

Medical Bulletin

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL

FALL 2019

PAGE 8

Weathering medical school

A cultural shift puts
students' mental
health first



12 How climate change
harms our health

18 Collecting ticks
to track disease

24 Mentoring program:
'Lift as you climb'

36 A family's full-circle
heart surgery story



PAGE 12

Mission critical

From clinics to the Capitol, U 'champions' like Laalitha Surapaneni, M.D., take on climate change by calling out the ways it harms our health



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Editor
Meredith McNab

Editor/Writer
Justin Harris

Managing Editor
Nicole Endres

For more information or to update your address, please contact:

Meredith McNab, editor

612-625-0657 or 800-775-2187
mmcnaab@umn.edu

University of Minnesota Foundation
200 Oak Street SE, Suite 500
Minneapolis, MN 55455

driven.umn.edu

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FALL 2019

- 8 Weathering medical school**
 A cultural shift puts students' mental health first
- 12 Mission critical**
 From clinics to the Capitol, U 'champions' take on climate change by calling out the ways it harms our health
- 18 Targeting ticks**
 A Medical School, Duluth Campus team collects deer ticks to track their expanding range – and the Lyme disease they spread
- 24 'Lift as you climb'**
 North Minneapolis mentoring program introduces kids and teens to health careers

ALSO IN THIS ISSUE

- 2 Medical School News**
- 6 Global Outreach**
 Less doing, more teaching
- 28 Alumni Connections**
- 28 Alumni Spotlight**
 From doctor to patient to author
- 30 Scholarship Winner**
 An eye toward inclusivity
- 34 In Memoriam**
- 36 A Look Back**
 A family's full-circle heart surgery story

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Ready to lead

THE BUSINESS OF HEALTH CARE – focused more on the logistics of reimbursement rather than restoration of health – is broken. This is unsustainable. Patients’ well-being is too important to allow us to continue ineffective practices just because that’s how it’s been done. Providers’ well-being is too important to remove the primary reason they entered health care: to help patients.

We are on the cusp of a new era in medicine. Technologies and resources like bioengineering, regenerative therapies, artificial intelligence, and big data (to name only a few) are going to give patients choices and physicians the tools to provide personalized care to a degree we now only dream of. We need to be ready.

That’s why the Medical School has been making significant changes over the past two years and is continuing to evolve. We don’t just want to be ready; we want to lead the way. Here are some of the actions we are taking to reclaim our legacy of medical, research, and educational excellence:

- Creating effective programs to support physician, resident, trainee, and student well-being, including providing quick access to free and confidential mental health care and more livable training schedules, and removing many of the minor frustrations of medical practice that add up to serious stress, particularly involving the electronic medical record interface.
- Strengthening our research programs by removing barriers – both administrative and logistical.
- Reaching out to medical schools around the country to share our work and improve our ability to recruit their best students into our residency programs.



PHOTO: PATRICK O'LEARY

We are on the cusp of a new era in medicine. Technologies and resources are going to give patients choices and physicians the tools to provide personalized care to a degree we now only dream of. We need to be ready.

- Raising our Blue Ridge (based on NIH research support) and *U.S. News & World Report* rankings and continuing to work strategically to improve our national and international standings. We know that our school’s reputation influences the value of the degree our graduates work so hard to achieve.
- Building partnerships in new ways that allow us to focus on our strengths and provide outstanding education while reaching patients across the state.

We are also celebrating the first anniversary of M Health Fairview, a collaboration among the University of Minnesota, University of Minnesota Physicians, and Fairview Health Services that brings together the best of academic and community medicine to form our joint care delivery system. We celebrate being part of a system that respects and values academic medicine. We celebrate our work to align our academic and clinical practices, streamline administrative structures, and begin to develop a new way of practicing patient-centered, patient-driven medicine.

We describe our transformation as “Impact Medicine.” It’s what we practice, and it’s what we hope to do.

Jakub Tolar, M.D., Ph.D.

Dean of the Medical School and Vice President for Clinical Affairs

\$8.5M GRANT LAUNCHES METASTATIC BREAST CANCER STUDY

The National Cancer Institute has awarded an \$8.5 million grant to a team from the Masonic Cancer Center, University of Minnesota to take on metastatic breast cancer.

The research team – led by Howard Hughes Medical Institute Investigator Reuben Harris, Ph.D., and Masonic Cancer Center director Douglas Yee, M.D. – will

study an enzyme-driven mutation process in breast cancer cells.

Prior research pioneered at the Masonic Cancer Center identified enzymes known as APOBECs as a dominant source of cell mutation in breast cancer.

“This finding addresses a common but poorly understood problem in breast

cancer – the development of resistance to medical therapy,” Yee says. “This new research will lead to a deep molecular understanding of how tumors mutate and evolve, and why they eventually stop responding to therapies that had previously been working well.” [MIB](#)

Scientists achieve transplant success with short-term antirejection drugs

For decades, immunologists have tried to train the immune system to accept transplanted cells and organs without the need for long-term anti-rejection drugs.

Now researchers in the University of Minnesota Medical School's Department of Surgery and Schulze Diabetes Institute have proven that it's possible. The U team, collaborating with colleagues at Northwestern University, has maintained long-term survival and function of pancreatic islet transplants despite discontinuing antirejection drugs 21 days after the transplant. The scientists achieved the results, published in August in *Nature Communications*, in a stringent preclinical study of nonhuman primates.

The technique capitalizes on the unique attributes of modified donor white blood cells, which the scientists infused into transplant recipients one week before and again one day after the transplant. Essentially, the team is mimicking nature's formula for how the body tolerates its own tissues and organs, says senior author Bernhard Hering, M.D.



PHOTO: SCOTT STREBLE

Bernhard Hering, M.D., and colleagues have mimicked the way the body tolerates its own tissues and organs to prevent rejection.

Without the need for long-term antirejection drugs, islet cell transplants could become the treatment option of choice, and possibly a cure, for many people burdened by type 1 diabetes, Hering says.

The group believes this method could be applied to all types of transplants—whole organs, cells, and other tissues.

“The consistency with which we were able to induce and maintain tolerance to transplants in nonhuman primates makes us very hopeful that our findings can be confirmed to benefit patients in planned clinical trials in pancreatic islet and living-donor kidney transplantation,” says Hering, professor and vice chair of translational medicine in the Department of Surgery and holder of the Jeffrey Dobbs and David E. R. Sutherland, M.D., Ph.D., Chair in Diabetes Research. “It would open an entirely new era in transplantation medicine.” MIB

WEB EXTRA

Hering discusses his research in depth on TPT's "Almanac" at z.umn.edu/heringonalmanac.

Blaes to lead Masonic Cancer Center survivorship services



Anne Blaes, M.D.

Anne Blaes, M.D., has been appointed the inaugural director of Cancer Survivorship Services and Translational Research for the Masonic Cancer Center, University of Minnesota. In this new role, Blaes will bring together researchers across the U to study cancer survivorship and translate the findings into better cancer treatment and follow-up care.

Thanks to ongoing advances in diagnosis and treatment, there are now an estimated 16.9 million cancer survivors in the United States, according to the National

Cancer Institute—each living with the systemic effects of their cancer treatments. Cancer survivors may face complications long after cancer, such as heart problems, chronic illnesses, accelerated aging, obesity, and secondary cancers.

Blaes, an associate professor of medicine in the Medical School and director of the M Health Fairview Adult Long-Term Follow-Up Clinic for Cancer Survivors, is researching ways to improve outcomes for cancer survivors and reduce the prevalence of posttreatment complications. MIB

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL

Jakub Tolar, M.D., Ph.D.
Dean

TWIN CITIES CAMPUS

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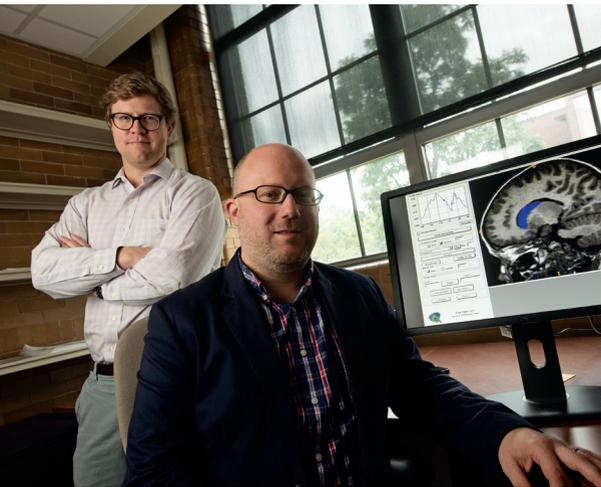


PHOTO: SCOTT STREBBLE

NIH grants boost efforts to detect autism earlier

THE UNIVERSITY OF MINNESOTA was awarded two new grants from the National Institutes of Health in May for research that could lead to earlier, more accurate diagnosis of autism spectrum disorder (ASD).

ASD is difficult to diagnose early, as behavioral signs like social communication deficits or restricted and repetitive behaviors aren't usually observable until at least age 2. And because the average age of diagnosis is around 4 nationally, children typically don't receive therapies until later in their development, when the brain is less malleable.

With a \$3.7 million grant, a U team aims to develop population-based risk profiles that could predict whether a child will develop ASD or related conditions. Researchers will collect behavioral data and brain scans from children at various points between ages 18 months and 3 years.

