughout Wisconsin and supports patient care initiatives statewide. In just 29 months, the Gards have raised \$4.2 million.

"Thousands of people have related to our story: the struggle, the pain, and how cancer mercilessly changes lives forever. Even more powerfully noted, though, are the multitude of generous and compassionate people who have joined our team," says Gard. "We are humbled by the support. We know that, together, we will continue to take steps forward in this fight, until cancer is a distant memory."

The next Garding Against Cancer Event will be held on May 2, 2020; visit gardingagainstcancer.org for details.

Top/left: Coach Greg and Michelle Gard. Below: Panchromatic Steel. Opposite page: Top row: The Kohl Center. Middle row (left to right): George Hamel, Jr., Pamela Hamel, George Hamel, III; UW Carbone Director Howard Bailey, MD (PG '91). Bottom row: UW Men's Basketball Coaches Greg Gard, Dean Oliver and Joe Krabbenhoft; Jim Rome.













From Bugs to Drugs

MARY E. WILSON, MD '71, DESCRIBES CONCERNS AND OFFERS SOLUTIONS FOR ANTIBIOTIC RESISTANCE

by Ann Grauvogl

ven a short conversation with University of Wisconsin School of Medicine and Public Health (SMPH) alumna Mary E. Wilson, MD '71, raises deep concern about how little we know about antibiotics and the bugs that become resistant to them.

"People are dying today from antibioticresistant infections," says Wilson, who provided keynote talks at the UW-Madison Global Health Symposium and the SMPH's Alpha Omega Alpha induction ceremony (see page 24) in spring 2019. "Looking ahead, it's something that's going to get worse."

How much worse? A 2016 report from the British Society for Antimicrobial Chemotherapy estimates 700,000 people a year die from drug-resistant infections, with projections into the millions in coming years.

Wilson's first talk opened the 15th annual Global Health Symposium on April 16, 2019. With the theme of "Health in the Balance: Acting Now for a Healthy Tomorrow," the free, public symposium was hosted by the Global Health Institute (GHI) with support from the Evjue Foundation.

In her keynote address, "Bugs and Drugs: A Changing Landscape," Wilson

shared a close look at the many causes and consequences of antibiotic resistance and what we can do about it.

A clinical professor at the University of California, San Francisco, School of Medicine and adjunct professor in the Harvard T.H. Chan School of Public Health, her new book, *Antibiotics: What Everyone Needs to Know*, was published in spring 2019 by Oxford University Press.

"Mary Wilson has been a long-standing expert in global health and understands how human-induced disruptions—including climate change, ecological change and the overuse of antibiotics—lead to emerging and resurgent diseases," says GHI Director Jonathan Patz, MD, MPH, the John P. Holton Chair of Health and the Environment. "She has been a pioneer with her work at the intersection of global environmental change and infectious disease."

The Challenge of Being Too Good

Antibiotics such as penicillin have been one of modern medicine's greatest success stories, providing relief for patients with infections from strep throat to pneumonia. And drugs with antibacterial, antimalarial and antiviral activity—collectively called antimicrobials—include treatments for diseases such as tuberculosis, malaria and HIV/AIDS. "Now, time with these drugs is running out," the World Health Organization wrote when it named antimicrobial resistance one of the top 10 threats to world health in 2019.

The rise of antibiotic resistance has continued despite development of new and broader spectrum antibiotics to replace those that no longer work. The "golden era" of easy antibiotic discovery, however, is over, Wilson says. Many pharmaceutical companies have stopped developing new antibiotics and, instead, focus on medications to treat chronic diseases that often require daily doses; in contrast to antibiotics, these continue to work year after year.

The challenge of confronting antibiotic resistance—and untreatable infections—is multifaceted, and the answers cut across the health of humans, animals and the ecosystem.

Wilson elaborates, "Antibiotics are a shared resource. Most drugs, if you take them, will have no impact on other people. When you take an antibiotic, if your bacteria become resistant to it, they can potentially spread to other people or reach the environment. Taking an antibiotic can have a community impact."

Use and overuse of antibiotics in humans and animals is one facet of the problem, as is the discrepancy between drugs available in wealthy and resource-poor settings. While many antibiotics are overused in the United States, in some countries people are dying because they lack access to antibiotics.

Wilson also looks further downstream at what she calls "the afterlife of antibiotics." The drugs don't disappear after they're used to treat infections, she says. Instead, some part of the antibiotic flows out of the body, either unchanged or as biologically active molecules, in human and animal waste. While human waste often is treated in the United States, in many countries it is not, and animal waste often is left untreated.

"Can it affect human and animal health? We have looked at what antibiotics do to the human gut microbiome, but few have looked beyond the human body. We haven't thought enough about what impact residues of antibiotics from human and animal use are having on bacteria in the environment, in water and soil," says Wilson, who suggests a multi-pronged approach to protect all health.

"There are a lot of things we need to do beyond decreasing the use of antibiotics," she says. "We need to engage the global community in a one-health approach and work to reduce the need for antibiotics."

