We all know there is an opioid epidemic.

Now what?

Science and Faith
Doctors and clergy team up against HIV

Maggie’s Marketplace
Making strides against food insecurity in Ypsilanti
Eight-year-old Charlie Buckley and her father, Nick, made history at Michigan Medicine. On May 22, 2019, Nick donated his kidney to Charlie, who was diagnosed in 2015 with nephrotic syndrome. The procedure marked the 3,000th living organ donation at U-M.

“We didn’t do a good job of giving her a healthy kidney the first time,” Nick says. “I wanted to do better this time.”

Transplant surgeon and U-M Transplant Center Director John Magee, M.D. (Residency 1996, Fellowship 1997), who led Charlie’s surgery, reflected on this lifesaving gift: “In addition to being a miraculous moment for Charlie and her family, Charlie’s transplant is also a big milestone for us here at Michigan. It reflects a 55-year history of courage and generosity on behalf of so many living donors and a great celebration of humanity.”

Learn more about this courageous duo at medatmich.org/charlie.
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Message from the Dean

The challenge of wearable medical devices

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Jordan B. Acker, Michael J. Behm, Mark J. Bernstein, Paul W. Brown, Shauna Ryder Diggs, Denise Ilitch, Ron Weiser, Katherine E. White, Mark S. Schlissel (ex officio)
We live in the age of digital medicine. News- papers, magazines, and even professional health journals are thick with stories about how wearable devices, such as the Apple Watch and Fitbit, will revolutionize health care by providing real-time health monitoring.

Imagine being able to screen for the two most common causes of death in industrialized countries — heart disease and cancer — by checking your lipid profile or a panel of cancer markers whenever you want. Talk about health vigilance.

What the Silicon Valley wizards developing these products won’t tell you is that it remains unproven whether continuous digital monitoring will be able to identify serious health problems early, while a cure is still possible.

I don’t want to pour cold water on the concept of technology improving health. But as we move toward widespread use of instant data feeds from wearable devices, we must guard against the profoundly unscientific yet seemingly un- avoidable tendency to cast all advancements as fountain-of-youth discoveries, while neglecting the inevitable trade-offs they bring.

Real-time monitoring is often pitched as creating a “new era in health care” — a perspective that ignores the fact that this experiment has, in some cases, already been run. Take continuous blood pressure (BP) monitoring. Decades ago, expert panels assembled by the American Heart Association proposed that continuous BP monitoring would make for more effective treatment of hypertension. The research showed that not to be the case. For people with diabetes, frequent blood sugar monitoring will only occur with widespread use of implanted “artificial pancreas” devices, many of which are still in development.

Techno-utopians also give the impression that their gadgets are magic bullets all by themselves. Putting aside significant questions regarding the accuracy of at-home devices, each single reading — your pulse rate, BP, glucose levels — is highly dependent on everything from your genes to your lifestyle to your ever-changing environment. It will likely be decades before the influence of all of these factors on health will be understood, even in this era of big data, artificial intelligence, and machine learning.

As with most new technologies in medicine, these devices will not replace the expertise of physicians and other health care providers, but rather accentuate it. First, providers will digest your health data and compare it with information now available at lightning-speed from medical research. Second, and more importantly, only experienced clinicians can evaluate these data in the context of their experience to give you their best opinion on how to proceed. Most times, as a physician, there is no single answer to the question, “what should I do now?”

Finding the proper response will only become harder because individual data, along with the rise of genomics and sophisticated new diagnostic tools, are already revealing subtle but significant variations in the biology and chemistry of every person, further making diagnosis and treatment decisions more complicated.

As physicians wrestle with the intellectual challenges of processing these new mountains of information, they will also have to sharpen their soft skills to communicate more openly and effectively with patients who are empowered by the same new technologies. In the age of real-time monitoring, phys- icians are not just caregivers but also care partners.

Correction:
I was disappointed to see, on page 1 of Medicine at Michigan [winter 2019], a physician examining a patient through clothing. It is my feeling that this gives passive endorsement to a practice that is fraught with error.

Mikio H. Hiraga (M.D. 1959, Residency 1974), anesthesiologist
Eight-year-old Evie Hurst was born without eyes. Her frequent visits to the doctor can cause anxiety and panic, triggering a “fight or flight” response, says her mother, Katie Hurst. But when C.S. Mott Children’s Hospital music therapist Emma Wymer (pictured here holding Evie) is at Evie’s side, she calms down and sings along.

A video of Evie and the music therapist went viral in late 2018, giving more than a million viewers an understanding of the power of music therapy. “Music is medicine,” says Katie Hurst. “It is her link to safety and enjoyment of the world.”

Watch a video of Evie and her music therapist at medatmich.org/evie.
Doubling Up on Blood Thinners

A daily aspirin is generally a safe therapy for people who need help preventing heart attacks or stroke. But Michigan Medicine research has found reason to reconsider aspirin use when a patient is also taking an anticoagulant. The study, published in JAMA Internal Medicine, reveals a significant increase in adverse outcomes for people taking both aspirin and warfarin, a popular anticoagulant often prescribed for stroke prevention in patients with atrial fibrillation (AFib) and venous thromboembolism (VTE). U-M researchers are leading the charge for change in Michigan, working with anticoagulation clinics to identify people who are using multiple blood thinners, and to determine if both are necessary, says senior author Geoffrey Barnes (M.D. 2007, Residencies 2011 and 2014), assistant professor of internal medicine and a member of U-M’s Institute for Healthcare Policy and Innovation.

6,539
patients in the study cohort, enrolled at six anticoagulation clinics in Michigan between 2010-2017

2,453
patients prescribed warfarin were also taking aspirin without any clear reason, over a seven-year period

8.1%
of those using combination therapy were hospitalized for bleeding

5.2%
of those using warfarin alone were hospitalized for bleeding

2.3% vs. 2.7%
mortality rates at one year, respectively, for those on both medications and those on warfarin alone — roughly the same rate, compared with other data in the study

300,000-600,000
Americans are affected by VTE each year

9% of people who have AFib, according to the CDC

15% of those using combination therapy were hospitalized for bleeding

Americans have AFib

Patient Visits Higher at Rural Emergency Departments

BY KYLIE URBAN

For some patients, the local emergency department is their main source for health care. A recent study examined emergency department visits from 2005-2016 and found that rural emergency department visits increased dramatically over that 12-year period.

They rose from 36.5 to 64.5 visits per 100 people, compared with urban visits, which increased from 40.2 to 42.8.

“Patterns of use of emergency departments by populations are important indicators of their health care needs. Increased reliance on emergency departments for health care by rural populations may reflect increased health care needs or challenges in access to alternative sources of outpatient care,” says study co-author Margaret Greenwood-Ericksen (M.Sc. 2018), M.D., an assistant professor of emergency medicine and health services researcher at the University of New Mexico. The study was conducted when she was a fellow in the National Clinician Scholars Program at the U-M Institute for Healthcare Policy and Innovation.

The study, published in JAMA Open Network, used visit data from the National Hospital Ambulatory Medical Care Survey. Keith Kocher, M.D. (Residency 2007), MPH, assistant professor of emergency medicine, co-authored the study.

Visits per 100 people

Urban
Rural

2005
2016

0
20
40
60

2005
2016

36.5
40.2
42.8
64.5

300,000-600,000
Americans are affected by VTE each year

9% of people in the U.S. age 65 and older have AFib, according to the CDC

15% of those who have AFib

2.3% vs. 2.7% mortality rates at one year, respectively, for those on both medications and those on warfarin alone — roughly the same rate, compared with other data in the study

Disclosure: Barnes has received grant support from Pfizer/Bristol-Myers Squibb, NHLBI, and Blue Cross Blue Shield of Michigan. He also has received consulting fees from Pfizer/Bristol-Myers Squibb, Janssen, and Portola.

8
Medicine at Michigan

9

The Path to High Reliability

Health care providers across the country do amazing work to help promote and advance health care. However, as much as we prioritize safety and quality, we still make mistakes. It is estimated that more than 250,000 people in the U.S. die each year from medical errors, making it the third leading cause of death after heart disease and cancer. Without question, the most important reason to focus on this issue is to ensure the safety and well-being of our patients. In addition, it is worth noting that preventable medical errors in the U.S. alone account for nearly $20 billion in medical bills. With the rising cost of health care, we could make a significant impact by reducing medical errors and preventable injuries.

To do so, Michigan Medicine is embarking on a journey to become a “highly reliable organization.” The concept of high reliability originated in complex industries such as commercial aviation and nuclear power, where intricate systems increase the likelihood of accidents and adverse events. A highly reliable organization depends on its people and certain behaviors, tools, and techniques to consistently avoid potential errors and, subsequently, poor outcomes.

Over the next several years, we will focus on developing the universal safety skills that highly reliable organizations possess and practice. These include fostering better communication skills that further teamwork and respect among colleagues. It also means adopting practices to cross-check work, validate and verify processes, and identify potential red flags. All of these improvements, while seemingly simple, will collectively create a stronger safety culture where our employees are our first line of defense against mishaps and errors.

This journey to high reliability will engage all of our employees, even those who don’t work directly in the patient care setting. It is just as critical for the IT staff who administer our electronic medical records, the analyst who manages supply chain inventory, and the financial adviser who implements payment plans to develop the mindset and skills of a highly reliable organization. The work they do, in some direct or indirect way, impacts and informs key decisions about a patient’s care and the experience they have with us.