"Earlier diagnoses lead to earlier intervention, and early intensive interventions have been shown to improve outcomes," says Suma

Jacob, M.D., Ph.D., an associate professor of psychiatry in the Medical School who coleads the project with Jed Elison, Ph.D., an associate professor of pediatrics in the Medical School and child psychology in the College of Education and Human Development (CEHD).

A separate \$9.5 million grant supports the Infant Brain Imaging Study Network, of which the University is a data collection site. This group aims to develop a clinical MRI test for children at high risk of autism that would be able to predict an ASD diagnosis before the child turns 1. To develop the test, researchers will compare the predictive ability of MRI measures with behavioral measures of autism.

Elison coleads this project with McKnight Presidential Fellow Jason Wolff, Ph.D., an assistant professor of educational psychology in CEHD.

Both grants build on previous research that suggests patterns of brain activity in high-risk, 6-month-old babies may accurately predict those who will develop ASD by age 2. [MIB](#)

Jed Elison, Ph.D. (left), and Jason Wolff, Ph.D., aim to develop a clinical MRI test that could help predict autism before a high-risk child turns 1.

Earlier diagnoses lead to earlier intervention, and early intensive interventions have been shown to improve outcomes.

– Suma Jacob, M.D., Ph.D.

Wagner to lead new U Institute for Cell, Gene, and Immunotherapy

John E. Wagner Jr., M.D., has been named the founding director of the University of Minnesota Medical School's new Institute for Cell, Gene, and Immunotherapy (ICGI).

Wagner has played a crucial role in establishing the University's international clinical leadership in stem cell and umbilical cord blood transplantation. He is a professor of pediatrics, codirector of the Center for Translational Medicine, and program coleader of transplant biology and therapy at the Masonic Cancer Center, University of Minnesota.

The ICGI aims to accelerate the development and testing of novel cell, gene, and immune-based therapeutics that hold promise in the treatment of life-threatening diseases.

As director for the ICGI, Wagner will connect the U of M's work to industry and the community and further establish the University as a leader in this field.

"This new role is a key part of our strategy to advance interdisciplinary clinical translational research, grow new partnerships with industry, and increase external research funding—all in the pursuit of transforming health and health care," says Jakub Tolar, M.D., Ph.D., Medical School dean and vice president for clinical affairs. "I am confident that Dr. Wagner's leadership will allow the University and ICGI to demonstrate growth and success." [MIB](#)



John E. Wagner Jr., M.D.



IMAGES: COURTESY OF M HEALTH FAIRVIEW

A 7.2-ton MRI scanner is part of the hospital's state-of-the-art T-Suite, which will allow doctors to see what's happening inside a patient's brain during surgery.

High-tech neurosurgical suite to open at U of M Medical Center

A new, state-of-the-art neurosurgical operating suite at University of Minnesota Medical Center is slated to open this fall, making Minnesota home to some of the most technologically advanced surgical capabilities anywhere in the world.

Named the T-Suite for its shape, the space is made up of four operating rooms. It features a 7.2-ton intraoperative magnetic resonance imaging unit that will enhance brain cancer treatment by allowing surgeons to see what is happening in a patient's brain during surgery.

"It will be the most advanced surgical suite in the world," says

Charles Dietz, M.D., chair of the Medical School's Department of Radiology.

The T-Suite also includes an observation area that overlooks the operating rooms.

"People from all over the world – scientists and surgeons – could come and see how we do it here," says Clark Chen, M.D., Ph.D., holder of the Lyle French Chair in Neurosurgery and head of the Medical School's Department of Neurosurgery.

The T-Suite is part of a multi-year, \$111 million renovation project at the medical center that will also expand the emergency department and improve the patient experience. [MIB](#)



WEB EXTRA

Find out more about the leading-edge surgical suite at z.umn.edu/t-suite.

Medical School, Duluth Campus welcomes record number of Native American students

The newest class of students at the Medical School, Duluth Campus includes 12 Native Americans – the most in a single class in the school's history.

The Medical School – and its Duluth Campus, specifically – has a strong tradition of training American Indian and Alaska Native physicians; the school's 182 Native American graduates are the second-most of any medical school in the country.

Still, Native doctors make up less than 1 percent of physicians nationwide, according to the Association of American Medical

Colleges, a fact that underscores the continued importance of recruiting and training Native students, says Paula Termuhlen, M.D., regional campus dean of the Medical School, Duluth Campus.

"The focused mission of our Duluth Campus has made a significant impact," Termuhlen says, "which continues as we proudly matriculate our largest number of Native American students in our school's history and support them on their journey to becoming physicians." [MIB](#)

U LAUNCHES MOST STARTUPS IN ITS HISTORY

Stemming from its researchers' discoveries and inventions, the University of Minnesota launched a record 19 startup companies in 2018–19, including 12 that are focused on human health.

The Venture Center, part of U of M Technology Commercialization, forms new companies to bring leading-edge research beyond the lab and into the marketplace. Among this year's crop of health-related startups are companies focused on concussion recovery technology, neuronal and stem cell development, and acne care for boys. The startups, 11 of which are based in Minnesota, will help fuel the economy and contribute to the public good, both in the state and across the globe.

"As a land-grant university, the U of M has a responsibility to ensure promising new technologies move beyond the bounds of academia and benefit Minnesotans' health, environment, and quality of life," says Russ Straate, associate director of the Venture Center. "These 19 new companies hold exciting potential to improve society by bringing research-based solutions to the public in a wide range of fields, from agricultural technologies to medical devices."

Since its founding in 2006, the Venture Center has launched a total of 154 startups, 78 percent of which are currently active. The companies have generated more than \$400 million in outside investment. [MIB](#)

To see a list of all startups launched through the Venture Center, visit z.umn.edu/OTCVentureCenter.

LOCATION: Deschapelles, Haiti, and Hue, Vietnam **MISSION:** Empowering indigenous health care providers



Less doing, more teaching

EARLY THIS YEAR, I took two months away from my private obstetrics/gynecology practice and traveled to Haiti and Vietnam to teach surgical and clinical skills to physicians, working with Health Volunteers Overseas. This was not my first medical mission trip; I have been leading surgical teams to Haiti every year since 2006.

However, by providing a “fly-in” package, I realized that we were contributing more to the long-term problem of developing-world medical care than we were helping.

Haitian physicians were so busy taking care of the day-to-day needs of their patients that they seldom had time to participate in learning new skills when our surgical team arrived. The Haitian patients saw the doctors from the United States as better doctors because they did the more complicated surgeries.

Instead of working ourselves out of a job, which should be the aim of medical missions, we were making the problem even worse.

Health Volunteers Overseas provides physicians and other health care providers with a different option. They coordinate with hospitals throughout the world to improve the availability and quality of health care through the education, training, and professional development of the health workforce. Less doing and more teaching, in the hope that improved health care can be provided by an in-country workforce that has both the cultural background to understand patient care and the skills to provide the health care that is needed.



SUBMIT YOUR WORK

The *Medical Bulletin* is seeking compelling photos and stories featuring U of M Medical School student, alumni, or faculty experiences abroad. Selected submissions will be published in future issues of the *Medical Bulletin*.

For more information or to submit your photo or story, email managing editor Nicole Endres at nendres@umn.edu.

PHOTOS: COURTESY OF LESLEE JAEGER, M.D.



The physicians from these countries should be in charge of what is “taught.” What we as outsiders think is helpful may result in untoward consequences because of cultural misunderstandings. After all, we are only in the country for a short time. An experienced provider needs to be available to deal with both short- and long-term complications.

There are still circumstances where fly-in trips to provide medical care may be helpful—but they should be the exception and not the rule. Empowering indigenous health care providers should be the primary aim of most medical mission trips.

Excerpted from jaegerleslee.wordpress.com, where Jaeger blogs about childbirth and mothering across ages and cultures. Jaeger, Medical School Class of 1983, is a Twin Cities-based obstetrician/gynecologist.

The hope is that improved health care can be provided by an in-country workforce that has both the cultural background to understand patient care and the skills to provide the health care that is needed.

Weathering medical school

A cultural shift puts students' mental health first

BY BARBARA KNOX



ILLUSTRATION: FRANCESCO CICOCELLA

PICTURE THIS:

You're hunkered down with your study group, prepping for an exam, when you get a frantic call from your sister. Things are bad at home. Really bad. Your mom is hurt, and your younger brother and sister need you right now. Your family is in crisis, so you have to go.

But you're also a first-year medical student who fought hard—over six tough years—for your place at this table and you have to take a big test in a few days. You can't risk putting school on hold now, so you have to stay.

What do you do?

University of Minnesota Medical School student Dwayne Gibbs went to his family that day. Then he went to Scott Slattery, Ph.D., director of the Medical School's Office of Learner Development, and said, "I need help."

Cognitive overload. Unexpected illness. Family emergencies. For students, all of this, and more, can trigger mental health concerns ranging from anxiety to clinical depression to suicide ideation. If not diagnosed and treated, those conditions can knock students seriously off course—or worse: tragically, in 2018, a U of M Medical School student and a recent graduate both took their own lives.

"When those deaths happened, everyone here agreed: supporting student mental health and wellness needs to be the primary lens through which we view everything we're doing," says Kaz Nelson, M.D., associate professor and vice chair for education in the Department of Psychiatry and Behavioral Sciences and chair of the Medical School's Scientific Foundations Committee.