An Unlikely Path to Global Health

Wilson's career began with an undergraduate degree in French, English and philosophy in an era when women were expected to teach rather than become doctors. She taught French and English for three years, nearly finished her master's in English literature and prepared to go for a PhD when she decided that she really wanted to go to medical school.

Her medical career began with a cold call to the SMPH (then called the UW Medical School) to ask if she could talk with someone about applying. Successful, she earned her medical degree at the SMPH, completed an internal medicine residency and infectious disease fellowship at Beth Israel Deaconess Medical Center in Boston, and devoted 20 years as chief of infectious diseases at the Harvard University-affiliated Mount Auburn Hospital. Her interest gradually expanded from clinical medicine to global health. She lectured in Harvard's Center for Health and



SMPH Dean Robert N. Golden, MD (left), presents a certificate of appreciation to Mary E. Wilson, MD '71, who was the Dr. David de Harter and Diane de Harter Visiting Professor for the school's Alpha Omega Alpha induction ceremony in spring 2019.

the Global Environment course and found colleagues interested in looking at big issues that affect global health, including climate and vector-borne infections.

During an infectious diseases fellowship at Harvard, she worked in Haiti at the Albert Schweitzer Hospital, where she saw socioeconomic, environmental and other factors that are vital to health.

Wilson became deeply involved in international work with infectious diseases and antibiotics. As a member of the Pew National Commission on Industrial Farm Animal Production, she visited massive farm operations a decade ago and learned how broadly antibiotics are used in animalproduction facilities in the United States.

"I don't think most people are aware that more antibiotics go into food animals in the United States than into people," she says. "They're also used in aquaculture and used to treat honeybees, fruit trees and other plants ... We need much more integrated communication across sectors."

As a special advisor to the GeoSentinel Surveillance Network, Wilson continues to explore how disease differs by location and how travel affects the spread of pathogens and antibiotic resistance. She's served on the Advisory Committee on Immunization Practices of the U.S. Centers for Disease Control and Prevention and on the Academic Advisory Committee for the National Institute of Public Health in Mexico.

Wilson has worked and lectured in many countries including Bangladesh, Brazil, Italy and China, and she wrote *A World Guide to Infections: Diseases, Distribution, Diagnosis.* She is a member of the Board of Visitors for the UW Global Health Institute, which encourages collaboration across disciplines and supports research, education and outreach to improve the health of humans, animals and the planet. The institute is guided by a global health ethic that looks to improve health today while ensuring that resources are available to provide health for all tomorrow.

11TH ANNUAL BIOETHICS SYMPOSIUM

REPRODUCTION AND RESEARCH: Ethics and Pregnancy in Clinical Trials



Top row (left to right): Zachary Stowe, MD; R. Alta Charo, JD; Rebecca Kukla, PhD. Bottom row: Karola Kreitmair, PhD; Norm Fost, MD, MPH; Pilar Ossorio, PhD, JD.

by Andrew Hellpap

t the 11th annual Bioethics Symposium at the University of Wisconsin School of Medicine and Public Health (SMPH), experts in the field of reproductive research explored the challenges and ethics related to including pregnant women in clinical trials.

Participants of the April 2019 event at the Health Sciences Learning Center explored the diverse set of criteria about why and how pregnant women are included in research, and why they often are not included.

The symposium featured an institutional review board (IRB) simulation that addressed a hypothetical submission that such a board could face involving pregnancy in clinical trials. This review considered a clinical trial to test the use of a hypothetical drug to prevent neonatal abstinence syndrome in babies born to narcotic-dependent women.

R. Alta Charo, JD, Warren P. Knowles Professor of Law and Bioethics at UW-Madison, facilitated the simulated IRB, which included the symposium's keynote speakers—Rebecca Kukla, PhD, professor of philosophy and senior researcher, Kennedy Institute of Ethics, Georgetown University; Zachary N. Stowe, MD, professor of psychiatry, and director, Women's Mental Health Program, SMPH; and Anne Drapkin Lyerly, MD, MA, professor of social medicine and associate director, Center for Bioethics, University of North Carolina, Chapel Hill and Pilar Ossorio, PhD, JD, professor of law and bioethics, UW-Madison; Norm Fost, MD, MPH, professor emeritus of pediatrics and medical history and bioethics, SMPH, who founded and led the UW Bioethics Program for three decades; and Karola Kreitmair, PhD, assistant professor of medical history and bioethics, SMPH.

The symposium was organized by Paul Kelleher, PhD, associate professor, and Susan Lederer, PhD, Robert Turell Professor of Medical History and Bioethics and chair, Department of Medical History and Bioethics at the SMPH.

"It is a real pleasure to unite world-class scholars to help our community think through difficult questions in bioethics. Our department is honored to be a steward of this important annual event," says Kelleher.