As health care becomes increasingly complex, we must find new ways to improve our quality, reduce harm, and manage costs. Sometimes that means learning and taking best practices from other diverse industries that have similar levels of complexity. It is the right thing to do, both for our bottom line and for the well-being of the patients who entrust us with their care.

Let’s form an initial hypothesis. Here are my guesses from visual cues alone:

David A. Spahlinger, M.D.,
Executive Vice Dean for Clinical Affairs; President of the U-M Health System; Clinical Professor of Internal Medicine

March 29
232 Retweets 4,282 Likes

March 18 • Match Day 2019

Of Michigan participated in Match Day, learning where they’ll begin their professional careers all across the U.S.

Marshall Runge, M.D., Ph.D., Reappointed

Marshall S. Runge, M.D., Ph.D., was reappointed in June as executive vice president for medical affairs (EVPMA) and dean of the U-M Medical School for another six-year term. His new term was approved by the Board of Regents and will last until June 30, 2025.

Runge began serving as EVPMA in 2015 and was also appointed dean of the medical school in 2016. He has implemented transformative change and has positioned the organization for continued success. Notable achievements during this period include: an expansion of Michigan Medicine’s clinical statewide network, including an affiliation with Metro Health and joint ventures with Trinity Health and Sparrow Health System; launch of the Precision Health Initiative; overseeing the conclusion of the Victors for Michigan campaign, which raised nearly $1.5 billion for health system priorities; and development and implementation of Michigan Medicine’s first strategic plan for diversity, equity, and inclusion.

A potential new immune-based therapy to treat precancers in the cervix completely eliminated both the lesion and the underlying HPV infection in a third of women enrolled in a clinical trial. The shot, a therapeutic vaccine, injects a specific protein that triggers an immune system response to attack high-risk HPV types that cause nearly all cervical cancer precursors, known as cervical intraepithelial neoplasia, or CIN.

“There are very few products trying to cure women who already have an HPV infection,” says Diane Harper, M.D., MPH, M.S., professor of family medicine and of obstetrics and gynecology. She is also a member of the U-M Rogel Cancer Center, senior associate director of the Michigan Institute for Clinical and Health Research, and lead author of the study, which was published in Gynecologic Oncology. “This is the first time we’ve seen something with this success rate that is relatively easy to implement.”

The study enrolled 192 women diagnosed with CIN2 or CIN3, randomizing 129 to receive the vaccine and 63 to receive a placebo. Women who received the vaccine were more than twice as likely as those who received the placebo to see their CIN eliminated, regardless of the type of HPV infection.

The results were the most striking with the more-severe CIN3s: at least 15% and as much as 36% of those who got the vaccine saw their CIN3 eliminated, while none of the women in the placebo group did. Additional clinical trials are needed before seeking FDA approval for the therapeutic vaccine, called Tipapkinogen Sovacivec, or TS.

BY NICOLE FAWCETT

HPV Therapy Shows Promise

BY NICOLE FAWCETT

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BY NICOLE FAWCETT

HPV Therapy Shows Promise

BY NICOLE FAWCETT
C.S. Mott Children’s Hospital

March 1 •

After a group Paws4Patients Birthday “Pawty” today to celebrate all our wonderful therapy dogs’ spring birthdays … Bindi [the dog] got to celebrate with her favorite people in the Family Center, too. Join us in wishing Bindi a happy 3rd birthday! Thank you to everyone who stopped by to say hello!

A curled-up cat, a tail-wagging dog, a chirping parakeet, or even a serene goldfish may help older adults cope with mental and physical health issues, according to a poll conducted by the U-M Institute for Healthcare Policy and Innovation, and sponsored by AARP and Michigan Medicine.

While pets come with benefits, they can also bring concerns, and some people may even put their animals’ needs ahead of their own health, according to the findings from the National Poll on Healthy Aging. In all, 55% of adults ages 50 to 80 have a pet, according to the findings. More than three-quarters of pet owners say their animals reduce their stress, and nearly as many say pets give them a sense of purpose. But 18% also said having a pet or pets puts a strain on their budget.

Two-thirds of all pet owners, and 78% of dog owners, said their pet helps them be physically active, according to the findings. Poll director Preeti Malani, M.D., professor of internal medicine and chief health officer of U-M, says the poll results indicate a need for physicians and other health care providers to ask older adults about the role of pets in their lives.

Pets Can Bring Health Benefits, or Concerns

BY KARA GAVIN

How respondents said pets contribute to healthy aging:

- **Reduce stress**: 79% reported by pet owners ages 50-80
- **Provide a sense of purpose**: 73%
- **Connect with others**: 65%
- **Be physically active**: 64%

Top Specialties of 2019

U-M Med School Grads

- Internal Medicine
- Emergency Medicine
- Anesthesiology
- OB-GYN
- Pediatrics
- Family Medicine

“Just because a hospital is affiliated with a really, really reputable hospital doesn’t mean that it is delivering care on par with that Honor Roll hospital. For simple care in straightforward patients it may not make a difference. But if you’re having a heart operation or a colon removed for cancer, you want to talk to your doctor about it.”

Tiffany Munzier, M.D. (Residency 2016), a pediatric developmental behavioral fellow at the U-M C.S. Mott Children’s Hospital, was interviewed by ABC News about a study she and her colleagues — including her mentor Jenny Radesky, M.D., assistant professor of pediatrics — conducted that found toddlers have a better chance of interacting with their parents when reading print books compared to electronic versions.

“The print book is a really beautiful object in that each parent and child interacts differently over a print book. Parents know their children well and have to make it come alive for their child to create that magic.”

Emily Bilek, Ph.D. (Fellowship 2016), clinical assistant professor of psychiatry, was asked to provide her interpretation of self-care for women in a HuffPost.com article. Bilek stressed the importance of emotional as well as physical well-being, and cautioned against succumbing to a skewed “Instagram version of self-care.”

“‘The term ’committed suicide’ is damaging because for many, if not most, people it evokes associations with ‘committed a crime’ or ‘committed a sin’ and makes us think about something morally reprehensible or illegal.”

In a HuffPost.com story, Jacek Debiec, M.D., Ph.D., assistant professor of psychiatry, assistant research professor, and member of the U-M Molecular and Behavioral Neuroscience Institute, addressed how language — especially when referring to suicide — can stigmatize those living with mental health issues.
The Right Balance

BY LAUREN CRAWFORD

The focus and skill of a gymnast-turned-surgeon.

A balance beam demands courage, confidence, and determination. It demands the skill of an athlete unwilling to shy away from its challenge, someone with patience and poise. Deborah Berman (M.D. 1999, Residency 2003, Fellowship 2010), an associate professor of obstetrics and gynecology in the Division of Maternal Fetal Medicine, delivered that strength as an undergraduate on the U-M gymnastics team — and continues to do so as a member of the U-M Fetal Diagnosis and Treatment Center (FDTC), the only one of its kind in Michigan.

“A four-inch balance beam,” says Berman, “is a wonderful place to find out about struggling and facing disappointment, dusting oneself off, and trying again. And again. And again.”

Berman was raised on maize and blue, born into a family steeped in Michigan tradition. Her parents and brother are alumni, as is her husband, Rich Dopp (M.D. 2001, Residency and Fellowship 2003), also a former U-M gymnast and now assistant professor in the Medical School’s Department of Psychiatry.

For Berman, attending Michigan was not just a rite of passage, but an unparalleled opportunity. In gymnastics and as an undergraduate, she learned how teamwork and dedication can mold a person; at the Medical School, she found inclusivity and diversity, and, while completing her obstetrics and gynecology rotation, saw firsthand the importance of standing up for others.

“Every human deserves an advocate. But women — and particularly women during their reproductive journeys — most certainly deserve advocates and voices of support. Many pregnancies are profoundly complicated, and those women and families deserve providers who walk that walk with them, hold their hands, and have the medical knowledge and skills to help them through whatever they may need. And that is who and what I wanted to be.”

At the U-M FDTC, Berman works in high-risk obstetrics, prenatal diagnosis, and fetal surgery and therapy, where she has the “privilege of working with the FDTC team to perform in-utero procedures ... to improve outcomes or to actually save lives.”

She and Dopp, the “adorable gymnast” she met the first day of freshman year, both became advocates in their respective fields, taking what they learned at U-M to heart. Dopp champions the children and adolescents he works with, and “dreams of destigmatizing mental health.” As a maternal fetal medicine specialist, Berman feels privileged to serve the woman and her fetus — “two patients at one time” — and is humbled by the fact that that’s something “not done in other facets of medicine.”

“On her floor at the Von Voigtlander Women’s Hospital, she is constantly astounded by the “nurses, anesthesiologists, operating room techs, residents, fellows, and medical students all working together for a common goal.” It evokes a memory of attending the NCAA championships as a senior at U-M. Throughout all the events, she and her fellow gymnasts held hands, cheered each other on, and celebrated everyone’s contributions to the team. At home and at work, Berman is grateful to be surrounded by people as committed to improving the lives of others as she is.

“I learned that not every day brings success, but every new day brings the opportunity to plug along and do my best — in my work for my patients, my students, my colleagues. I learned that there is a right way to do what should be done, and that I can and should follow that path. Every one of these lessons from my early years are somewhere deep in my soul, there when I have needed them most in my practice of medicine, in my life.”