Minnesota is not alone; medical students' mental health is a global and growing concern. As reported in a recent *Journal of the American Medical Association* article, a systematic review of almost 200 peer-reviewed studies exploring the prevalence of depression or depressive symptoms in medical students worldwide between 1982 and 2015 found that 27.2 percent

of the students screened positive for depression, but only 15.7 percent sought psychiatric treatment. More than 10 percent of students had suicide ideation, which is a strong predictor of attempted suicide. According to the American Medical Student Association, medical students are more than three times more likely to die by suicide than similarly aged people in the general population are.

A well-being alliance

Last year, Medical School Dean Jakub Tolar, M.D., Ph.D., appointed David Rothenberger, M.D., as the senior adviser for physician well-being, a role that entails working with the school's leadership team to revamp policies and practices to help reduce physician burnout and improve wellness.

Nelson is on the team, focusing primarily on graduate medical education, as are Michael Kim, M.D., assistant dean for student affairs, and Slattery, who both work with undergraduates.

With strong support from the top—including from new University President Joan Gabel, who has singled out student mental health as one of her top priorities—the team has not been tentative in its approach to the problem.

“Achieving well-being is about changing the culture,” says Rothenberger, “so we’re approaching this in a broad way that’s both longitudinal—for students, trainees, and people in practice—and interdisciplinary; that is, we’re including RNs, public health students, dentists, vet med [students]. This is a new world where we all have essential roles to play.”

Challenging the status quo

Kim emphasizes that changing education practices is critical to keeping stress manageable for students. Among the first wave of changes? The Medical School has reduced the amount of educational content for first-year students by 15 to 20 percent, shifted grading to pass/fail, and shortened the academic year by about three weeks.

“We’ve learned the hard way,” says Nelson. “You can’t expect wellness results by sending students to a resiliency class and then follow up by sending them to lectures that include 100 PowerPoint slides when eight would do.”

Nelson reduced the content of her own course on human health and disease by a whopping 50 percent, and the results, she says, have been astonishing. “The students became more engaged, more curious, more respectful, and more appreciative.”

Now, the Medical School holds a monthly faculty development workshop, inviting colleagues from the University’s Center for Education Innovation to help faculty figure out how to reduce content and use evidence-based techniques that encourage active learning, which has been shown to stick better than passive learning.

Counseling, coffee, and salsa

In addition to new personnel, updated teaching methods, and a revamped curriculum, the Medical School has added a bridging counseling service so students can get immediate help when waiting lists are long for standard counseling and health appointments. Students have been more than receptive: In the first four months, 85 students used the new counseling service.

The Medical School also has created new student mentoring programs and opportunities for students to escape campus and medical school stress.

“It’s important to step out of the intensity of medical school once in a while and remind ourselves that we’re humans who have other interests,” says third-year student Kevin Butcher, who volunteers for both the student-run group CPAP (Confidential Peer Assistance Program) and the peer mentorship program, in which second-year students make themselves available to first-years for questions and support.

Medical students are more than three times more likely to die by suicide than similarly aged people in the general population.

It's important to step out of the intensity of medical school once in a while and remind ourselves that we're humans who have other interests.

– Kevin Butcher, third-year medical student

Butcher helps organize CPAP's Good Acre events at the community teaching kitchen in St. Paul, which usually attract about 20 students for an evening of communal cooking and eating. He has also been a host of the successful new "Coffee with CPAP" initiative, during which second-years meet one-on-one for coffee with first-year students to talk, ideally, about anything but medical school.

Karen Lawson, M.D., who teaches at the Earl E. Bakken Center for Spirituality and Healing, has been organizing a salsa outing for three years; this year, nearly 50 medical students signed up to dance.

"Peer-to-peer support and interaction is so important," says Slattery, "and to do that within the context of fun really helps mitigate the intensity of medical school. And that's remarkably healing."

In the works

This fall, the Medical School is testing student learning communities or "houses" (think Harry Potter Hogwarts-style houses) that gather students into more intimate groups to facilitate easier interaction with peers, mentors, and advisers. Program leaders hope to roll out the plan fully in 2020.

To address inequities that may affect students who are underrepresented in medicine, he's also overseeing implementation of reporting systems so administrators hear quickly if someone is being mistreated or marginalized, and working closely with mental health services to support students with disabilities.

Both Slattery and Kim are excited that the new Health Sciences Education Center, scheduled to open in 2020, will include a mental health clinic with telehealth connections to help the U's health professional students who are studying and training across the state and around the world.

'Tell your stories'

Students who spoke to the *Medical Bulletin* about their own mental health challenges seemed almost surprised to learn that there was a time when seeking counseling in medical school carried a stigma. Because, on campus, times have changed.

"We're normalizing the fact that everyone needs help, and encouraging students, 'Tell your stories,'" says Kim.

Students appreciate that invitation. "I experienced nothing but support from administration, professors, and peers," says Josh Warneke, a third-year student who suffered academically and emotionally following his divorce and the death of his stepson last year. "I shared my own struggles with some classmates, and I've supported a couple others who've been through something similar," he says. "There's no stigma at all about asking for help. The direction the school is going is absolutely correct."

Second-year student Kevin Gale agrees; he sought help through the bridging counseling service last year when cognitive overload led to symptoms of depression. "I really can't say enough good about bridging counseling," says Gale. "Dr. Slattery and the school made sure we all knew this service was available, and it was incredibly helpful."

Gale also felt comfortable talking to other students about what he was experiencing. "After I went to bridging counseling, I told several classmates how easy it was—just a matter of going to the counselor's Google calendar and signing up for an appointment, typically within 24 hours."

Another third-year student found herself really struggling after she was diagnosed with mononucleosis. Weighed down with fatigue, she fell behind on classwork and ultimately got help from Slattery and bridging counseling, but also from friends and from classmates she barely knew.



WEB EXTRA

Watch a panel discussion on student mental health from University President Joan Gabel's inauguration week at z.umn.edu/weatheringmedicalschool.

“The community here is so supportive of one another, and so open—more so than a lot of other places I’ve heard about,” she says. “That’s one of the reasons I’m here.”

Hold each other up

“I’ve heard older physicians scoff and say millennials just aren’t tough enough,” says Rothenberger. “Nonsense. Medicine is more stressful today than it’s ever been.”

Kim agrees. “Our students are phenomenal,” he says. “They’re highly accomplished by the time they arrive here. But medical school can be isolating, and managing that stress is tough.”

For Gibbs, the family emergency that threatened to derail him last year was just a small part of the history he brought with him to medical school.

“Being a black man navigating society, growing up in poverty and witnessing domestic violence, fighting not to reinforce stereotypes, wanting to show that you’re capable and smart—dealing with all of that, as well as crippling anxiety, on top of your academics is really difficult. And it’s not just me. Other classmates have stories to tell.”

What stuck with Gibbs was the fact that, when he sought help, Slattery welcomed him in immediately and guided Gibbs to the counseling and therapy that he says helped save his medical career. When he finally decided to open up about his family situation and mental health issues to a classmate, the two developed a close friendship, encouraging and supporting one another.

“We all need to do that for one another here,” Gibbs says, “and we’ll need to do that for each other when we’re doctors as well. All of us will struggle or encounter hardships, so we need to learn now that we have to talk about it, that we have to hold each other up.” ^[MIB]

Barbara Knox is a freelance writer and editor and a frequent contributor to the *Medical Bulletin*.



ILLUSTRATION: FRANCESCO CICCOLLELLA

Peer-to-peer support and interaction is so important, and to do that within the context of fun really helps mitigate the intensity of medical school. And that’s remarkably healing.

– Scott Slattery, Ph.D., director of the Medical School’s Office of Learner Development

MISSION CRITICAL

BY JUSTIN HARRIS

From clinics to the state Capitol, an interdisciplinary team of U ‘champions’ is combating climate change by calling out the ways it harms human health

The seawalls were no match for the encroaching ocean.

Built to safeguard the coastal Indian city of Visakhapatnam, the walls retreated in the face of higher water and stronger waves—repeatedly torn down and rebuilt, each time closer to the streets, buildings, and people they were meant to protect.

One of those people was 8-year-old Laalitha Surapaneni. Now an assistant professor in the University of Minnesota Medical School’s Department of Medicine, Surapaneni remembers watching the sea inch closer to her hometown. Even as a child, she realized that climate change and its effects—including hotter temperatures and rising sea levels worldwide—weren’t just an idea in a textbook; they were a tangible reality nearly at her doorstep.

“The sea was literally rising before my eyes, in my lifetime,” she says.

As the world changed around her, Surapaneni gained a great respect for nature—and a keen understanding of humans’ place within it.

“My parents raised me with an eye toward the environment,” she recalls. “They always reminded me, ‘Humans are a part of nature. And if we destroy nature, we’re going to destroy ourselves.’”

Surapaneni grew up, earned her medical degree, and moved to the U.S. to begin her career. But she has never forgotten her parents’ lesson or her formative experience with climate change. In fact, it’s what led her to Minnesota in 2018.

Besides joining the faculty as a clinician, Surapaneni came to the U of M to be the Medical School’s climate champion. She’s one of eight such faculty champions at the University, each one representing a health science college, school, or program on campus. Together, they are working to illuminate the very real impact climate change is making on human health, both globally and in Minnesota.

As the Medical School's climate champion, Laalitha Surapaneni, M.D., works with U of M students, her patients, and Minnesota lawmakers to show how climate change affects human health.