WINNING ENTRY IN THE FIFTH ANNUAL BIOETHICS ESSAY CONTEST



Amelia Haj (left), a fourth-year medical student at the University of Wisconsin School of Medicine and Public Health (SMPH), received the 2019 Dr. Norman Fost Award for the Best Medical Student Bioethics Essay. Her essay explored the theme of the 11th annual Bioethics Symposium (see previous page), sponsored by the SMPH and its Department of Medical History and Bioethics. This essay was edited for publication in *Quarterly*; the unedited essay and criteria are available at med.wisc.edu/bioethics-essay.

Not Vulnerable: Pregnant Women and Autonomy in Clinical Trials

by Amelia Haj

In the United States, considerable value is placed on individual freedom, but ongoing discussions about the bodily rights of women can at times feel like an entirely different world. Differing opinions on the humanity of a growing fetus are at the ideological heart of the difficulty in coming to moral and political consensuses on everything from whether employers should be required to pay for insurance covering birth control to whether a woman should have the right to terminate an unwanted or unviable pregnancy. While pregnancy does introduce the additional consideration of the possible rights of the fetus, when it comes to pregnant women's participation in clinical trials, classifying them as a "vulnerable population" serves as a misguided attempt to center the presumed rights of the fetus over the autonomy of the woman. The designation of pregnant women as a "vulnerable population" is therefore unethical, and has the potential to cause greater harm than it prevents by reducing their participation in clinical trials necessary for improving maternal/fetal health.

Pregnant women do not have key characteristics shared among other vulnerable populations. The designation of these groups in clinical trials is intended to protect individuals (such as children, people who are incarcerated and people who are intellectually disabled) who may not have the capacity to make decisions in their own best interest, or who might be unusually susceptible to coercion. Their inability to independently give consent, and/or their reliance on others to meet their daily needs, puts them in a position where their ability to give informed consent should rightfully receive careful attention. In these cases, protections are intended to preserve and respect the individuals' autonomy. Pregnant women, on the other hand-barring intellectual disability, incarceration or minor status-have the capacity to consent, and in no other area of their medical care are they treated as vulnerable. The vulnerable population in this case, therefore, is not actually pregnant women but their fetuses, and the "protection" offered is not truly intended to be protection from researchers or caregivers, but protection of the fetus from the pregnant woman herself.

The argument can be made thus that the most important goal is not actually preserving the woman's autonomy, but ensuring non-maleficence toward the fetus. What this argument ignores is that it is impossible to orchestrate the perfect gestation. Even if we knew exactly what constitutes the ideal in-utero experience, we would need to severely limit the independence of all pregnant women to achieve anything approaching a standardized "ideal" pregnancy. We allow women to make countless choices about their behaviors and medical care during pregnancy. Decisions regarding diet and exercise, prenatal testing and delivery method are all more likely-on an individual but especially on a population level—to impact a baby's health than choosing to participate in a clinical trial. In spite of this, we recognize the importance of

allowing women the latitude to make these decisions for themselves.

Many have rightly argued that the inclusion of pregnant women in research is a moral imperative. While clinical trials certainly do have the potential to result in adverse events, exclusion of pregnant womenexplicitly or through the introduction of restrictions on inclusion-ultimately causes greater harm by impeding research progress on maternal/fetal health. The American College of Obstetricians and Gynecologists suggests designating pregnant women as "scientifically complex" rather than "vulnerable," a description that acknowledges their medical complexity while avoiding the suggestion that their participation in trials be limited due to an inability to consent. Instead of seeking to protect pregnant women and their fetuses by limiting their participation in trials, protection should come in the form of full disclosures regarding potential risks and benefits, up-front discussions regarding the process for reporting and addressing potential negative effects of trial participation, and careful monitoring during the trial.

The classification of pregnant women as a "vulnerable population" in the context of clinical trials does not serve to protect pregnant women or their fetuses, and likely reduces their participation in much-needed research. It suggests reduced decisionmaking capacity, which is incongruent with the myriad choices women make during their pregnancies, and limits their autonomy. Rather than limiting their participation in clinical trials, pregnant women should be empowered to make informed choices about their participation and thereby help increase their representation in clinical research.

Broadus Named the New Associate Dean for Human Resources

Hope Broadus, JD, is the new associate dean for human resources for the University of Wisconsin School of Medicine and



Public Health (SMPH). She previously served as director of human resources in the School of Humanities and Sciences at Stanford University in California.

Broadus has 17 years of senior-level human resources management and employment law experience, across public and private sector organizations. Her areas of expertise include employee relations; performance management; recruiting and selection; HR policy and program design; training and development; risk management; grievances and complaints; and ethics and conflicts of interest.

During her seven years at Stanford University, she also served as director of human resources for the university's Land, Buildings and Real Estate Division and held leadership positions in talent management and employee/labor relations.

Her experience also includes leadership roles with the city and county of San Francisco Public Utilities Commission, as well as the U.S. Department of Defense in the Defense Logistics Agency, where she served as assistant counsel for employment and labor. Broadus began her career at Montgomery, Rennie and Jonson Law Firm.