“Professorships

The Andrew B. Briskin Research Professorship in Pediatrics, inaugurated in April 2019, honors the life of Andrew Briskin, philanthropist Edith S. Briskin’s son, who died from complications that developed after he contracted HIV/AIDS. Edith Briskin hopes that, by directing her support toward programming and research, she will provide an opportunity to advance groundbreaking ideas to help people fighting infectious diseases. The professorship will carry on Andrew’s passion for helping people and the world around him. Suzanne Dawid, M.D., Ph.D., also an associate professor of microbiology and immunology, will serve as the first Andrew B. Briskin Research Professor of Pediatrics.

David A. Antonetti, Ph.D., was named the inaugural Roger W. Kittendorf Research Professor of Ophthalmology and Visual Sciences in April 2019. Kittendorf, who died in 2012, was a thoughtful investor who wanted to make a difference in the world. While he requested anonymity for the gifts he made during his lifetime, the W.K. Kellogg Eye Center is honored to now celebrate his giving publicly. This professorship will ensure that the important work of advancing knowledge to save sight continues, creating a legacy of progress and hope. Antonetti is also a professor of molecular and integrative physiology.

The Margaret Terpenning, M.D., Collegiate Professorship in Geriatric and Palliative Medicine was inaugurated in April 2019. Terpenning (M.D. 1976, Residency and Fellowship 1982), who died in 2013, was renowned for her research on the relationship between dental disease and coronary heart disease, and was regarded as a compassionate clinician. She also ran the Geriatrics Research Education and Clinical Care Unit at the VA Ann Arbor Healthcare System. Julie P.W. Bynum, M.D., joined the faculty at U-M as the Margaret Terpenning, M.D., Collegiate Professor of Geriatric and Palliative Medicine, and is also a member of the Institute of Gerontology, associate director of health policy and research in the Geriatrics Center, and a member of the Institute for Healthcare Policy and Innovation.
How your everyday actions create unregulated health data.

**A Shadow of Oneself**

*BY LAUREN CRAWFORD*

Researchers from U-M’s Institute for Healthcare Policy and Innovation (IHPI) recently published a piece in *Science* about health care data that fall outside the scope of HIPAA regulations. When paired with existing health care information, these data, often collected online, are called “shadow” records. Less regulated than their HIPAA-bound counterparts, shadow records have proven helpful investigative tools for the medical field. But, researchers warn, there are concerns regarding the mishandling and selling of data, such as the potential for insurers to “identify high-cost patients to avoid,” or for targeted marketing strategies to exploit personal information.

**What is the difference between HIPAA-protected information and shadow record information are gathered?** HIPAA only protects health information gathered from “covered entities,” such as health care providers, plans, or clearinghouses, or their business associates. Shadow record information comes from other sources, such as health or wellness apps, social media posts, or internet searches. It can also come from information that once was covered by HIPAA, but has now become unprotected.

**Why isn’t the information in shadow records protected or regulated under HIPAA?** Because almost all of our health data in the United States is protected by method of acquisition, the same piece of data can be regulated completely differently if you gave it to your doctor versus if you plugged it into a health app (like for your wearable fitness device). When the HIPAA Privacy Rule was promulgated in 2000, no one envisioned the massive amounts of health data people would choose to freely share over the internet decades later.

In what ways can shadow records aid research? Conversely, how can that information be misused? In order to be useful, health data must generally be associated with health factors and variants, and also with outcomes. For example, it would be helpful to understand how certain genetic variants, when compounded by the smog of city living, can lead to asthma and related morbidities and mortalities. The more data we have about people, their lifestyles, health problems, and outcomes, the better we can assess which variants are most likely to affect those outcomes to develop new diagnostic or treatment.

Regarding how the information can be misused — it depends on your definition of “misuse.” Traditionally, data ethicists consider misuse to be any use which is not disclosed or consented to. However, we know that often — even when uses are disclosed and people check off that they agree to terms and conditions — people don’t actually read the disclosures and are still upset when they find out about uses of their health data. And a narrower definition of “misuse” might focus on activities that harm or manipulate people (targeting them for unnecessary treatment ads or discriminating against them in hiring), rather than focusing on individual disclosure or consent.

Europe and California have taken steps to ensure individuals’ shadow records are more fairly regulated and protected. Can you explain what these steps are? Both the European Union and California recently put in place new data privacy regulatory regimes that apply to personal information, including health data. The General Data Protection Regulation (GDPR) in Europe applies to “personal data” (including health data) that are “processed” by a wide range of public or private entities. The GDPR requires companies to obtain such personal data legally (e.g., with consent); to collect and process only as much data as necessary; to notify individuals when their data have been received (usually); and much more.

California’s new Consumer Privacy Act applies only to personal information about California residents. It creates notice and access requirements for businesses that collect, sell, or disclose information, and consumers may request that certain information be deleted and may opt out of the sale of their information.

Do you believe more states and countries should adopt similar methods of regulating shadow records? We believe that the U.S. needs a more comprehensive data regulatory regime. Given the fluidity with which data travel between states, state-by-state legislation is neither an adequate nor efficient solution. It’s up in the air whether state action like California’s will effectively force federal action (which could be good or bad, depending on what it looks like), and how far the GDPR’s effects will stretch.

Are there potential unintended effects of bringing such regulations to bear on shadow records? Regulating shadow records will unacceptably constrain innovation; right now, they’re an awkward workaround but do have some potential benefit. But it’s also important that people know how their data will be used when they share it, and that benefits resulting from such new data sharing and research are distributed in equitable ways. Both additional transparency and accountability are necessary to increase much-needed public trust in data science.

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**FACULTY**

**Honors**

**John I. Allen**, M.D., professor of internal medicine, was given the American Gastroenterological Association’s highest honor, the Julius Friedenwald Medal. Presented annually since 1941, the medal recognizes a physician for lifelong contributions to the field of gastroenterology. Allen is also chief clinical officer of the U-M Medical School Medical Group.

**Maria Castro**, Ph.D., the R.C. Schneider Collegiate Professor, professor of neurosurgery, and professor of cell and developmental biology, became chair of the National Institutes of Health’s Center for Scientific Review in the Clinical Neuroimmunology and Brain Tumors Study Section (through June 2020); chair of the American Society of Gene and Cell Therapy’s Immune Responses to Gene and Cell Therapy Committee (through 2020); and co-chair of the Basic and Translational Aspects of Immunology and Gene and Cell Therapy’s 2019 Scientific Symposium.

**Hope K. Haefner** (M.D. 1985, Residency 1990), the Harold A. Furlong Professor of Women’s Health in the Department of Obstetrics and Gynecology, received the 2019 American Society of Colposcopy and Cervical Pathology’s Distinguished Service Award. This is the highest award offered by the society, and it is presented for outstanding service to the discipline of anogenital and HPV-related diseases.

**Pedro Lowenstein**, M.D., Ph.D., the Richard Schneider Collegiate Professor, professor of neurosurgery, and professor of cell and developmental biology, was named a fellow of the American Association for the Advancement of Science’s Section on Neuroscience in 2018.

**Howard Markel** (M.D. 1986), Ph.D., the George E. Wantz Distinguished University Professor of the History of Medicine and director of the Center for the History of Medicine, received the 2019 Johns Hopkins School of Medicine’s Distinguished Medical Alumnus Award. The award is the highest honor the institution bestows. Markel is also a professor of psychiatry, and of pediatrics and communicable diseases.

**Linda Samuelson**, Ph.D., the John A. Williams Collegiate Professor of Gastrointestinal Physiology and professor of internal medicine, was named president-elect of the American Gastroenterological Society (AGS) in 2019, and, in 2020, will become its 93rd president. She will give the society’s 2020 Horace W. Davenport Distinguished Lectureship. Also the associate director of the Center for Organogenesis, Samuelson is the 11th member of the Department of Molecular and Integrative Physiology to serve as AGS president.
We all know there is an opioid epidemic.

Now what?

Inside U-M’s varied approaches to fighting the epidemic, including innovations in both prevention and treatment — and why there might be “great reason for hope.”

BY KATIE VLOET
ILLUSTRATION BY ELLEN WEINSTEIN
be questions are seemingly infinite: What makes one person more prone to addiction than another? What is the right number of pills to prescribe after a knee replacement, a mastectomy, or a C-section? How can we prevent teens from trying these drugs, and short-term users from developing a substance use disorder? What can be done about the scourge of ultra-powerful synthetics?

We know how the opioid epidemic began. But how does it end? Researchers and clinicians at the University of Michigan are asking questions on a multitude of fronts. It’s impossible to solve the public health crisis born from the overuse of this powerful pain medicine alone, but together, they are making an appreciable dent in the ways that opioids are prescribed, used, disposed of, and understood. They are making strides in the treatment of addiction, as well as the prevention of substance misuse in the first place.

No single story can highlight all of the opioid-related work being done at Michigan Medicine, but this article encompasses many pieces of the opioid puzzle: from policy to practice, from addiction, as well as the prevention of substance use in the first place.