Members of Health Students for a Healthy Climate are collaborating on projects that link climate and health. Sitting, from left: Jack Inglis, Zöe Kondes, Nikki Russell. Standing, from left: Emma Butzer, Jessi Coryell, Niamh Hart, Marie Gilbertson.

HEALTH STUDENTS

FOR A HEALTHY CLIMATE

Through a new climate and health curriculum, student and faculty engagement, and outreach to the public, the climate champions hope to help people adapt to their changing environments and help limit damage to the climate.

“We want to change the conversation about climate to show what it really is: a significant health problem,” Surapaneni says. “And if we’re able to address it, there are going to be tremendous health benefits.”

Connecting the dots

Climate change is often framed as a political, economic, or national defense issue. It’s rarely discussed as a major health threat. According to a 2018 *Lancet* report, only 4 percent of the 43,000 scientific articles published in 2017 about climate change made any link to health, and only 1 percent focused specifically on the issue.

That’s a potentially catastrophic mistake, says Teddie Potter, Ph.D., a clinical professor in the School of Nursing and the leader of the U’s interprofessional climate change and health initiative (which includes the climate champions). She is also the cocreator of the statewide grassroots organization Health Professionals for a Healthy Climate.

Between more heat-related illnesses and deaths, a longer and more severe allergy season, and geographically shifting infectious diseases, climate change is undeniably linked to health, she says. The connection isn’t all bad, however: the healthy behaviors that can combat it, like eating a plant-based diet and walking instead of driving, not only lead to healthier people, but a healthier planet, too.

Armed with that knowledge, Potter says, health professionals have a unique opportunity to cut through the noise surrounding the

climate change debate and frame it around health—a universally compelling and crucially nonpolitical concern.

“We know that there are many ways to talk about climate change, and yet we haven’t seen any popular agreement about it,” she says. “People trust health providers over all other professions, so we thought maybe we could communicate this in a way that wakes people up.”

The first step in that mission is making sure the students training to be health professionals today are equipped to talk about climate change and health when they begin their careers. Potter enlisted the climate champions to create a climate-focused curriculum that could be easily incorporated into already-established lectures across disciplines.

The result is a set of nine short slide decks that any instructor can use to introduce or reinforce the connection between climate change and health.

“Say you’re teaching about asthma,” Potter says. “You can use our slides that explain the lengthening pollen season in Minnesota and new plants that are coming to our area and how that might impact patients. It takes two seconds to add that material, but it means students are starting to hear about climate change more often.”

Empowering the next generation of health care providers to address climate change is critical, Surapaneni agrees.

“Young people are the ones who are going to be impacted by climate change the most,” she says. “They don’t need to be convinced that it’s real; all they want to know is, ‘How do I take action?’”

Action plan

Ideally, that introduction will prepare students to engage with their patients about the topic in the future, says Surapaneni, who serves as the faculty adviser to the U’s interdisciplinary student-run group Health Students for a

Healthy Climate. There, she engages interested students in new ideas and projects related to climate and health.

Jack Inglis is a third-year medical student at the U of M and a cochair of the group. He’s working with Surapaneni on a project that’s exploring new ways to communicate climate-specific health information to patients.

Inglis says he’s always been passionate about the environment, and being able to infuse that interest into his education has been exciting. He also considers it his responsibility.

“Physicians have historically played a big part in shaping debate and response to public health issues, and I don’t think it should be any different with climate change,” he says.

And while that perspective is echoed by many of his peers, it’s one that’s only recently become the norm.

We want to change the conversation about climate to show what it really is: a significant health problem. And if we’re able to address it, there are going to be tremendous health benefits.

– Laalitha Surapaneni, M.D.

HOW CLIMATE CHANGE AFFECTS HEALTH

Climate change stems from increased levels of carbon in the earth’s atmosphere. From there, the consequences cascade outward, ultimately affecting the health of people in Minnesota and across the globe. Here are some of the ways that happens:

EXTREME HEAT can cause heat stroke and cardiovascular failure.

MORE SEVERE WEATHER causes injuries and increased anxiety and mental health concerns.

POLLUTED AIR can intensify asthma and heart disease.

MOSQUITOES, TICKS, AND OTHER INSECTS are expanding their geographic range, bringing new diseases to new areas.

EXTENDED POLLEN SEASON is intensifying allergies. In Minnesota, the pollen season is about 21 days longer today than it was in the mid-1990s.

WATER AND FOOD SCARCITY can cause malnutrition worldwide.

Sources: Centers for Disease Control and Prevention and the Minnesota Department of Health

Physicians have historically played a big part in shaping debate and response to public health issues, and I don't think it should be any different with climate change.

– Jack Inglis, third-year medical student and cochair of Health Students for a Healthy Climate

Phillip K. Peterson, M.D., is a professor emeritus of medicine at the Medical School, an infectious disease specialist, and a member of the Health Professionals for a Healthy Climate group led by Potter. Peterson joined the group in 2015 after realizing he had never acknowledged climate change and its impact on health in his 47-year career.

“About four years ago, I gave a talk about infectious disease at a conference about climate change,” he says. “There, I learned a lot more about climate change and concluded very quickly that this is the single biggest threat to humans. And yet, up until that time, I knew zero about it.”

Motivated by the seriousness of the threat, Peterson now works with Potter and others to educate practicing health professionals as well as peers in his community.

“A lot of physicians still aren't up to speed on this,” he says. “But once they realize the scope of this issue, hopefully, they realize, ‘Holy smokes! We've got to get involved.’”

Health Professionals for a Healthy Climate is hosting a conference at the U of M on April 4, 2020—called Code Blue for Patient Earth—that's tailored to health practitioners in Minnesota. The goal, Peterson says, is to drive home the point that climate change is affecting the health of people in the state and show how health professionals can help patients adapt.

Reasons for hope

Surapaneni is hoping to move the needle politically, too. She's testified at the Minnesota Legislature, offering her expertise about how climate change affects health and how state policies must reflect that connection. She says physicians' voices are needed in climate advocacy.

“We are duty-bound to prevent what we cannot treat,” she says. “So we have to be vocal in communicating the reality of our climate crisis to our legislators and advocate for climate policies that will keep our patients healthy.”

Surapaneni's advocacy includes discussion about the inherent inequality of climate change's impact. She notes that people who have contributed the least to climate change often end up suffering the most from its effects.

“I had a patient who was experiencing homelessness [who was] admitted with an asthma attack on an extremely hot day,” Surapaneni recalls. “She did not have access to air conditioning and couldn't afford medications. This is how climate change magnifies existing health inequities to impact the most vulnerable.”

With experiences like that in mind, she says health professionals can play a crucial role in developing climate-adaptation plans for neighborhoods and cities to protect those who are most at risk.

Besides her political advocacy, Surapaneni also connects with the public through town halls and community talks. Minnesota, famous for its bitterly cold winters, is now one of the fastest-warming states in the country. For many Minnesotans, Surapaneni says, climate anxiety is setting in, but so too is a desire to take action.

“The town halls leave me energized, as more people are ready to get involved,” she says. “Minnesotans have an unrivaled can-do attitude, which gives me hope.”

Not surprisingly, Surapaneni also turns to Twitter to talk about climate change. Social media is just one more way to get her message out to a large audience.

“There's a ton of misinformation out there about climate change, and I want to be a clear scientific voice,” she says. “I also get to see the work other people and organizations are doing across the world. It keeps me going in my mission.”

Finding those bright spots is important, because, as Potter admits, climate change and its potentially devastating impact on the planet can quickly become overwhelming.



WEB EXTRA

View an introduction to the U's climate and health curriculum at z.umn.edu/climatehealth.

Teddie Potter, Ph.D., says health professionals have a unique opportunity to communicate the threat of climate change to patients and the public.



MEET

THE CHAMPIONS

“I wake up, and it’s almost like a night fright as the reality hits me of what we have to lose,” Potter says.

She points to a photo of her grandson on her desk. “This little guy was born last year, and I don’t know what kind of world he’s going to be facing.

“Every species comes to a point, usually because of changes in the environment, where they either break down and become extinct or they break through and evolve. We are at that point.”

It’s a terrifying either-or scenario, but Potter sees opportunity for a better future. To create the best-case scenario will require an all-in approach, she says, one that calls on health professionals to be part of a diverse, worldwide coalition of activists who are dedicated to making the planet and its people healthier.

“If we can pull it off, our future will be more hopeful and better than anything we have now,” Potter says. “It will be a more equitable world. It will be a world that prevents suffering rather than patches up suffering. It will be a world where every person has the ability to rise to their full potential. All of those things will have to happen for us to break through.

“And I’m putting my money on breaking through.” ^[MIB]

Justin Harris is an editor-writer with the University of Minnesota Foundation.