She earned a juris doctor degree from the University of Cincinnati College of Law and a bachelor's degree in sociology from the University of Pennsylvania.

"Dr. Broadus is a highly collaborative leader with a passion for excellence in human resources service delivery and cross-functional partnerships," notes SMPH Dean Robert N. Golden, MD.

Chapman Wins Sir Bernard Katz Award

Ed Chapman, PhD, was honored as the 2019 recipient of the Sir Bernard Katz Award at the Biophysical Society's annual meeting.



The Ricardo Miledi Professor of Neuroscience in the University of Wisconsin School of Medicine and Public Health, Chapman also is an investigator of the Howard Hughes Medical Institute at the University of Washington.

Chapman received the prestigious Sir Bernard Katz Award for his studies of exocytosis. His laboratory studies how neurons send chemical signals from one to another through synapses. A major focus is on fusion pores, openings that release neurotransmitters from the cell and play a key role in neurological and endocrine function.

His research on synaptic transmission has led to approaches to address neurological disorders in which too much neurotransmitter release occurs. And his future research likely will make it possible to adjust neurotransmitter release or hormone release to treat a variety of neurological disorders.

Chapman was one of the first scientists to receive a prestigious federal grant to support long-term research in the laboratories of some of the nation's most creative and productive scientists. He received this R35 Outstanding Investigator Award from the National Institute of Neurological Disorders and Stroke, part of the National Institutes of Health. His projects have ranged from basic questions concerning neuronal cell biology to the action of botox. He also holds a Pew Innovation Award.

Wisconsin Alzheimer's Disease Research Center Receives \$15 Million Grant

A \$15 million grant from the National Institutes of Health-National Institute on Aging will enable the Wisconsin Alzheimer's Disease Research



Center (ADRC) to establish a first-of-its-kind research program focused on improving the care of Alzheimer's patients and reducing caregiver stress. It also will support training for the next generation of Alzheimer's disease researchers and develop tools and techniques to better identify the earliest stages of the disease.

With this federal funding, the Wisconsin ADRC will establish three new focus areas: biomarker research that will combine and expand its neuroimaging and cerebrospinal fluid collection programs; a new health care research group that will conduct studies on improved patient care models and ways to reduce caregiver stress; and researcher education, which will focus on training for learners from high school students through new professors.

"In the last decade, our center has become a national leader in developing new brain imaging techniques, studying exercise and brain health, and identifying prevention strategies," says Sanjay Asthana, MD, founding director of the Wisconsin ADRC and associate dean of gerontology at the University of Wisconsin School of Medicine and Public Health. "This important funding will help us expand research into early diagnosis and identify better treatments for people living with the disease and their caregivers."

Established in 2009, the Wisconsin ADRC is one of about 30 such centers in the United States.

Gómez Receives History of Medicine Medal

Pablo F. Gómez, MD, PhD, associate professor in the University of Wisconsin School of Medicine and Public Health's (SMPH) Department of



Medical History and Bioethics and UW-Madison's Department of History, has been awarded the 2019 William H. Welch Medal by the American Association for the History of Medicine (AAHM) for his book, *The Experiential Caribbean: Creating Knowledge and Healing in the Early Modern Atlantic.*

The medal is awarded to the best book in the field of medical history published during the five calendar years preceding the award. It is named for a major American figure in the history of medicine and public health, who was one of the first faculty members at the Johns Hopkins University School of Medicine. Gómez received the prestigious medal at the AAHM's annual meeting in Columbus, Ohio.

His book also won the 2018 Albert J. Raboteau Book Prize for best book in Africana religions, and it received an honorable mention for the Bolton-Johnson Prize from the Conference on Latin American History for best book on all fields of Latin American History.

In this book, Gómez examines the strategies that Caribbean people used to create authoritative, experientially based knowledge about the human body and the natural world during the 17th century.

Gómez's interests include the history of medicine and science in the Atlantic World, Latin America and the African diaspora; early modern corporeal epistemologies; and race and medicine.

First Targeted Radiotherapy Trial for Pediatric Cancer Underway

The University of Wisconsin Carbone Cancer Center is the first site in the nation to offer a clinical trial of the targeted



radiotherapeutic CLR 131 for pediatric solid tumors. The phase 1 trial uses a new compound to deliver targeted high doses of radioactive iodine to cancer cells, killing them.

Mario Otto, MD, PhD, is the trial's co-principal investigator. CLR 131 showed efficacy in several models in which mice were implanted with pediatric cancers. A single dose resulted in better survival and slower-growing tumors than in untreated mice.

"This clinical trial is for children and adolescents who have tumors that do not respond to standard treatments or have recurred," says Otto, an associate professor of pediatrics in the Division of Pediatric Hematology, Oncology and Bone Marrow Transplant at the UW School of Medicine and Public Health. "If successful, CLR 131 could provide a beneficial treatment option for these children who otherwise have little chance of a cure."