Over Dosing and Over Prescribing

Beginning in the early 2000s, opioids were increasingly used to treat chronic pain in the U.S., Amy Bohnet, Ph.D., and Mark Igen, Ph.D., point out in a 2019 review article in The New England Journal of Medicine. The change came in response to ‘"concerns about the undertreatment of pain, new clinical guidelines, and the declaration by the Joint Commission on the Accreditation of Healthcare Organizations of pain as the ‘fifth vital sign.’” wrote Bohnet, associate professor of psychiatry, and Igen, professor of psychiatry and director of U-M’s Addiction Treatment Services.

As a result, the average dose of prescribed opioids increased from about 100 to 700 morphine milligram equivalents per person, per year, between 1997 and 2007. The increased availability of opioids — due to prescriptions and influxes of manufactured synthetic opioids such as fentanyl — likely formed the basis for a spiral of overdose and misuse. The result for many has been deadly.

Researchers and clinicians at the University of Michigan are seeking answers on a multitude of fronts. It’s impossible to solve the public health crisis born from the overuse of this powerful pain medicine alone, but together, they are making an appreciable dent in the ways that opioids are prescribed, used, disposed of, and understood. They are making strides in the treatment of addiction, as well as the prevention of substance use in the first place.

Number of People By Age Group Who Misused Opioids in 2017

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Number of People</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 to 17</td>
<td>12,576,000</td>
</tr>
<tr>
<td>18 to 25</td>
<td>7,690,000</td>
</tr>
<tr>
<td>26 and older</td>
<td>2,570,000</td>
</tr>
</tbody>
</table>

Reasons for Misuse

- 62.6% Relieve physical pain
- 13.2% Feel good or get high
- 8.4% Relax or relieve tension
- 5.4% Help with sleep
- 10.4% Other

Among the 11.1 million people ages 12 and older who misused prescription pain relievers in 2017.

Prescription opioids

Fentanyl and other synthetic narcotics

2017

<table>
<thead>
<tr>
<th>Drug</th>
<th>Total</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opioids</td>
<td>16,849</td>
<td>13,942</td>
</tr>
<tr>
<td>Cocaine</td>
<td>13,942</td>
<td>17,029</td>
</tr>
<tr>
<td>Heroin</td>
<td>15,482</td>
<td>17,029</td>
</tr>
<tr>
<td>Other narcotics</td>
<td>28,466</td>
<td>11,353</td>
</tr>
</tbody>
</table>

Pain Specialist: No Opioid Prescriptions in 10 Years

Despite a lack of evidence to support the use of opioids for chronic pain, they’re still widely prescribed. People in the U.S., less than 5% of the global population, consume 80% of the world’s opioids. The director of the Michigan Medicine Chronic Pain and Fatigue Research Center, Daniel Clauw (M.D. 1985), has received worldwide media attention for saying that he does not prescribe opioids for his chronic pain patients. Routine clinical practice underuses safer options for chronic pain conditions such as fibromyalgia, interstitial cystitis, and irritable bowel syndrome, says Clauw, professor of anesthesiology, of internal medicine, of psychiatry, and member of the Division of Rheumatology.

“I haven’t prescribed an opioid for chronic pain in at least a decade,” Clauw says. “Narcotics don’t work for most types of chronic pain, and overprescribing of narcotics in the United States has led to a serious public health problem with many deaths and overdoses. We need to modify how we approach individuals with chronic pain.”

Clauw acknowledges opioids may be helpful for malignant pain and some cases of osteoarthritis and chronic lower back pain, if other pharmacologic and nonpharmacologic therapies are not working. But he urges providers to exhaust all other options before prescribing an opioid. He says classes of medications like tricyclic drugs, gabapentinoids, and serotonin-norepinephrine reuptake inhibitors can be effective in treating chronic pain and are not always considered or used in individuals with chronic pain. Exercise, cognitive behavioral therapy, and a number of complementary and alternative therapies can also be effective for individuals with chronic pain, he adds. —Haley Otman

Some deaths were attributable to more than one drug category. Not all drug categories encompassed by the total number of deaths are represented individually. National Institute on Drug Abuse and CDC WONDER 2019
and a co-director of Michigan OPEN. “We also know that the more opioids I give you, the more you’ll take.” Yet Brummett and his colleagues are well aware of the concern among surgeons and pain patients that smaller prescription sizes will lead to greater problems with pain. The researchers emphasize that they don’t want patients to be in pain; indeed, they point out, research suggests that patients’ pain scores remain unchanged even when they are given fewer opioids. A groundbreaking 2017 study from the OPEN team found that some surgeons might be able to prescribe one-third of the opioid pills they currently give patients and not affect their level of post-surgery pain control. That would mean far fewer opioids left over to fuel the ongoing national crisis.

“We continue to notice that with education and attentive care, fewer and fewer opioids are needed and pain care is improving,” says Michael Englesbe, M.D. (Residency 2004), the Cyrenus G. Darling Sr., M.D., and Cyrenus G. Darling Jr., M.D., Professor of Surgery; program director of the Michigan Surgical Quality Collaborative; and one of the authors of the study. “Our ambitious goals include empowering half of the surgical patients at Michigan Medicine to be opioid-free following the first day of surgery.” Michigan OPEN is co-directed by three Michigan Medicine physicians: Brummett; Englesbe; and Jennifer Waljee, M.D. (Residencies 2009, 2011, and 2012), MPH, associate professor of surgery.

It launched in 2016, with support from Blue Cross Blue Shield of Michigan, the Michigan Department of Health and Human Services, and the Institute for Healthcare Policy and Innovation (IHPI) at U-M. The partnerships have bolstered the awareness and adoption of OPEN’s recommendations, Brummett says. Now, other states are looking at Michigan’s model to implement their own guidelines. “Nobody is doing this on the scale that we are. Others are following our lead,” he says.

**Opioid Solutions**

In 2015 and 2016, for the first time in half a century, life expectancy in the U.S. declined for two consecutive years; a key factor was the increase in unintentional injuries, which includes overdose deaths.

Opioid Solutions, a resource developed by the U-M Office of Research, the Injury Prevention Center, and IHPI, is trying to understand an epidemic partially responsible for the decline. It serves as a central hub for research, educational activities, and community outreach related to opioids, and draws on nearly 100 U-M faculty — in fields ranging from psychiatry, pharmacy, and public policy to basic science and law — whose research explores opioid misuse and overdose.

“The opioid epidemic in our communities does not discriminate by race or socioeconomic status,” says Rebecca Cunningham, M.D. (Residency 1999), professor of emergency medicine, director of the Injury Prevention Center, and associate vice president for research within the Office of Research at U-M. “We have seen firsthand that this medical illness affects everyone — rich, poor, rural, urban, educated, uneducated, young adolescents, and elderly adults.”

**Slowly but surely, the stigma surrounding marijuana use is losing its grip in the U.S.** As of 2021, 33 states and the District of Columbia have approved the medical use of cannabis, while 10 states have legalized marijuana for recreational use. Still, at the federal level, marijuana remains a Schedule 1 drug under the Controlled Substances Act, defined as a drug with no currently accepted medical use and a high potential for abuse (the same category as heroin, and a stricter category than oxycodin and fentanyl).

Researchers from the U-M Chronic Pain and Fatigue Research Center (CPFRC) published a study this year in Health Affairs that found the vast majority — 85.5% — of medical cannabis license holders in state registries indicated they were seeking treatment for conditions where cannabis has strong or conclusive evidence of therapeutic efficacy. Chronic pain accounted for 62.2% of all patient-reported qualifying conditions. Lead author Kevin Boenkhe, Ph.D., research investigator in the Department of Anesthesiology and the CPFRC, and his fellow researchers — including Daniel J. Clauw, M.D., professor of anesthesiology, of internal medicine, and of psychiatry; member of the Division of Rheumatology, and director of the CPFRC — examined the conditions for which people in medical marijuana state registries indicated they were seeking treatment. They found that more than half of people who take medical cannabis for chronic pain say they’ve driven under the influence of cannabis within two hours of using it at least once in the last six months, says lead author Erin E. Bonar, Ph.D., assistant professor of psychiatry in the U-M Addiction Center and a clinical psychologist at U-M Addiction Treatment Services.

“There is a low perceived risk about driving after using marijuana, but we want people to know that they should ideally wait several hours to operate a vehicle after using cannabis, regardless of whether it is for medical use or not,” Bonar says. “The safest strategy is to not drive at all on the day you used marijuana.” There is no agreed-upon, scientifically established limit for the amount of marijuana a person could have and still be considered safe to drive, and in most jurisdictions evidence of impairment or a positive blood test can result in legal penalties for impaired driving.

— Kelly Malcom and Stephanie Abraham

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**What About Marijuana? It’s Complicated.**

Cannabis is still considered a Schedule I drug, which means it has no accepted medical use and a high potential for abuse. The U.S. Substance Abuse and Mental Health Services Administration (SAMHSA) has found conclusive or substantial evidence that chronic use of cannabis, while 10 states have legalized marijuana for recreational use, is associated with a wide range of health effects, including respiratory disorders, cannabis use disorder, and marijuana use disorder. The SAMHSA also found that marijuana use can lead to impaired driving, which is a significant public health issue.

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led by John Traynor, Ph.D., the Edward F. Domino Research Professor of Pharmacology, aims to understand the addiction process through neuroscience and animal behavior, to identify medications to treat opioid abuse and overdose, and to design non-addictive pain medication.