Meggan Craft, Ph.D.
College of Veterinary Medicine

Kylee Funk, Pharm.D.
College of Pharmacy

Scott Miller, O.T.D.
Occupational Therapy, Center for Allied Health Programs

Teddie Potter, Ph.D.
School of Nursing

Cyndee Stull, M.D.H.
School of Dentistry

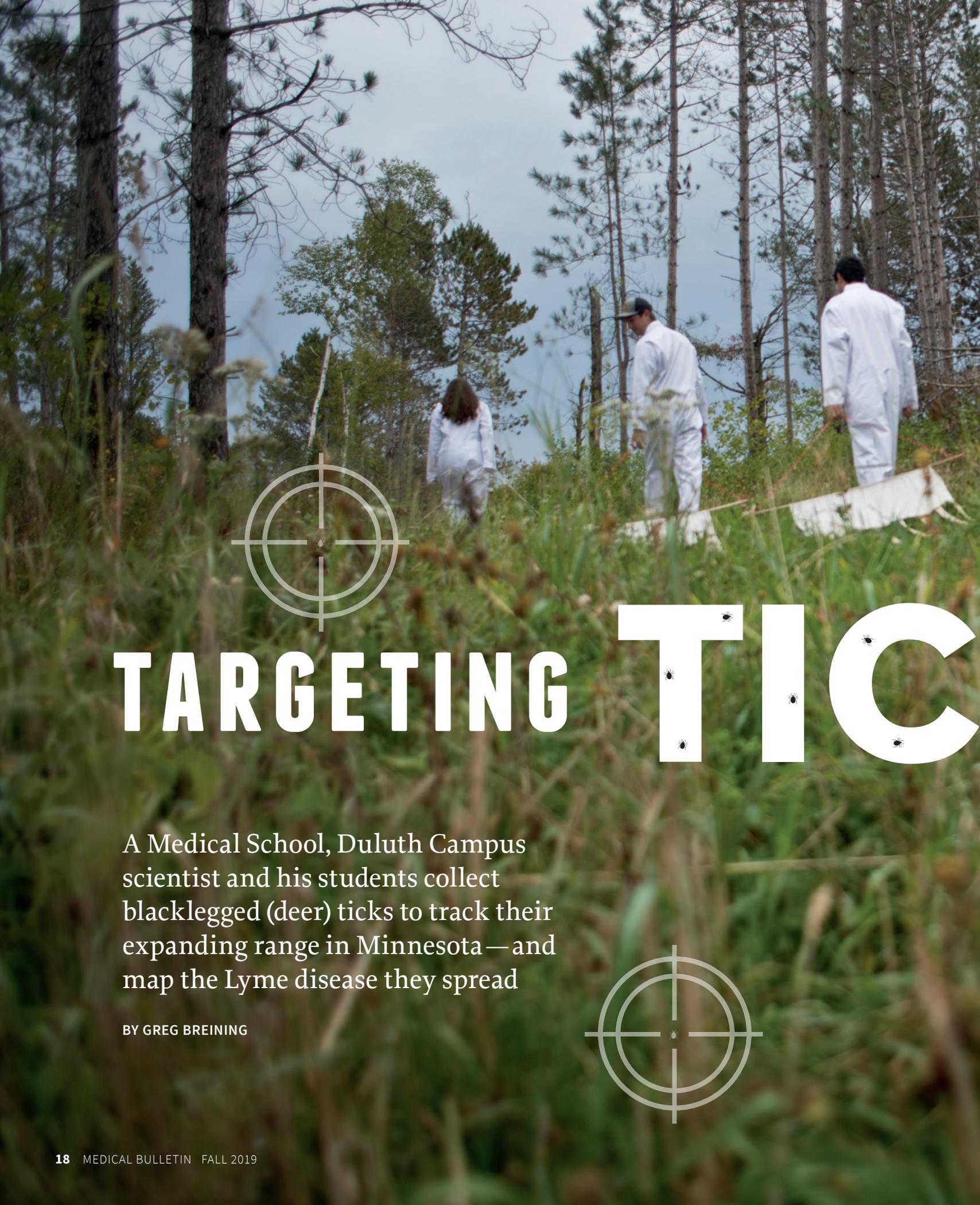
Vishnu Laalitha Surapaneni, M.D.
Medical School

William Toscano, Ph.D.
School of Public Health

Nicole Zahnle, M.Ed.
Medical Laboratory Sciences, Center for Allied Health Programs

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– Teddie Potter, Ph.D., School of Nursing



TARGETING

TIC

A Medical School, Duluth Campus scientist and his students collect blacklegged (deer) ticks to track their expanding range in Minnesota—and map the Lyme disease they spread

BY GREG BREINING



KS

No one wants ticks. 🕷️ 🕷️ 🕷️ Except Benjamin Clarke, Ph.D. If you have any, please mail them to him. 🕷️ 🕷️ 🕷️ Clarke is an associate professor in the Department of Biomedical Sciences at the Medical School, Duluth Campus. He and his undergraduate students are trying to determine where ticks—especially the blacklegged ticks that harbor the bacteria that causes Lyme disease—are most prevalent in the state and where the risk of contracting Lyme is greatest. 🕷️ 🕷️ 🕷️ In his pursuit of tick knowledge, Clarke has mailed out some 500 tick kits so folks can collect the ticks they acquire during their outdoor activities. The kits include a “tick key” for raking the tick off the skin, an ID card to determine whether it is a blacklegged tick (otherwise known as a deer tick), and a plastic vial for sending the specimen, with information about time, location, temperature, and a rough guess of humidity, to Tick Outreach at the Medical School. In addition, he gives “tick talks” to community groups once a month. 🕷️ 🕷️ 🕷️ Clarke also collects specimens during “tick drags” he leads with University of Minnesota Duluth (UMD) undergrads and students from local community colleges. The goal of his tick project is twofold: to learn more about Minnesota ticks and tick-borne diseases, and to encourage students from rural areas and reservations to learn more about science and consider pursuing a science degree.



As blacklegged ticks have spread through Minnesota, so have the bacterium and the disease.

TICKS ON THE MARCH

Clarke caught the tick bug after a local doctor came to his office about 10 years ago to find out more about the spreading range of blacklegged ticks and Lyme. The health risk maps of the day showed the disease centered largely from Pine County south. “We’re up in Duluth, and he had a bunch of patients hit with this disease,” says Clarke.

“So I mixed the two things—my interest in actual disease and this idea of the epidemiology about it spreading—and made that into what we call a problem-based learning project for the students in the summer. They would get together and read up on it, formulate ideas that they would like to do,” Clarke explains. “In other words, this project was really generated at the level of community college and university students getting together.”

It’s not surprising that a project on Lyme disease would stem from community concern. The tick and the bacteria it carries were virtually unknown 50 years ago. Since then, it has become one of the most prevalent infectious diseases in the nation and state. The federal Centers for Disease Control and Prevention officially records about 35,000 cases nationally each year. However, because the disease is so difficult to diagnose, the CDC estimates the real incidence is nearly 10 times that high. The epicenter of the epidemic lies in New England, New York, and Pennsylvania, though Minnesota and Wisconsin are not far behind.

Lyme is caused by the bacterium *Borrelia burgdorferi*, carried by the blacklegged tick, a root beer-colored tick smaller and more almond-shaped than the familiar wood tick



PHOTOS: BRETT GROEHLER

(also called a dog tick). Historically in Minnesota, blacklegged ticks were confined to the St. Croix River Valley. But during the last 30 years, they have spread across the forested areas of the state.

“Climate change is the easy answer. But it’s more complicated than that,” says Jonathan Oliver, Ph.D., assistant professor of entomology in the University’s School of Public Health. Also driving the tick migration are changes in forest pattern and density and changes in populations of creatures that host the tick, including the white-footed mouse, which is a reservoir for the bacterium.

The disease itself was unheard of until 1975, when it was identified in Old Lyme, Connecticut. (However, a similar bacterium and disease are known in Europe and Asia; in fact, Ötzi, the 5,300-year-old hiker found mummified in the Italian Alps, had traces of *Borrelia* bacteria in his tissues.)

As blacklegged ticks have spread through Minnesota, so have the bacterium and the disease. “They’re marching north,” says Clarke. “They didn’t see deer ticks 10 years ago, and now they’re seeing them.”

Third-year Medical School student Chris Little checks for ticks on a “tick drag” in Duluth’s Hartley Park.

A LIVING HYPODERMIC NEEDLE

Ticks at various life stages climb stalks of vegetation, stretch out their front legs, and in a pose called “questing,” wait for a target, whether a mouse, white-tailed deer, or human. After the tick latches onto a passing victim, it crawls to a suitable source of blood and bites in. The trickle of blood arouses the *Borrelia* bacteria that live in the tick’s gut. They proliferate and move toward the tick’s mouth. After 18 to 24 hours, bacteria move into the victim as the tick alternately sucks in blood and spits out saliva to keep the blood flowing. Says Clarke, “The best way to think of a tick is that it’s a living hypodermic needle.”

That delay in the arousal of the bacteria is the reason it’s important to do a daily tick check. “If you find the tick early enough, you’re way less likely to get sick, especially from Lyme disease,” says Oliver.

Once established in humans, the bacteria often cause a red bull’s-eye rash surrounding the bite site, but as many as 30 percent of victims never get a rash. The bacteria causes flu-like symptoms such as fever, chills, fatigue, body aches, headache, neck stiffness, and swollen lymph nodes. In its early stages, Lyme is successfully treated with antibiotics. Untreated, an infection can lead to long-lasting joint pain, temporary facial paralysis, numbness in the limbs, severe fatigue, and even heart problems.

Benjamin Clarke, Ph.D. (second from left), and one of his tick teams: medical student Chris Little; Emily Hartman, University of Minnesota Duluth Class of ’17; and Jubran Jindeel, a biology major at UMD.

A TRICKY DIAGNOSIS

LYME DISEASE is devilishly hard to diagnose.

The characteristic bull’s-eye rash does not always appear. Other symptoms—fever, chills, fatigue, body aches, headache—accompany everything from the flu to a hard day at the gym.