Approximately 11,000 children and adolescents are diagnosed with solid cancers every year in the United States, and about 1,600 children die from these cancers annually. Cancer is responsible for more deaths in children and adolescents than all other childhood diseases combined in the nation.

Initially, the trial will be available only at American Family Children's Hospital in Madison, part of UW Health, with plans to expand the study to other pediatric hospitals across the United States within six to 12 months.

Newsweek Ranks University Hospital Among The World's Best



University Hospital in Madison, Wisconsin—part of UW Health and the academic medical center that includes the University of Wisconsin School of Medicine and Public Health—has been named one of the top hospitals in the world in the inaugural edition of *Newsweek* magazine's World's Best Hospitals 2019 list.

The hospital is among 25 U.S. hospitals named to *Newsweek's* "Top 100 Global" list, which includes hospitals in 11 countries around the world. On a separate ranking of 250 U.S. hospitals, University Hospital ranked 14th. It was the highestranking hospital among four Wisconsin hospitals listed.

The rankings are based on three scores: a hospital score, encompassing recommendations from thousands of physicians and health care professionals; a patient experience score, based on data from patient satisfaction surveys; and medical key performance indicators, including quality of care and patient safety data. The hospital did not apply nor pay to appear on the list. Hospitals must have at least 100 inpatient beds to be considered.

"I am so proud of the physicians and staff whose work led to this tremendous recognition," says UW Health CEO Alan Kaplan, MD.

University Hospital is a Level 1 trauma center for adults and children. UW Health has a joint operating agreement with UnityPoint Health-Meriter, which also appeared on *Newsweek*'s Best Hospitals list for the United States.

Mary Finta, who earned her medical degree in May 2019 in the Wisconsin Academy for Rural Medicine program, has focused on rural medicine during her medical training.

Following Her Mother's Footsteps graduate mary finta, md '19, enters rural medicine

by Parker Schorr

rowing up in a small town with a mother who had been a physician there for decades was both a blessing and a curse for Mary Finta, MD '19.

"We couldn't get through the grocery store in any less than an hour because she would run into people she knows all the time," Finta laughs. "But I think it's cool that a community can be that tight knit, that your physician or health care provider can offer you really great care and also just be a normal person out in the community who you see on a regular basis."

As safe and as nurturing as Marshfield was, the city of roughly 20,000 people in central Wisconsin was not where Finta

envisioned spending her adult life. Like most teens who graduate high school in a small town, she said the last thing she wanted to do was stay, so she opted for a big city environment by enrolling in college at the University of Minnesota Twin Cities.

But during a study abroad program in Spain, where she was stationed at a rural nursing home, a newfound appreciation for small town life came into focus.

As she shadowed nurses and geriatricians making their rounds and going through their daily routines, she was exposed to the creativity required by rural medicine providers and the unique relationships between the doctors and patients. If the hospital didn't have the resources to do the things available in larger, more urban centers, such as a CT scan, the doctors would come up with other ways to answer the question that needed to be answered. And it was striking how deep and invested the relationships that developed between doctors and their patients were, she said, most notably those of a veteran geriatrician who had worked at the same rural hospital for decades, and his patients—a lot like her mother back in Marshfield.

"I thought that was a really creative approach to medicine, being able to rely on your intuition a little bit more," she says. "And I just appreciated the sort of relationship that you can get that isn't always possible at a larger center. Like, he would see them at the grocery store and want to say hi to them and talk to them. I just thought it was cool that they could forge those deeper relationships."

Having earned her medical degree in May 2019 from the Wisconsin Academy for Rural Medicine (WARM)—the program within the University of Wisconsin School of Medicine and Public Health that prepares medical students to work in rural areas—Finta spent the past two years following her passion for rural medicine that had first been sparked in the Spain countryside. And she's done it, in all places, at the same Marshfield facility where her mom has worked for nearly 30 years, as she did rotations at WARM's Marshfield Clinic Health System/Northern Academic Campus.

"For me there's something really special about working in the same hospital as my mom," she notes. "I think it's really cool that she's spent her whole life here and has really built up a practice, and now I get to sort of follow in those footsteps a little bit."

Now, when Finta goes to the grocery store or the library or walks around town, she's stopped by her own patients, not her mom's. What annoyed her as a child now points to the unique opportunities present in rural settings for developing relationships that go beyond the walls of the hospital.

But she approaches these interactions carefully, so as not to breach confidentiality, she explains. Besides, her patients usually want to talk about their kids or their days—normal, casual conversation, in other words—not their medical conditions.

While rural medicine provides opportunities for a more creative, personcentered approach to health care, it also presents various, distressing challenges.

For instance, health disparities are a persistent challenge in rural medicine. Partly due to a lack of resources—especially compared to urban hospitals—and high levels of uninsurance and underinsurance, rural populations have worse health outcomes than their urban counterparts.

There's also a significant geographic shortage and maldistribution of physicians in Wisconsin. While about 30 percent of Wisconsin residents live in rural areas, only 11 percent of physicians have rural practices.