“A basic science approach is critical when addressing a crisis as serious as opioids because it provides us all with a better understanding of how to manage pain effectively and safely,” said Traynor, also a professor of medicinal chemistry in the College of Pharmacy and associate chair of research in the Department of Pharmacology.

Additionally, opioid prescribing is the first focus of the new U-M Precision Health initiative, which spans 18 colleges and schools. Precision Health will focus on building capabilities, including data sets, tools, and resources that researchers can use to facilitate collaborative work, says the initiative’s co-director, Sachin Kheterpal (M.D. 1999, Residency 2008), associate professor of anesthesiology and associate dean for research information technology in the U-M Medical School.

“One of the things to address the opioid misuse crisis is an opioid prescribing strategy that is a precision prescribing strategy,” Kheterpal says. “It’s helpful to view addiction through the same lens as other chronic conditions. “People often use the parallel of diabetes,” Kheterpal says. “We wouldn’t say that a person with Type 2 diabetes doesn’t want to get better just because they crave a piece of cake. In the same way, we shouldn’t assume that someone with addiction doesn’t want to get better because they crave the substance.”

“I think the altered mental state of someone who is addicted allows us to dehumanize them,” Bohmert says. “But they’re still a person, one who needs help, who needs compassion.”

Scientists have learned a lot in recent years about what happens when someone takes an opioid. The brain’s reward system feels an intense rush of dopamine — which is one of the brain’s neurotransmitters, a chemical that carries information between neurons. The brain wants to repeat the euphoric feeling, and the person who used the opioids often tries again in an attempt to repeat that feeling. Regular drug use can lead to a reduction in the transmission of dopamine, ultimately leading users to take more drugs to avoid the associated negative feelings and emotions.

In his experience treating people who use drugs in the emergency room and in the psychiatric clinic, Christopher Blazes, M.D., assistant professor of emergency medicine and of psychiatry, has come to think of dopamine in a different way than conventional wisdom would dictate.

10-12% of people with a substance use disorder receive any type of specialty treatment

40-60% of vulnerability to addiction is genetic

The age at which the prefrontal cortex — the rational part of the brain — is fully developed, prompting the advice that some addiction experts offer parents: “Keep them alive until 25,” when they can make better decisions than when they are young.

Five Signs That Your Loved One May Be Struggling

Katie Donovan can see the signs more clearly now, with the benefit of hindsight. Her daughter, Brittany, was a straight-A student and a high school athlete. But during her senior year, Brittany “started not wanting to be around the family as much. She had an attitude. Then she started waking up with the flu a lot. She was vomiting and very lethargic,” recalls Donovan. “You make these things up in your head and are not really seeing the true signs.” Brittany would later tell her mother that she was addicted to heroin.

Donovan, of Macomb Township, Michigan, is now a family training coach and interventionist, and the author of the blog A Mother’s Addiction Journey. She wishes she had known the signs earlier, and that she could have seen Brittany’s addiction in its infancy — before her multiple overdoses and suicide attempts. “I saw a switch, but it was gradual.” Her message to parents and others: “Trust your gut.”

Edward Jouney, D.O. (Residency 2007, Fellowship 2011), clinical instructor of psychiatry and an addiction psychiatrist, says people with drug addiction can present in varying ways, and that some people are able to conceal the problem from loved ones. Often, though, there are signs:

1. Personality changes, including being easily agitated and experiencing dramatic mood swings
2. Large amounts of money going missing
3. Having difficulty being honest with loved ones and health care providers
4. Decline in work performance
5. Opiate use in high doses may result in pinpoint pupils, an altered level of consciousness, and an inability to arouse in the more severe cases (it should be noted, Jouney says, that many patients with chronic opioid use may not exhibit any significant clinical signs or symptoms.)

Katie Donovan’s daughter, Brittany, was a straight-A student until she started using heroin. Brittany has been in rehab multiple times. Donovan, left, writes about their experiences on her blog.

Why Today’s Drugs Are More Lethal Than Ever

Illegal opioids — such as heroin and the synthetic drug fentanyl — have increased not only in supply but in potency through the years. Many people who began their addictions with a prescription opioid ultimately transition to illegal drugs, which can include heroin that has been cut with fentanyl for increased potency. Often called “manufactured death” in law enforcement circles, fentanyl is now the leading cause of opioid overdose deaths and is 50-50 times more potent than heroin.

“A tiny amount of fentanyl is equivalent to a large amount of heroin,” says Christopher Blazes, M.D., assistant professor of emergency medicine and of psychiatry, and an addiction psychiatrist at the U-M Addiction Treatment Services program. “There are also hundreds of analogues of fentanyl created by different chemists. “Most routine drug screens don’t even test for fentanyl. Even the ones that do will miss a significant portion of these new synthetic fentanyl analogues.”

Clinicians are often left in the dark, not knowing what caused the overdose and not able to predict how emergency interventions will respond, Blazes says. “These fentanyl analogues are so variable and so unpredictable. Many of our classic, evidence-based treatments either don’t work, or can now cause dangerous side effects.”
He sees it not as a pleasure molecule per se, but rather as something that helps you remember a pleasurable moment. It’s a matchmaker, one that makes associations and links things by forming neural networks. “One patient said, ‘I was polishing my shoes and wearing a blue shirt when I first used heroin, so every time I wear my blue shirt and polish my shoes, I want heroin.’”

Says Blazes, who also is an addiction psychiatrist in the U-M Addiction Treatment Services program: “What I’ve noticed from my practice is that people who do well in recovery are those who establish new connections and find new ways to feel contented, over and over and over again.”

Understanding Children’s Brains

What if we could predict which children are most likely to become addicted to opioids and other drugs? Could we create interventions specifically for them, in an effort to prevent them from starting to use the drugs in the first place?

That’s one of the possible outcomes of a new national research study gathering data from 9- and 10-year-olds. Mary Heitzeg (Ph.D. 1999), associate professor of psychiatry and member of the U-M Addiction Center; and Robert Zucker, Ph.D., professor emeritus of psychiatry, are leading the Adolescent Brain Cognitive Development (ABCD) Study at U-M, one of 21 institutions leading the Adolescent Brain Cognitive Development (ABCD) Study at U-M, one of 21 institutions nationwide recruiting a total of more than 11,000 children to participate in the research.

While the study is not specific to opioid addiction, it is likely that it will inform a new understanding about how addictions develop. ABCD is analyzing brain development in a way that could shed light on how childhood experiences — everything from video games to social media to smoking — interact with each other and with a child’s changing biology to affect brain development and social, behavioral, academic, health, and other outcomes.

“The work that I do looks at how we prevent people from actually becoming addicted. We know that rates of substance use, across all substances, are increasing throughout adolescence. They peak between the ages of about 18 to 21,” Heitzeg says of the ABCD study as well as her other research. “How do we really get ahead of this? How do we understand who is going to be at risk prior to the point at which they start to use substances — prior to the age of 13?”

The ABCD study, currently underway, involves brain scans taken while children are completing tasks in order to observe which parts of their brain those tasks activate. Every six months, researchers will check in on the children through a phone call to see if there have been notable changes in behavior or mood. And the researchers will meet with the children annually over a 10-year period, which will allow them to gather a decade of neuroimaging data.

“The really interesting piece of this is that we know not all kids try drugs, and not all kids who try drugs continue to use drugs and go on to have a substance use disorder; we’re interested in what differentiates those kids. Are there differences in reward-system functioning and prefrontal functioning early on?” Heitzeg says. “We are trying to understand a key question: What makes resilient kids? We want to catch kids prior to any significant substance use.”

Moving Forward


Yet researchers from U-M and institutions around the world continue to make significant discoveries and advancements that could reverse the trend. They are also raising awareness of opioid use disorder and the highly addictive nature of this class of medications, and of the success of medication-based treatment.

Blazes, who has seen the fallout of the epidemic up close in his clinic office and the emergency room, maintains an optimistic point of view: “Addiction,” he says, “need not be a life sentence.”

Seizing the momentum gained through the work of key organizations, Blazes says, such as the American Society of Addiction Medicine (ASAM) and the National Institute on Drug Abuse (NIDA), the time is ripe to make meaningful improvements. The year 2018 was a “major turning point,” according to Blazes, who was elected president of ASAM to lead the organization in its commitment to addiction medicine, education, and advocacy.

“Medication-assisted treatment (MAT) leads to better treatment outcomes compared to behavior therapy alone. Moreover, withholding medications greatly increases the risk of relapse to illicit opioid use and overdose death,” Blazes says. “Decades of research have shown that the benefits of MAT greatly outweigh the risks of diversion.”

Some see medication-assisted treatment as substituting one substance for another and promote abstinence-only. Blazes says, “It’s not based on science.”

Katie Donovan, who lives in Macomb Township, Michigan, helped her daughter Brittany get into a rehab facility at age 17 and many more in subsequent years. Donovan is now a family training coach and interventionist, and the author of the blog A Mother’s Addiction Journey. In the beginning, “I assumed every treatment facility would be a great facility,” she says. Now she knows what to look for — and she encourages readers of her blog to do the same. “One of the things I guide families is to making sure it’s a strong, clinically appropriate program.” She looks for a counselor-to-patient ratio of 1:6 as opposed to, say, 1:15. And she looks for facilities that are affiliated with medical centers.