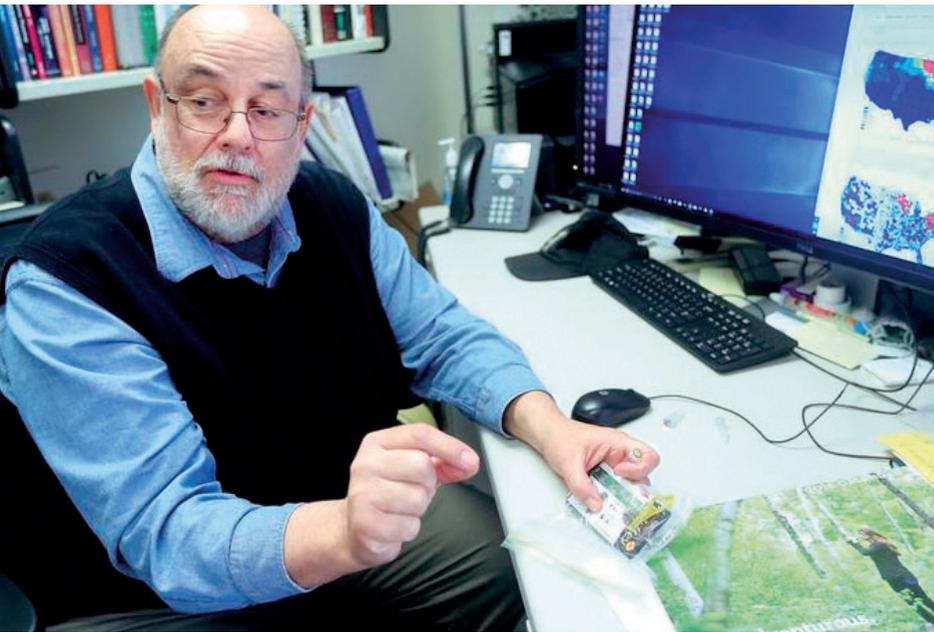
Standard lab tests for Lyme detect the body’s production of antibodies against *Borrelia burgdorferi*, not the bacterium itself. That means if you go to the doctor soon after a tick bite—when antibiotics would be most effective—you may test negative because your body has not yet produced many antibodies. And, if you’ve been successfully treated for Lyme once and come in later with another tick bite, you may test positive whether you’re infected or not because antibodies from the first infection remain in your body.

So researchers are looking for a better test.

Benjamin Clarke, Ph.D., associate professor in the Department of Biomedical Sciences at the Medical School, Duluth Campus, is studying two approaches: looking for metabolic byproducts of the bacteria in the bloodstream, and developing techniques for finding *Borrelia* that’s hiding in circulating lymphocytes, the white blood cells that reside in the lymph nodes.

Jonathan Oliver, Ph.D., assistant professor of entomology in the School of Public Health, is trying to obtain funding for a test that would identify the bacteria proteins that trigger an antibody reaction.





PHOTOS: BOB KING, FORMERLY OF THE DULUTH NEWS TRIBUNE



Benjamin Clarke, Ph.D., collects tick specimens from around Minnesota to track areas of greatest Lyme disease risk.

A LIVING HYPODERMIC NEEDLE

Ticks at various life stages climb stalks of vegetation, stretch out their front legs, and in a pose called “questing,” wait for a target, whether a mouse, white-tailed deer, or human. After the tick latches onto a passing victim, it crawls to a suitable source of blood and bites in. The trickle of blood arouses the *Borrelia* bacteria that live in the tick’s gut. They proliferate and move toward the tick’s mouth. After 18 to 24 hours, bacteria move into the victim as the tick alternately sucks in blood and spits out saliva to keep the blood flowing. Says Clarke, “The best way to think of a tick is that it’s a living hypodermic needle.”

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body aches, headache, neck stiffness, and swollen lymph nodes. In its early stages, Lyme is successfully treated with antibiotics. Untreated, an infection can lead to long-lasting joint pain, temporary facial paralysis, numbness in the limbs, severe fatigue, and even heart problems.

BUDDING STUDENT SCIENTISTS

Clarke, an enrolled member of the Grand Portage Reservation – Minnesota Chippewa Tribe, recruits interested students through two science enrichment programs. One is the Bridges to the Baccalaureate Degree, a partnership between Lake Superior College, Fond du Lac Tribal and Community College, and UMD that encourages community college students to pursue four-year degrees in the sciences. He also engages students through Pathways to Advanced Degrees in Life Sciences, a summer program designed to serve Native American, low-income, and other underserved students.

The National Institutes of Health and the Medical School have funded the programs. Lynne Bemis, Ph.D., professor of medicine, codirector of the Native American Mentoring Program, and past chair of the Department of Biomedical Sciences on the Medical School, Duluth Campus, says she supported Clarke’s program because she wanted to do something that mattered to Minnesota people. “The research that you do should be something

 **WEB EXTRA**

See the Minnesota Department of Health’s maps of tick-borne disease risk at z.umn.edu/targetingticks.

of a priority to them.”

Says Bemis, who studies *Bartonella*, another group of pathogenic bacteria transmitted by ticks, “I think the real stellar part of what he’s doing is getting undergraduates involved in something that they’re probably going to interact with all their lives if they’re from this area.”

Clarke’s students themselves identified some of the issues they wanted to explore. They devised the tick collection. They also thought up the tick kits. “I wish I could take credit for all this,” says Clarke. “It’s really from their work.”

Working in teams of three, the students walk roo-yard transects, dragging yard-wide white fabric flags. Every 10 yards, they stop, pick ticks from the fabric, and drop them in a vial.

“We’re looking for ticks from several different life stages,” says Clarke. “If you can see more than one life stage, you can make the argument that the tick population is established. It didn’t just by random chance hop onto a deer and fall off.” The team examines specimens to determine whether they are actually carrying the Lyme bacteria. Clarke and his students are also trying to determine the kinds of microhabitats the ticks prefer—woods vs. fields, uplands vs. lowlands, humid environments vs. arid ones.

Jubran Jindeel, a graduate of Lake Superior College, entered UMD through the Bridges to the Baccalaureate Degree program and began work on Clarke’s tick project two years ago. The biology major has scoured the woods for ticks, tucking his pant legs into his socks and duct taping his pant legs and shirtsleeves to repel the pests.

Now, Jindeel is testing ticks mailed in by the public and collected during the tick drags for the *Borrelia* bacteria. The public’s tick contributions have come from all over Minnesota and Wisconsin, he says. About one in three, so far, have been infected with *Borrelia*, as is the norm in Minnesota.



TICK-BORNE DISEASES IN MINNESOTA

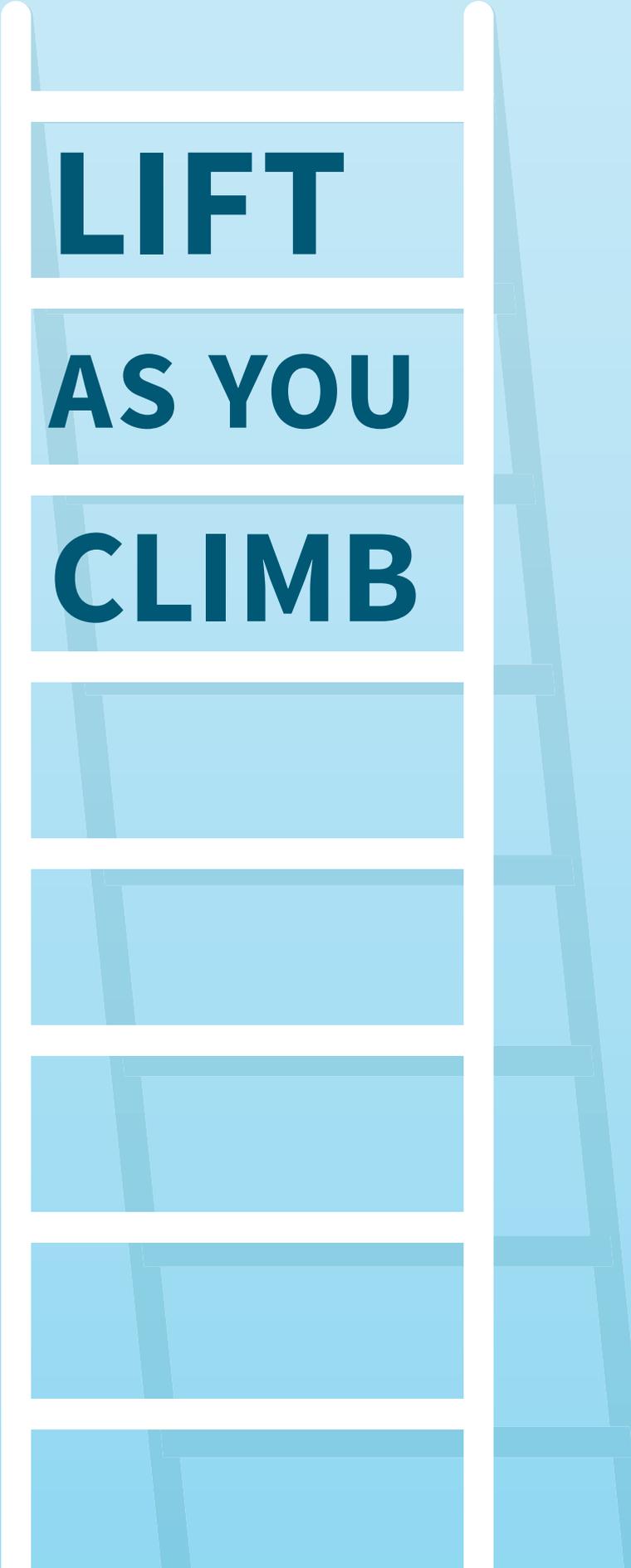
LYME DISEASE IS BY FAR the most common tick-borne disease in Minnesota, but it’s not the only one, says Jonathan Oliver, Ph.D., assistant professor of entomology in the School of Public Health. The blacklegged tick, which carries Lyme, is also responsible for:

- **Human granulocytic anaplasmosis**, a bacterial disease that appeared in Minnesota in 1990. It causes fever, severe headache, muscle aches, chills, and shaking. In recent years, about 500 cases have been reported annually in Minnesota.
- **Powassan virus disease**, first reported in the state in 2008. It causes inflammation of the brain (encephalitis). Minnesota sees fewer than a dozen cases a year.
- **Ehrlichiosis**, caused by *Ehrlichia muris* bacterium. First reported in Minnesota in 2009, it appears in about a half-dozen people a year here. Symptoms include muscle pain, headache, fever, chills, nausea, and diarrhea.
- ***Borrelia mayonii* disease**, similar to Lyme, first identified in Minnesota in 2013.
- **Babesiosis**, an infection by a tick-borne parasite. The state records fewer than 100 cases a year. About 20 percent of patients with the infection also have Lyme disease.