Classmates at the SMPH—(left to right) Mary Finta, MD '19, Jessica Walker, MD '19, Katherine Lucarelli, MD '19, and Colleen Andrews, MD '19—participated in an international rotation in Guatemala when they were in medical school.

Geographic isolation, lower socioeconomic status, higher rates of health risk behaviors, and limited job opportunities also contribute to these health disparities, according to the Rural Health Information Hub.

"Growing up here, you don't think about things like health disparities and patients who don't have insurance or who are undocumented immigrants who can't get insurance," Finta says. "So, coming back here and seeing that those are still very real issues in a rural setting, where there are not necessarily resources to address those things all the time, has been really interesting for me to try to figure out."

How to address health disparities when there are not ample resources to go around has been the mission of both Finta and WARM, and Finta said disparities are especially bad at Marshfield's free clinic, which serves uninsured and underinsured people, including undocumented immigrants.

To stretch its resources, the clinic has had to get creative. For instance, it hosts a diabetes clinic each month solely dedicated to improving diabetes outcomes. Insulin is expensive, so patients who have too much will donate it, allowing those without insurance to access the essential drug without going bankrupt.

The importance of insurance to health outcomes applies to much more than just diabetes, Finta explains, and the free clinic is continually working to better meet needs. "I think the free clinic is helping, but there's certainly still a lot of progress to be made," she observes.

While Marshfield doesn't necessarily have the advanced lab or diagnostic testing that some urban hospitals have, living and working in a rural center gets doctors invested in the community and wanting to serve it outside of the hospital, she says.

"People who choose to practice rural medicine tend to be very invested in that cause, so the people around you are really working toward the same goal that you are in wanting to bridge the gaps between those who have resources and those who don't," she shares. "I think it's really special that everybody is in this place in the middle of nowhere because they want to be here, and they want to make this place a healthier and better place for people to live."

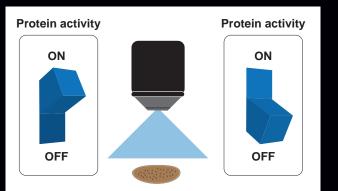
Although her time at Marshfield is over, she's keeping an open mind for her future plans. She will do an internal medicine residency at University of Michigan in Ann Arbor, a place she said will be great for training purposes while also retaining a small-town feel. She could see herself returning to a rural area, though.

Finta concludes, "I think there's a lot of need in rural communities, and I want to be one of the people who can help meet those needs."

Research Reveals the Role of Zelda in Development

Researchers at the University of Wisconsin School of Medicine and Public Health have developed a novel strategy to address the role of vital proteins during early embryonic development. Led by Melissa Harrison, PhD, associate professor, Department of Biomolecular Chemistry, the study was published in *Molecular Cell*.

During early development in all animals, it takes hours or days for a zygote to take control of its own development. Its genome remains silent as it is reprogrammed. Specialized proteins called pioneer



transcription factors drive this reprogramming. While reprogramming is essential for development, much remains unknown about this process.

Using fruit flies to study this conserved reprogramming event, Harrison's team uncovered fundamental features of a protein called Zelda, a pioneer transcription factor necessary for early embryonic development.

"We set out to test whether this protein was continuously required to reprogram the genome or if it was only required during the initial phases with the process then carried out by additional downstream factors," Harrison notes.

Employing the novel strategy of using blue light to rapidly and reversibly switch Zelda on and off, they showed that Zelda was required throughout genomic reprogramming. Once Zelda was inactivated, a host of gene expression ceased.

"This is the first time pioneer-factor activity has been tested so quickly and at this early stage in an embryo," Harrison explains, noting that the study shows that continued activity of pioneer factors may be required to drive sweeping developmental changes.

Study Identifies Why Colds Lead to Asthma Attacks

D pper respiratory infections are among the most common triggers of asthma attacks in children. A study by researchers at the University of Wisconsin School of Medicine and Public Health (SMPH) sheds light on what differentiates a cold that leads to an asthma attack from a cold that remains a cold.

Researchers in the SMPH-led_Inner-City Asthma Consortium (ICAC) used systems-scale data collection and network analysis to pinpoint characteristic changes in gene expression—the degree to which genes are turned on or off—that lead to asthma attacks in children. The findings were featured in *Nature Immunology*.

Daniel Jackson, MD '03 (PG '10), associate professor, SMPH Departments of Pediatrics and Medicine, is the lead investigator on the study, which involved 208 children with severe asthma at nine ICAC clinical sites across the United States.

The research team found that colds that led to an asthma attack showed changes in gene expression levels in six gene "modules," or families of genes that interact to produce specific biological functions. These gene modules are primarily associated with maintaining the function of the epithelium—the outermost layer of tissue lining the respiratory tract—and with responses of immune cells in close contact with it.