Seeking Help: Not Every Treatment Center is the Same

There are several levels of care in addiction treatment, and a licensed health care provider who has experience treating substance use disorders should determine which level is appropriate for each patient, says Edward Journey, D.O. (Residency 2007, Fellowship 2011), clinical instructor of psychiatry and an addiction psychiatrist in the U-M Addiction Treatment Services program.

Basic outpatient care is usually reserved for individuals who are relatively stable, and who are in need of supportive services. Journey says. Medical detoxification, which usually lasts five to 10 days, is carried out at an inpatient unit of a substance use treatment facility. This is reserved for individuals typically utilizing alcohol, sedatives, and/or opiates, who necessitate treatment in a medically supervised environment, as they are gradually withdrawn from the substance. Long-term residential care, Journey says, is a treatment program extending for 30 days or longer, usually in a therapeutic residential setting.

The most important thing to look for is a facility that offers medication-assisted treatment (MAT), says Amy Bohmert, Ph.D., associate professor of psychiatry. She adds that she would look for a treatment facility that is affiliated with a major medical center. If that isn’t available, she recommends a treatment at a facility that has doctors and nurses on site at all times.

Vivak Murthy, M.D., issued a Surgeon General’s Report on Addiction in 2016, when he held the office. The report was unequivocal on this issue: “The research clearly demonstrates that MAT leads to better treatment outcomes compared to behavioral treatment alone. Moreover, withholding medications greatly increases the risk of relapse to illicit opioid use and overdose death.”

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Clare Duckworth, Kara Gavin, and Alex Piazza contributed to this report.
A. Oveta Fuller, Ph.D., remembers the day as clearly as if it were yesterday.

She had conducted workshops in Lusaka, Zambia, one year earlier for clergy, officers, and young adults on the science of HIV and how it can lead to AIDS. The training was requested by the regional bishop of the African Methodist Episcopal (AME) Church. At one follow-up session, a young woman asked for a moment to speak privately. In a church pew, she told Fuller that she had never been tested prior to attending the two-day workshop the previous year — even though her husband was a certified HIV tester for the Zambian government. The training inspired her to take control of her health by insisting that her husband and entire family get an HIV test.

“She found out that she, her husband, and their youngest of three children were HIV positive,” Fuller recalls. "She said, 'I want to thank you.' They were taking anti-viral drugs and doing well. Moreover, they had started a support group for people living with HIV that met at their home every Friday. It was a surreal glimpse of the life-changing impact on one family once they understood that HIV is a fragile virus.”
The intense, lab-based work of biomedical researchers — replete with cells, molecules and microscopes — can sometimes breed detachment from the people affected by the diseases and conditions they are studying. But Fuller is leading a group of U-M researchers who are dedicated to bridging this divide.

The team has developed a simple yet effective approach to move scientific knowledge to the people who can make best use of it. Fuller, associate professor of microbiology and immunology, spent 20 years as a virology lab scientist before turning to community engagement and implementation science. While on sabatical in 2006, Fuller, an ordained elder in the AME Church, was asked by its Service and Development Agency (SADA) to assist with addressing HIV/AIDS in the southern African countries of Botswana, South Africa, and Zambia.

She worked with SADA and the highest church official in the area on an approach to effectively move science and medical discoveries into implementation. Zambia was hit hard by the AIDS epidemic, with an almost 15% HIV prevalence in 2006. Their request: help church leaders to understand the science behind HIV and AIDS and how they can counter the high impact AIDS has on their communities.

Trusted Messenger
This seemingly unorthodox request made sense to Fuller. “Religious leaders are already dealing with HIV,” says Fuller. “They bury people who die, they console families who lose sons and daughters, they help find homes for vulnerable children, and help parents and grandparents provide for younger children through family and community. Religious leaders are at the center of communities; they are the human capital that serves as a major social security.”

Fuller, collaborators, and U-M student teams implement and rigorously measure results of the intervention, which they call Trusted Messenger. U-M undergraduates are immersed as research assistants while also broadening their appreciation of health care and the context of infectious diseases such as HIV/AIDS and malaria. In partnership with the Council of Churches of Zambia, pastors, officers, and their spouses attend a two-day workshop where participants learn the science behind HIV/AIDS and how they can control the virus “instead of the virus controlling them,” Fuller says.
“These leaders bring insight into factors that affect virus spread and illness in their specific communities.”

Fuller was senior author on a 2018 paper in which Trusted Messenger participants spoke about how they found the science comprehensible and empowering. She and her team are currently performing analyses of survey data to document measurable changes for participants. The quantitative data support what Fuller has seen in the responses of impacted people: “These leaders on the frontlines of addressing HIV/AIDS learn why HIV infection is not a death sentence. They get medical help for themselves, assist with children and the elderly who are left vulnerable, and build community supports to meet multiple needs. Their lives have been changed, and Trusted Messenger participation catalyzes that change.”

Science vs. Myths
The crux of the program is dispelling prevalent myths and moral judgments around HIV infection. “HIV doesn’t care who you are — it’s just a virus trying to find a body in which it can replicate,” says Fuller. “When clergy and leaders understand this, it changes their view and, importantly, their actions.”

The workshop covers HIV replication and why the virus is transmitted only through blood, semen, vaginal fluid, or breastmilk. “We explain that if you always avoid contact with those four fluids, you will never get HIV, ever. They are amazed. It’s fact, not something that one can only hope for or pray about,” Fuller says.

Participants learn how anti-viral therapies work and how the virus’ fragile structure does not permit transmission via fluids such as saliva and tears. They learn how infection by HIV, a retrovirus, means that a copy of virus DNA is inserted inside cells of an infected person. Because of this, people living with HIV must remain under medical care and always take anti-viral medication.

“They understand that one can’t pray for healing and throw away the HIV medicines. It’s a lifetime commitment that allows control of a chronic disease.”

A vital element is the opportunity, at the workshop site, for each participant to get screened for HIV infection. “As a leader, you are no greater than what you do,” Fuller says. “You and your family must get tested to model one critical action in control of HIV/AIDS. It’s a powerful first step for a trusted community leader.”

Religious leader participants pick up the mantle in the last workshop session by brainstorming how to couple their new knowledge with existing community resources to encourage people to get tested, avoid HIV, and connect to medical care if they are infected.

Looking to the Future
Charles Michelo, M.D., Ph.D., dean of the School of Public Health at the University of Zambia and a new collaborator, says that Trusted Messenger’s effectiveness is due in large part to its ability to capitalize on a key societal network.

“Religious leaders here serve as community leaders with a mandate to serve the spiritual needs of those communities,” he says. “Thus, they are the default gatekeepers in such a society like we have in Zambia.”

Michelo and Fuller hope the approach can reach sustainability by securing adequate funding and expanding to partner with the Zambian Ministry of Health. Already, the incidence of HIV in adults in Zambia has declined to 11.5%. This is due to many factors, including sustained efforts like Trusted Messenger.

More broadly, the World Health Organization has set an ambitious goal to end the global AIDS epidemic by 2030. “The modeling data show that we could get rid of HIV by 2030,” says Fuller. “So what’s the holdup? It’s that the people who need to consistently implement what has been discovered don’t understand the advances that they already can use.”

“The goal is to take some of the science discoveries we teach to medical students and undergrads and move them into the community to dispel misconceptions that paralyze people from doing what works. They then move forward in amazing ways to take control of HIV/AIDS.”
More than 40% of the patients of Michigan Medicine’s Ypsilanti Health Center (YHC) face food insecurity. That led to the opening of Maggie’s Marketplace in 2017. The food pantry (named for the health center’s former medical director, Maggie A. Riley, M.D.) focuses on healthy foods and offers a variety of perishable and non-perishable items at no cost to patients.

“We are continually thinking about ways to innovate to make the health center meet the needs of our patient population,” says YHC Medical Director Steve Warnick Jr. (M.D. 2007), assistant professor of family medicine and of psychiatry, pictured at left. The YHC houses family medicine and pediatrics clinics, as well as visiting specialists in obstetrics, psychiatry, and more. In addition to the pantry, it offers a car seat program, a baby safety gate program, child safety kits, smoke detector and gun lock giveaways, and hundreds of backpacks filled with school supplies each year. Below, social worker Susan Atkins, who handles much of the day-to-day operation of Maggie’s Marketplace, restocks the non-food items at the pantry.

“The Marketplace sends a message to our patients that we care about them. I think they were shocked that we cared about whether they were eating enough, and eating enough healthy foods,” says YHC Clinic Manager Ladele Cochran.

PHOTOS BY LEISA THOMPSON PHOTOGRAPHY
In its first two years, Maggie’s Marketplace served more than 7,600 people and provided over 62,000 pounds of food. Here, boxes from Food Gatherers are unloaded by (left to right) Marsha Lathion, who leads the front desk staff at YHC; Warnick; contractor Shadi Seada; and Atkins. Others who helped on this day, but who are not pictured here, were Cochran; Shelby Malboeuf, a call center agent; and Denise Hermans, a French interpreter.

Kroger awarded a $10,000 grant in support of Maggie’s Marketplace in May, which will ensure the shelves remain stocked with healthy food and additional in-demand items, such as diapers, feminine hygiene products, and light bulbs. The grant is part of Kroger’s Zero Hunger, Zero Waste initiative, an effort that includes the goal of ending hunger and achieving zero food waste by 2025. Funding also comes from the C.S. Mott Children’s Hospital Annual Fund, the Friends Gift Shop, Molina Healthcare, and generous donations from faculty, staff, and the community.