The American dog tick (aka wood tick) can carry Rocky Mountain spotted fever, a deadly bacterial disease treatable with antibiotics. Symptoms include rash, fever, headache, muscle aches, nausea, and vomiting. It is rare in Minnesota.

The lone star tick, endemic to the southeastern United States, has been found in scattered locations through Minnesota. “We expect it to become an established parasite here at some point,” says Oliver. “It’s a real aggressive tick. Lone star ticks will actually seek out hosts.” The lone star tick can cause ehrlichiosis as well as an allergy to red meat.

Another emerging threat to Minnesotans is the Asian longhorned tick. Native to Asia, where it carries several diseases, this aggressive tick has been reported in 11 states in the eastern United States. “We don’t know what they might carry here,” says Oliver, “probably Powassan virus, *Babesia*, hopefully not Lyme.”



LIFT

AS YOU

CLIMB

North Minneapolis mentoring program introduces kids and teens to health careers

BY SUSAN MAAS

Christopher Allen was in fifth grade when his mom told him about a new program in the Twin Cities called the Ladder for kids interested in health careers. “I was like sure, OK, I’ll check it out. The first one was cool; it was focused on sports medicine. It was a hands-on thing, with sports doctors demonstrating some of what they do and explaining how they do it.”

Allen was hooked. That was in 2012; today he’s a scholarship-winning college freshman at Luther College in Iowa. He plans to become a gastroenterologist, and he credits the Ladder—and its founder, family physician and University of Minnesota Medical School assistant professor Renée Crichlow, M.D.—with preparing him to fulfill that dream.

The program is held on the second Saturday of every month at UROC (the University’s Urban Research and Outreach-Engagement Center) in North Minneapolis and seeks especially to serve students from under-resourced communities—many of whom, Crichlow says, might not realize they’re “physician material.”

Over the years, Allen has attended nearly every session of the Ladder. “I’ve gone to 99.9 percent of them,” he says. “I’m there unless I’m sick or there’s a family emergency.”

The Brooklyn Park, Minnesota, native learned about dozens of medical specialties and subspecialties, as well as other health careers like pharmacy, dentistry, nursing, and more, from professionals working in those fields.

“There are always a bunch of potential mentors there, and the fact that the topics change every month keeps it interesting,” Allen says.

MEDICAL SCHOLARS ALL

The Ladder—open to students ranging from elementary school–age through college–age—was Crichlow’s brainchild, but she’s quick to note that a lot of people have been integral to building it. It’s free for participants, thanks to the fact that UROC donates space for each session, as well as the volunteer efforts of U medical students, residents, physicians, and other health care professionals who help organize and run the program.

Each session focuses on a different health field or medical subject but follows a similar format: the facilitator welcomes participants, who then introduce themselves; each person in the room chooses one of two quotes projected on a slide and thinks about how and why that quote resonates. Then participants gather into small groups for lunch, with mentors at each table. The family physician residents, with help from medical students, faculty physicians, and community physician volunteers, engage students in relevant hands-on activities.

Everyone, from grade-schoolers to physicians, identifies as a “medical scholar,” with the understanding that learning never stops.

“I might choose a quote that has to do with persistence,” says Crichlow, who practices at the University of Minnesota Physicians’ Broadway Family Medicine Clinic. “And I might tell my group my story: ‘I went to three undergrad colleges before I graduated. And I didn’t start medical school until I was 27. And now, I teach at one of the most prestigious medical schools in the country.’”

Renée Crichlow, M.D.



Christopher Allen



Lonzale Ramsey, M.D.





WEB EXTRA

Watch a video introduction to the Ladder program at z.umn.edu/theladder.

By design, the Ladder has been held in the same place at the same time since its 2012 inception, Crichlow explains. “A lot of these kids have really chaotic lives; they might come one time and not come back for another seven months. But they know when and where to find us.”

Any given month, between a dozen and 30 kids will attend. Students who show up aren’t required to commit to attending future sessions, Crichlow says—but like Allen, many come back.

Crichlow emphasizes that it’s not just the working physicians and other health professionals who do the mentoring at the Ladder. College students mentor high schoolers, who, in turn, mentor middle schoolers, who mentor elementary students. Hence the group’s motto: “Lift as you climb, build as you grow.”

“The long-term goal is to foster what we call ‘cascading mentorship,’” she says.

Discussions range from big-picture themes like tenacity and learning from failure to specific issues like what kind of high school classes to take, how to prepare for standardized tests, and how to navigate the college application process.

Everyone learns something, every time.

“I’m usually the oldest person there,” Crichlow says, “but I’m still getting something out of it.”

EVERYONE BENEFITS

Many members of the Ladder’s volunteer corps have been engaged in the program for years, Crichlow says. Most find interaction with young, aspiring healers rejuvenating.

“It really helps our resident physicians with burnout prevention,” she says. “And the community docs who come—you can literally see them regenerate just by participating.”

It’s a labor of love for newly minted family physician Lonzale Ramsey, M.D. The Nebraska native just completed his residency in the U of M’s North Memorial/Broadway Family Medicine Clinic program; he chose to come to Minnesota in 2016 because of the Ladder.

“When I was looking for a program to do my training, I wanted to find one that really allowed me to engage with and give back to the community. North Memorial had the Ladder,” Ramsey says.

He has participated in most of the Saturday sessions since arriving in Minneapolis and now serves on the organization’s board.

“For minority students, in particular, it’s easy to see musical artists or entertainers or sports stars who look like you, but it’s less common to see people in professions like medicine and law,” Ramsey explains.

He says he enjoys the chance to show young students of color that this is a possibility. “For me, personally, it’s not just about moving forward; it’s also about reaching back and pulling somebody with you.”

ALL KINDS OF SUPPORT

The Ladder's unique formula has attracted attention around Minnesota and across the country. It has served as a model for similar programs at United Hospital in St. Paul, as well as in Ohio, Wisconsin, and California.

Crichlow and her team have created a tool kit for health educators who want to replicate the program. "So it's almost a turnkey operation," she says. "Every one of those places has modified it to suit their local needs."

While the Ladder—with its reliance on volunteer efforts—costs just about \$100 per session, Crichlow's next goal is raising money to support individual student participants. All the curiosity, hard work, and persistence in the world won't address the fact that getting to college, let alone medical school, is a dauntingly expensive prospect—one that can feel impossible for many kids, she says.

"There's a real big tax on being poor; it's a constant reducing valve," Crichlow says. "We don't quite have the meritocracy we'd like to. We can mentor people extensively, but if they feel there's a barrier that can't be overcome just by sheer will and hard work, a lot of times, people will just stop."

"We'd love to provide opportunities for people, things like money for SAT prep courses. Stipends for [otherwise unpaid] internships. Scholarships for taking MCAT classes. What are the financial burdens that no one thinks about? We'd like to provide the kinds of support you might have if you weren't from a low-wealth, under-resourced community."

That kind of support would enable more kids like Christopher Allen to see themselves as physicians, nurses, pharmacists, and physical therapists. Allen has the resilience: his interest in gastroenterology stems from the fact that he was born several months premature, a "one-pound preemie" with an intestinal system that wasn't fully formed. "The doctors were like, 'He's going to have mental disabilities and physical disfigurements.' I guess I proved them wrong," Allen says.

If he can return to the Twin Cities during the summers when he's in college, the longtime Ladder regular says he would love to come back and visit. "I could see myself being a mentor to younger folks." ^[MB]

Susan Maas is a Minneapolis writer and frequent contributor to the *Medical Bulletin*.

FOR MINORITY STUDENTS, IN PARTICULAR, IT'S EASY TO SEE MUSICAL ARTISTS OR ENTERTAINERS OR SPORTS STARS WHO LOOK LIKE YOU, BUT IT'S LESS COMMON TO SEE PEOPLE IN PROFESSIONS LIKE MEDICINE AND LAW.