Researchers identified distinct molecular changes that take place in asthma attacks that occur without viral infections. They found increased gene expression of kallikreins, enzymes responsible for producing kinin molecules, notably bradykinin, which narrow airways in asthma and dilate blood vessels. Drugs targeting kallikreins and/or bradykinin



may offer potential for treating asthma attacks with a nonviral trigger.

The study also provides insights into asthma attack risk factors. Certain gene expression patterns prior to a cold were associated with higher risk for an asthma attack during the study.

Fibrocytes Could Help Rebuild Damaged Tissue

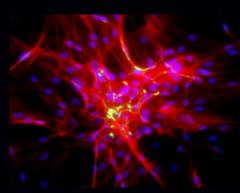
ould a blood cell type responsible for scarring be repurposed to help engineer healthy tissue?

A study by University of Wisconsin School of Medicine and Public Health researchers shows that someday fibrocytes might be used for regenerative therapies for those needing vocal folds or other tissues rebuilt. Nathan Welham, PhD, associate professor in the Department of Surgery, and his colleagues published the study in *Science Advances*.

In 2015, Welham created an artificial vocal fold that drew worldwide attention. His laboratory used larynx cells to grow transplantable tissue that created voice-like sound when vibrated. His latest study arose from a search for other cell types that could be harvested to make new tissues.

Welham's group has been studying the role fibrocytes play in wound healing. Fibrocytes are typically viewed as "bad guys" that lead to scarring. The study describes how fibrocytes transform from a round monocyte cell to an elongated mesenchymal cell. Researchers used proteomics to identify proteins associated with this transformation. They showed that differentiation involves a complete retooling of cell metabolism. In comparing the cells to other mesenchymal cell types, they found that at the proteome level, they are distinct, although fibrocytes have some mesenchymal features.

Using mature fibrocytes to build multilayered tissues, they placed cells within a scaffold to form a base layer with epithelial cells on top. The layer built from fibrocytes was able to support the maturation of a functional epithelium. The researchers had less success when trying to make the epithelium by using bloodderived fibrocytes.



"Our study found that fibrocytes show desirable mesenchymal features in certain situations, indicating we might be able to use them for new therapies," says Welham. "This marks a big shift in thinking."

Headgear Does Not Prevent Concussions in Soccer

he use of some models of protective headgear among high school soccer players did not result in fewer or less severe sport-related concussions compared to those not wearing headgear, according to researchers at the University of Wisconsin School of Medicine and Public Health.

Their study, published in the British Journal of Sports Medicine, provides rigorous scientific evidence to guide clinical recommendations about the use of headgear to reduce sports-related concussions in young soccer players.

"Decisions about the health and safety of student

athletes should be based on scientific evidence rather than marketing messages designed to sell products," says Tim McGuine, PhD, principal investigator of the study and a distinguished scientist in the Department of Orthopedics and Rehabilitation.

Researchers enrolled 2,766 soccer players (ages 14 to 18) from 88 high schools in the Midwest who participated in more than 151,000 soccer practices and games. Half were assigned to the intervention group, which required wearing one of five models of headgear, while the half in the control group did not wear headgear. Previous studies examining the efficacy of soccer headgear were conducted in laboratory settings using the impact of a soccer ball to the head as the injury-causing mechanism, but that may not capture what happens on the field, says McGuine. His study found only 35 percent of sport-related concussions were caused by a player heading a soccer ball; rather, head-to-player contact was the most common cause.

The study's findings enable parents and coaches to make well-informed decisions and to consider additional ways to prevent sportrelated concussions.



An unexpected finding is that sport-related concussions occurred at more than twice the rate among females than males. McGuine hopes future research will examine this topic.

The Future is Here

HUMAN GENOMICS AND PRECISION MEDICINE

e are entering a new era in health care, as the nascent field of precision genomic medicine takes root. Genomic medicine represents a major paradigm shift, as its central concept is that information gained from analyzing an individual's genomic variants routinely will be used, along with the assessment of environmental and clinical factors, to identify and manage presymptomatic health risks, facilitate the diagnosis of existing disorders, refine prognostic predictions, and guide treatment choices throughout life.

Genomic medicine has arrived at the University of Wisconsin School of Medicine and Public Health (SMPH) in the form of programs like our Precision Medicine Molecular Tumor Board. However, these are early days, and many challenges lie before us. Thousands of disease genes are yet to be discovered; we don't know what most sequence variants mean; there's a shortage of trained scientists and clinicians; and we have yet to determine how best to integrate genomic medicine into health care systems.

Recognizing that addressing these issues requires a broad-based approach, in 2018 the SMPH launched the UW-Madison Center for Human Genomics and Precision Medicine, giving us the opportunity to play a leading role in this field. The center's mission includes growing and nurturing the university's human genomics and precision medicine community; catalyzing research, clinical and educational activities; and sharing the benefits of precision medicine with all Wisconsinites. This is a tall order, but we are off to a great start.

We have engaged a wide range of UW-Madison faculty in our multidisciplinary research, and we have helped lead successful efforts to recruit five new faculty members in human genomics and precision medicine, with many more to come.