Maggie’s Marketplace is closer to the size of a closet than a room, but the YHC staff makes the most of the space. The marketplace is USDA certified, and staff have completed civil rights and food safety training.
Sarah Gertrude Banks, one of the earliest women to graduate from the U-M Medical School, cared for patients while championing women’s suffrage.

**In Her Own Right**

BY KATIE VLOET

Sarah Gertrude “Gertie” Banks (M.D. 1873) was ahead of her time in every way, beginning with her education at the University of Michigan Medical School, where she was in the second group of women to earn a medical degree. A book published 11 years after that said this of Banks and other early women physicians: “It is only a few years since the idea of a woman entering the profession of medicine and graduating as a doctor was something so quixotic, if not actually absurd, that any girl who alluded to such a vocation wasreasoned with and talked to as if she had contemplated moral suicide.” Banks and her counterparts were well aware that they were breaking new ground, though they did so in a spirit that was more pragmatic than “quixotic.”

Banks was born in Walled Lake, Michigan, where her family had made their home a station on the Underground Railroad. She worked as a school teacher for several years, beginning at age 17, before entering medical school. She graduated in 1873, the same year as Emma Call, M.D., and two years after Amanda Sanford, M.D., the second group of women to earn a medical degree. Only the second female physician in Detroit, Banks cared for many prominent families and citizens, including Clara Ford, a businesswoman and the wife of Henry Ford. Her patients also included the poorest of Detroit’s women and children.

**Activist and Leader**

Banks’ work as a physician and her penchant for championing the rights of the underdog joined forces when she founded the Free Dispensary for Women and Children at the Women’s Hospital and Foundling’s Home. She later was a patron of Detroit’s first free playground for children. Banks also became involved in the early days of the Young Woman’s Home of Detroit, which helped place and employ young women moving to Detroit. She was active in the leadership and administration of the Young Woman’s Home Association and, in 1886, was the co-creator of the association’s Nurse Directory, which aimed “to supply Detroit with competent and reliable nurses of the first and second class and also nurses for contagious diseases,” according to a 1952 history of the association.

Her most intense and enduring work as an activist happened away from the medical world. Though she was a physician and esteemed member of the community — a member of the Society of Mayflower Descendants and the Daughters of the American Revolution — for most of her adult life, she could not vote.

This obvious disparity inspired Banks to fight for women’s suffrage alongside her friend, Susan B. Anthony.

Banks “sacrificed for women” and helped “free thy sisters, Susan — from tradition’s bitter brand.”

Banks wrote a poem in honor of Anthony’s 85th birthday, a portion of which is shown here (bottom). A postcard inviting Dr. Banks to a suffrage event features a picture of her friend Susan B. Anthony (top). Banks wrote a poem in honor of Anthony’s 85th birthday, a portion of which is shown here (bottom).

Activist and Leader

Banks wrote a poem in honor of Anthony’s 85th birthday, a portion of which is shown here (bottom). A postcard inviting Dr. Banks to a suffrage event features a picture of her friend Susan B. Anthony (top). Banks wrote a poem in honor of Anthony’s 85th birthday, a portion of which is shown here (bottom).
**Beneath the Surface**

**BY AMY SPONNER**

“Something, someday, will happen in your community where your skills are needed. You have to listen to that call and answer it.”

Walter Barkey (M.D. 1979) initially was drawn to the visual orientation of dermatology. “Unlike other medical specialties, dermatology relies on visual skills,” says Barkey. “With a trained eye, I can see problems in a unique way.”

Recently, Barkey trained his eye on two headlines involving rashes—one during the Flint water crisis, the other at a prison. He knew he could see things that a non-dermatologist might not.

Barkey, a lifelong Flint-area resident, gets emotional when he talks about a 2016 *Time* cover featuring a Flint child with a rash. “I never met him, but I knew he had eczema.” The story shone a spotlight on the troubles caused by the city switching the source of its drinking water. He organized a team of dermatologists, which found the water was unusually hard and had elevated chlorine levels, both known to exacerbate eczema. Working with state and federal officials to write a report based on their findings was a learning experience. “They wanted to whitewash the findings,” says Barkey, recalling one EPA administrator who tried to rewrite the report. “Because the government needed my credibility as a local specialist known to the community in order to validate the report, I felt empowered to strike revisions and ensure we weren’t glossing things over.”

In 2018, when Barkey learned about a rash outbreak at the Women’s Huron Valley Correctional Facility in Ypsilanti, “the same alarm went off”: a disenfranchised population saying something was wrong; officials saying not to worry. The cases presented as scabies, but doctors had ruled it out. Barkey, however, saw a problem: no dermatologist had done an assessment. Prison officials were reluctant to accept his offer of help until a high-level state official he worked with on the Flint investigation vouched for him. He brought his microscope to the prison and proved that, of the 24 inmates he examined, 22 had scabies. “They were doing their best, but it’s an argument for access to specialty care,” Barkey says.

Barkey insists that any dermatologist could have done what he did, and that all doctors similarly can find ways to serve. “Something, someday, will happen in your community where your skills are needed. You have to listen to that call and answer it.”

Read an expanded version of this story at medatmich.org/barkey.

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**Class Notes**

**1960s**

Margo Panush Cohen (M.D. 1964), president and chief scientific officer of Glycadia, a company that develops diagnostic products for diabetes, independently published *Twilight Request*, a memoir recounting the medical arrogance she encountered when her husband was being treated for cancer. In 2019, Cohen is also an emeritus member of the American Society for Clinical Investigation.

Richard L. Rapport II (M.D. 1969), clinical professor of global health and of neurological surgery at the University of Washington, wrote *Seattle’s Medic One: How We Don’t Die* (The History Press, 2019), his third book. His writing has been anthologized four times.

**1970s**

Michael Bodley (M.D. 1970), an internist in Grand Rapids, Michigan, received Spectrum Health’s 2019 Distinguished Physician Award.

Calvin Brown Jr., M.D. (Residency and Fellowship 1985), professor of medicine in the Division of Rheumatology at Northwestern University Feinberg School of Medicine, received the 2019 Eric G. Neilson, M.D., Leadership in Specialty Internal Medicine Award from the Association of Specialty Professors.

Julius M. Gardin (M.D. 1972, Residency 1975), MBA, professor of medicine at the Rutgers New Jersey Medical School, was honored by the American Society of Echocardiography (ASE) in June 2019 with the inaugural Gardin Lecture held at the 30th Annual Scientific Sessions. Gardin, also chief of quality and program development, and interim director of the Division of Cardiology, chaired the ASE’s first Annual Scientific Sessions, and served as president of the society and associate editor of the *Journal of the American Society of Echocardiography.*

Alumni, share your news! Submit recent achievements and honors at medatmich.org/mam-notes.
After the unexpected death of her father, an alumna devoted herself to caring for diverse populations — and discovered troubling trends in how minority health care data are categorized.

It was tragedy that compelled Latha Palaniappan (M.D. 1996) to study medicine. At 13, she lost her father, S. Paul Palaniappan, to a heart attack; he was just 39. Palaniappan, now a professor of medicine at the Stanford University School of Medicine, wanted to understand what had happened and if anything could have been done. What she discovered changed how medical data are interpreted.

Early in her career, Palaniappan began to notice a trend in her research: racial and ethnic minorities, especially South Asians, tended to have higher levels of insulin despite lower body weights. She wanted to investigate further but came upon an unexpected obstacle: aggregated health data.

“All of the Asian health data — which includes Asian Indian, Chinese, Korean, Filipino, Vietnamese, and Japanese populations — were aggregated together,” she says. “These are very different racial/ethnic subgroups. If you aggregate them, that may mask other important differences.”

Palaniappan discovered, by separating subgroups, that Chinese and Korean populations have lower rates of heart disease, but, conversely, higher rates of cancer; Asian Indians and Filipinos have the opposite: higher heart disease and lower cancer rates.

Digitization is helping, however. “The electronic health record is the important first place to start to make sure that you collect and use race/ethnicity information,” says Palaniappan. “We have opportunities to leverage this information in real time, with physician decision support tools.”

In October 2018, Palaniappan and colleagues opened the Stanford Center for Asian Health Research and Education (CARE), championing cardiovascular health, cancer studies, and healthy aging with precision health made possible by studying diverse populations. She now has a clinical program to apply her findings with pharmacogenomics. “It’s very important to know how to dose the right drug at the right time for the right person.”

What began as a way to better understand her father’s cause of death ended up bringing clarity and advancement to a field fraught with misunderstandings and unknowns. Throughout it all, Palaniappan has remained committed to a singular goal: “to prevent the tragedy of early death as my family experienced with my dad.”

Read an expanded version of this story at medatmich.org/palaniappan.
Raymond W. Ruddon Jr., M.D., Ph.D.