Additionally, we are partnering with the Biotechnology Center to provide core support

for clinical genomics research; we are supporting innovative exploratory research projects through our seed grant program; and in fall 2019, we will begin our educational activities, including a seminar series, journal club and annual symposium.

In this fast-paced field, today's research becomes tomorrow's clinical practice. Recognizing this blurring of boundaries between the bench and the bedside, we are launching flagship projects that simultaneously address critical knowledge gaps and provide valuable clinical information for patients. Our first two such projects focus on the more than 7,000 rare genetic disorders which, in aggregate, affect greater than one in 12 individuals, including over 500.000 Wisconsinites. Our Undiagnosed Diseases Program will be fully operational in fall 2019 and offers new hope for patients who have experienced years of diagnostic evaluations without an answer. The program also is an engine for gene discovery that engages researchers across UW-Madison and connects us to global networks of scientists and clinicians.

Genetic disorders and birth defects are the leading cause of infant death, yet most genetic test results come back too late to affect treatment in the neonatal intensive care unit (NICU). Our Program for the Rapid Diagnosis of Critically III Children uses genome-wide sequencing to provide timely, actionable diagnoses for these patients. A partnership with neonatology and pediatric critical care at American Family Children's Hospital and UnityPoint Health-Meriter Hospital, this program is designed to expand into a network that will link NICUs across Wisconsin.

Another flagship project, the UW-Madison Predictive Genomics Program, will enroll healthy, information-seeking adults who want to manage their risks for common diseases. One of the first of its kind to offer risk assessments that combine clinical



assessment and family history with the results of screening for rare genetic disorders and common risk variants, the program will generate both immediate clinical results and data for multiple research studies. An innovative patient portal, periodic data reassessments and the incremental addition of disease modules will keep participants engaged.

Implementation of precision genomic medicine requires a team of stakeholders. To this end, we have been working with UW Health, Quartz Health Benefits, the State Laboratory of Hygiene and clinicians from multiple specialties to enhance clinical programs and develop innovative initiatives.

The Canadian author William Gibson once said, "The future is already here, it's just not very evenly distributed." And so it is for precision medicine. Fortunately, the SMPH is committed to help lead the way by advancing knowledge of human genomics and translating insights into improved health and well-being for Wisconsin and the world.



M. Stephen Meyn, MD, PhD Director, University of Wisconsin-Madison Center for Human Genomics and Precision Medicine; Jan and Kathryn Ver Hagen Professor of Translational Research, Department of Pediatrics, UW School of Medicine and Public Health

I Know YOU

... OR DO I?

If you think you can identify the person in the photograph at right, send your guess to quarterly@med.wisc.edu. We'll draw one of the correct responses and announce the winner in the next issue of *Quarterly*.

For the last issue (see below), Michael Mchenry, MD '79 (PG '82), won the prize drawing and will receive a gift from the Wisconsin Medical Alumni Association!



HINT ABOUT PHOTO ABOVE: He and his brothers left their mark on Madison.

ABOUT LAST ISSUE'S PHOTO:

In the past issue of *Quarterly*, eight people correctly guessed the identity of Henry Carl "Corky" Rahr, MD '58.

Born in Green Bay, Wisconsin, Rahr passed away on December 26, 2017. He attended St. Norbert College in De Pere, Wisconsin, and earned his medical degree at the University of Wisconsin School of Medicine and Public Health (SMPH), then called UW Medical School. He practiced family medicine at the Luxemburg Clinic and served on the medical staff of St. Vincent Hospital and Bellin Memorial Hospital in Green Bay.

Among those who recognized Rahr were SMPH classmates John "Bry" Wyman, MD '58, and Harry C. Wong, MD '58. Wyman noted that he and Rahr were co-representatives for the Class of 1958; Wyman continues in that role.

In addition to serving as a co-class representative, Rahr was an active member of the Wisconsin Medical Alumni Association (WMAA), for which he served as president and was awarded the status of emeritus president.

Mary Rahr said the picture of her husband of 35 years was taken when he accepted the WMAA's Ralph Hawley Distinguished Service Award in 2008.

"He enjoyed his nickname of 'Corky,' which was given to him by Curly Lambeau, the player and coach for the Green Bay Packers and a friend of Corky's father, Henry Rahr, III," wrote Mary Rahr.

Philip M. Farrell, MD, PhD, said, "Dr. Rahr was an outstanding physicianteacher who loved the school and his



medical practice. I'm deeply grateful for his help as WMAA president when I became dean of the medical school. As a school, we are indeed fortunate to have so many outstanding alumni like him. Undoubtedly, we lost one of our best when Corky passed away."

We Want to Hear From You

Please send us information about your honors, appointments, career advancements, publications, volunteer work and other activities of interest. We'll include your news in the Alumni Notebook section of the *Quarterly* as space allows. Please include names, dates and locations. Photographs are encouraged.

Have you moved? Please send us your new address.

CONTACT INFORMATION:

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