Professor Emeritus of Pharmacology Raymond W. Ruddon Jr. (Ph.D. 1964, M.D. 1967) died April 26, 2019, at the age of 82. Ruddon joined the U-M faculty as an instructor of pharmacology in 1964 and rose through the ranks to professor in 1974. In 1976, he resigned to join the National Cancer Institute, but he returned to U-M in 1981 as professor and chair of the Department of Pharmacology. From 1986-1990, he was associate director of basic science research at the Comprehensive Cancer Center (now the Rogel Cancer Center). From 1988-1990, he also held the title of Maurice H. Seegers Professor of Pharmacology. In 1990, Ruddon joined the faculty at the University of Nebraska and in 1997 became the corporate director for science and technology at Johnson & Johnson. He returned to Michigan again in 2004 as professor of pharmacology and serve associate dean for research and graduate studies at the Medical School. He became a professor emeritus of pharmacology in 2006 but maintained active emeritus status for many years after his retirement. In 2016, U-M Regents established the Raymond and Lynne Ruddon Collegiate Professorship in Pharmacology and Pharmacology in the Medical School to honor his career and far-reaching contributions to the field, as well as his generous donations to U-M and the Medical School. 

Howard J. Cooper Jr.

Howard J. Cooper Jr. a revered Ann Arbor entrepreneur with strong ties to U-M and Michigan Medicine, died March 7, 2019, at the age of 90. Cooper, a graduate of the U-M School of Business Administration (now the Stephen M. Ross School of Business), opened Howard Cooper Volkswagen in 1965, then acquired Porsche and Audi franchises in 1972 and Honda in 1979. When he sold the Howard Cooper Import Center in 2012 to Ohio-based Germain Motor Co., he turned down higher bidders in favor of making employee retention part of the deal. Then he gave his 89 employees $1,000 per year of service. 

Cooper, who served as senior manager of the Michigan football team in 1949, was an ardent fan of U-M football and basketball. He was also a generous donor to U-M, including a scholarship fund and professorship at the U-M Medical School. Cooper is predeceased by his wife of 44 years, Sue W. Cooper. He is survived by his wife of 20 years, Anne A. Cooper, former senior director of principal gifts at Michigan Medicine, as well as numerous children and grandchildren.

In Memoriam

Francis W. Balice (M.D. 1949): 3/7/2019
Joseph L. Blount (M.D. 1986), MPH: 9/25/2018
Charles C. Congdon (M.D. 1944, Residency 1944, M.S. 1950): 2/20/2019
Carlton L. Cook (M.D. 1952): 2/20/2019
Maynard T. Devone (M.D. 1953): 8/14/2018
Andrew A. Fogel (M.D. 1989): 3/26/2018
Rasem D. Ghamann (M.D. 1959, Fellowship 1965): 10/30/2018
Walter Grabowski (M.D. 1946): 4/22/2019
Quitin H. Haas (M.D. 1961, Residency 1964-1): 11/2/2018
Ralph M. Hulett (M.D. 1950, Residency 1957): 1/7/2019
Bruce G. Johnson (M.D. 1963): 3/14/2019
Nell M. Keats (M.D. 1969): 1/15/2019
Ruben S. Kurnetz (M.D. 1948): 2/9/2019
Mary J. McCabe (M.D. 1959): 3/6/2019
Theresa Palazcek Manczewicz (M.D. 1952): 1/28/2019
Evelyn R. Pauly (M.D. 1948): 12/27/2018
Dwight L. Roberson (M.D. 1975): 10/22/2018
Samuel W. Root (M.D. 1943, Residency 1944-4): 3/19/2019
Robert A. Schneider (M.D. 1956): 12/29/2018
Thomas J. Stafford (M.D. 1958): 12/18/2018
Joella C. Tadian (M.D. 1959): 3/30/2019
Philip H. Uitz (M.D. 1953): 11/4/2018
Kenneth J. Vanderkolk (M.D. 1953): 5/9/2019
Margaret D. Van Wylen (M.D. 1952): 8/4/2018
William J. Vasilieff (M.D. 1974): 11/12/2018
Arthur G. Waltz (M.D. 1955): 1/10/2019

Terry J. Bergstrom, M.D.

Terry J. Bergstrom (M.D. 1965, Residency 1969, Fellowship 1975), professor emeritus of ophthalmology and visual sciences, died June 23, 2019, at the age of 85. Bergstrom completed four years of military service as a pilot in the U.S. Air Force (USAF), and over the course of his 26-year career, he served as a flight surgeon and completed his residency in ophthalmology at U-M. He served as chief ophthalmologist at March Air Force Base in California, and at the USAF Hospital in Wiesbaden, Germany. He also served as director of residency at Wilford Hall Medical Center in Texas. He was a recipient of the Legion of Merit award when he retired from the military as a colonel. 

In 1980, Bergstrom returned to his alma mater and joined the staff at the W.K. Kellogg Eye Center, where he practiced for 24 years and continued to work as an emeritus professor. Bergstrom’s numerous accomplishments include serving as chief of glaucoma service, chief of low vision service, and chief of general ophthalmology at U-M. He also served as chief of ophthalmology at the VA Ann Arbor Healthcare System. He was the recipient of many awards, including Lifetime Honorary Faculty Member, being ranked in the top 25 ophthalmologists in the nation, and the Kaiser-Permanente Award for Excellence in Teaching, and was the author of numerous publications.

Bergstrom’s legacy lives on through his passion for teaching. After receiving the U-M Medical School Teaching Award for 14 years in a row, it was officially renamed by the residents in his honor. An endowed professorship was also created in his name.

This obituary was adapted from one originally published in the Traverse City Record-Eagle.
The opioid epidemic has left us scrambling for solutions that simultaneously address the need to manage chronic pain and solve the problems of opioid addiction and overdose that have plagued the nation. In the process of formulating a solution, many have reflected on what led us to this point. While some have rightly highlighted the role of marketing practices of opioid manufacturers as critical in the making of this epidemic, a number of broader cultural factors also bear responsibility.

In the late 1990s, there began a national push to evaluate pain as a fifth vital sign and treat it with commensurate seriousness. This effectively reinforced a pre-existing dominant American notion that pain is a problem that must be solved. In contrast, some cultural traditions hold that pain is natural and expected, and need not prevent one from living a meaningful life. Interestingly, around the same time as the emergence of pain as a fifth vital sign, the concept of chronic pain acceptance began to gain traction in the field of pain psychology. Pain acceptance reflects the attitude that pain, while not preferable, is OK, and that even chronic pain does not inevitably prevent a person from getting on with what they value in life. The thinking here is that pain acceptance can provide a sort of pressure-release valve that relinquishes people from the often constant struggle to achieve pain relief. In the context of chronic pain, experiencing occasional breaks during which pain is sometimes allowed rather than resisted can create mental and emotional space. In this space, the person can think about what else they want from life, besides pain relief.

Across many studies in various clinical populations, pain acceptance has been shown to be related to better outcomes, including lower emotional distress and better functional outcomes, for people with chronic pain. What prior research does not speak to is how pain acceptance relates to the use of other types of pain management strategies, such as medication use. I recently led a study that examined how pain acceptance is related to the use of both opioid and non-opioid medications. This study, published in The Clinical Journal of Pain, was conducted with people who have chronic pain secondary to spinal cord injury, a condition in which side effects from pain medications, even non-narcotic medications, can be quite dangerous.

We found that those with higher pain acceptance reported significantly lower use of all types of pain medications; every one-unit increase on the pain acceptance scale corresponded with 3% lower odds of opioid use.

Evaluating the importance of chronic pain acceptance amid the opioid epidemic.

Gray Matters

Medicate or Meditate?

BY ANNA KRATZ, PH.D.

The opioid epidemic has left us scrambling for solutions that simultaneously address the need to manage chronic pain and solve the problems of opioid addiction and overdose that have plagued the nation. In the process of formulating a solution, many have reflected on what led us to this point. While some have rightly highlighted the role of marketing practices of opioid manufacturers as critical in the making of this epidemic, a number of broader cultural factors also bear responsibility.

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SISTERS MARIAM AND MARWA AYYASH have had each other’s backs all their lives. After emigrating with their family from Beirut, Lebanon, to the U.S. in 2009, they both double-majored in chemistry and biochemistry at U-M Dearborn, often serving as one another’s lab partner. Their passion for science and outreach directed them toward medicine, and now Mariam (M.D. 2019), left, and Marwa, right, a rising fourth-year medical student, have committed themselves to being there for their community. With help from mentor Roland Alexander Blackwood, M.D., Ph.D., associate professor of pediatrics, the sisters established the Arab American Health Initiative (AAHI) in 2017 to better reach the Arab American population throughout southeastern Michigan, and to help spread awareness of and access to health care. They are pictured here at U-M Dearborn’s Mardigian Library, where they often hold AAHI meetings.

THE MISSION OF AAHI IS TO REDUCE HEALTH disparities, highlight health care needs, and fight stigma within the Arab American community with the goal of improving health outcomes for Arab Americans. We work toward our mission through three main branches: research, outreach, and mentorship.

We have been humbled by the many individuals who felt comfortable sharing intimate stories and experiences. It is this level of comfort that we strived for as a group to get the conversation going around sensitive health topics in our Arab American community. Through our events, we have discussed emergency medical response, hospice and end-of-life care, general health and well-being, domestic violence, vaccines and autism, and mental health.

We want to set a good example and be role models for younger students of similar backgrounds, and assure them that, even though the journey might be challenging sometimes, they can succeed and achieve whatever they set their minds to.”

Mariam and Marwa Ayyash
Register now!
alumni.medicine.umich.edu/reunion