— Lonzale Ramsey, M.D., Ladder program mentor

DISCOVERING OPPORTUNITIES

The Ladder's programming interweaves discussions about big-picture themes like tenacity and learning from failure with presentations on a wide range of health topics, including:

- Obstetrics
- Dentistry
- Pharmacy
- Nursing
- Public health
- Food as medicine
- Heart
- Lungs
- Brains
- Blood
- Mind-body medicine
- Eyes and ears
- Emergency medicine
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- Babies
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- Reflexes
- Sports medicine
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Learn more at theladdermn.org.

From doctor to patient to author

U internist applies the lessons she learned as a breast cancer patient

HOW DOES a physician cope with a new, potentially life-threatening diagnosis? What happens when the healer becomes the patient?

Heather Thompson Buum, M.D., Medical School Class of 1998, faced these questions three years ago when she was diagnosed with breast cancer. The experience, though obviously a difficult one, left her with a new appreciation for her patients' journeys and with fresh insights into how she approaches her role as a teacher of future physicians at the University of Minnesota.

Thompson Buum transformed those hard-won lessons into two books published in 2019 by Joshua Tree Publishing—*Mirth is God's Medicine: Coping with Cancer as a Physician* and *With Mirth and Laughter: Finding Joy in Medicine After Cancer*. Her books are not just about breast cancer but primary care, academic medicine, mentorship, and more.

The *Medical Bulletin* caught up with the busy physician, professor, and mother of two on a sunny summer morning near campus.

PHOTO: SCOTT STREBLE



MB: TELL US ABOUT YOUR DIAGNOSIS.

HEATHER THOMPSON BUUM: I found a lump myself in April 2016 when I was 44; I hadn't even had a screening mammogram yet. The workup revealed that my cancer was Stage I and multicentric, with two small foci. So a lumpectomy was out; I needed a mastectomy, but thankfully, no chemotherapy or radiation. I now take Tamoxifen to prevent recurrence.

MB: YOUR RADIOLOGIST WAS A KEY PERSON IN YOUR MEDICAL JOURNEY, WASN'T SHE?

HTB: Yes, she shared with me that she herself was a colon cancer survivor and recommended that I see her oncologist, Dr. Anne Blaes. Before that, my impulse had been to leave my workplace and go elsewhere. My radiologist persuaded me that choosing the U would save me time and energy I could use for other things.

MB: WAS STAYING AT THE U THE RIGHT CHOICE?

HTB: Absolutely. By staying at the U, I have internationally renowned doctors who are also my colleagues. They offer moral support in addition to medical knowledge and technical expertise. Also, being right there on campus for labs, scans, appointments—or if need be, just to stop by the clinic—that was reassuring and helped me navigate the complex system more efficiently.

MB: HOW DID YOUR CHILDREN HANDLE YOUR CANCER DIAGNOSIS?

HTB: My kids were 8 and 11 years old at the time. Of course, they were initially shocked and scared, but since then, they have handled it very well. In fact, they have been a great source of support. I've been surprised by how mature they have been, asking thoughtful questions. It helps that I can quote fairly optimistic statistics, such as the 95 percent survival rate for Stage I breast cancer patients. And I tell them every day is a gift. Cancer has given all of us a greater appreciation for making the best of our time together.

MB: DID YOUR APPROACH TO PATIENT CARE CHANGE AFTER YOU WERE A PATIENT YOURSELF?

HTB: I really started to put my patients at the forefront, and I discovered that sharing even a small part of my survivor story could open up a whole range of connections and a new level of empathy. I also learned that the little things could go a long way. For example, my surgeon, Dr. Todd Tuttle, gave me his cell phone number when he was leaving town. When I developed a rare

complication called axillary web syndrome, I texted a photo of my arm to Dr. Tuttle. He diagnosed it right away, recommended physical therapy, and it soon resolved. Whatever we can do to make it easier for a patient to communicate with their care team, I am willing to try!

MB: HAS YOUR EXPERIENCE ALSO CHANGED THE WAY YOU TRAIN DOCTORS?

HTB: My teaching has also become more patient-centered. I recently arranged for two of my clinic patients – a colon cancer survivor and an appendicitis survivor – to speak to my class. The students loved it; they crave real patient interaction. I also emphasize to them how important it is to avoid excessively long hours and burnout. Self-care is important, too.

MB: HOW DID YOU FIND TIME TO WRITE TWO BOOKS?

HTB: I found early morning, between 5 and 7 a.m., I could write for 30 minutes, and then I would write again later at night after the kids were in bed. I wrote in hotel rooms, on the plane after academic meetings, in the orthodontist's waiting room, wherever I could carve out some time. I found it really enjoyable; it was "me time."

MB: WHAT'S NEXT FOR YOU?

HTB: It's been important to reconnect with those things that recharge my batteries. For me that's singing [with the Oratorio Society of Minnesota], time with friends and family, running, and biking. And I continue to write; I have a blog on my website, and I'm thinking about writing another book on physician wellness. ^{MIB}

By Lynette Lamb, a Minneapolis writer whose sister is a 10-year breast cancer survivor



PHOTO: ERIC MILLER

University President Joan Gabel (center) toured the in-progress Health Sciences Education Center during her September inauguration week.

Emerging HSEC finds support

Construction clips along on the University of Minnesota's new Health Sciences Education Center (HSEC). The 7-story, 202,000-square-foot building is slated for completion at the end of this year and for occupancy over the spring and summer of 2020.

Designed as a unifying space, the state-of-the-art HSEC will promote teamwork among the U's health sciences students and faculty. It incorporates active-learning classrooms, simulation suites, a health sciences library, a variety of study spaces, and more.

On a recent hard-hat tour, James House, M.D., M.S., Medical School Class of 1963, couldn't help but be intrigued by the facility's surgical simulation suites. House is a professor emeritus of orthopaedic surgery whose career focused on restoring hand function in people faced with irreversible brain



WEB EXTRA

View a time-lapse video of the construction at z.umn.edu/hsec.



James House, M.D., M.S., and Janelle House

and spinal cord injuries. After a bad back forced him to retire from surgical practice earlier than he would have liked, he continued to teach for another 23 years at the University and what was then called the VA Medical Center.

House and his wife, Janelle, have generously supported Medical School scholarships for many years. But an opportunity

to invest in the HSEC, and name its House Family Surgery Sim Room, seemed like a perfect combination of their passion for education and dedication to a medical specialty that has given them so much, James House says.

"Active learning is absolutely the key for adult education," he says. "This is an investment in the future. In the sense of giving back, it's really giving forward." ^{MIB}

A variety of naming opportunities at the HSEC – ranging from \$25,000 to \$20 million – remain available. For a tour of the facility or more information, contact Carrie Albers of the University of Minnesota Foundation at 612-626-8481 or albersc@umn.edu.

An eye toward inclusivity

MITCHELL MOE has a clear vision of the not-too-distant future.

If things go according to plan, he will be a family doctor practicing somewhere in rural Minnesota. Colorful art and photos of ethnically diverse families or same-sex couples will adorn the walls in the clinic where he works. Signs that read, “All are welcome here” will be visible as soon as patients walk through the door. And when they sit down with Dr. Moe, they will feel comfortable talking to him about whatever is on their mind.

Moe knows what he wants because it’s what he did not have as an LGBTQ individual growing up.

“When I first started having thoughts about my sexuality, in my young mind I thought, ‘This is a medical condition, so I should talk to a doctor,’” Moe recalls. “But I never felt fully comfortable enough to do that.”

Now, as a second-year medical student at the University of Minnesota Medical School, Duluth Campus, Moe is dedicated to becoming a doctor who values diversity and inclusivity as integral parts of his practice.

“I want to create a safe space for people who are going through similar experiences to mine,” he says.

CULTIVATING CONVERSATION

Becoming that kind of physician starts with understanding diverse communities of all kinds, not just the LGBTQ community, Moe says.

Last year, as the president of his medical school class, he spearheaded a lunchtime lecture series that brought doctors who care for underrepresented populations in Minnesota to the Duluth campus to share their perspectives. One physician spoke about caring for people experiencing homelessness in the Twin Cities, while another talked about his focus on transgender health care in Duluth. The lectures were an opportunity for students and faculty alike to learn.

“They sparked a lot of interesting and important conversations on campus,” Moe says. “And it’s great to see so many of our faculty members who still practice in town become engaged in these topics.”

The Medical School’s curriculum already includes material about the state’s Native American communities and the unique health concerns they face, and Moe says school leaders have been supportive of his and his classmates’ suggestion to incorporate content about Somali and Hmong people, too.

“The Medical School really emphasizes our becoming Minnesota physicians, and while I know we can’t learn about every single population, it’s great to be able to focus in on the ones prevalent in our state,” he says.

Moe has embraced the Medical School’s Minnesota-first mission and plans to pursue practice in the state, ideally in a small town like the one where he grew up.

“I want to be in Minnesota,” he says. “I think you can bring an added level of care and understanding if you’re from a rural community yourself.”

REALIZING THE FUTURE

He’s already putting his ideas into practice, too. During his first-year and second-year clinical course, Moe happened to be placed with a family doctor at the hospital in his hometown of Montevideo, Minnesota.

When he has the opportunity to interact with patients, he strives to get to know them beyond their medical conditions.

“I try to touch on everything and make each patient feel comfortable,” Moe says. “I ask about their health, but I also ask, ‘How are you doing in general? Is there anything else you want to talk about?’ And suddenly, all this



givingday.umn.edu

Support medical students on Give to the Max Day

Give to the Max Day takes place across the University and the state on Thursday, November 14. This year, the Medical School will be raising money for the Future Physicians Scholarship, which supports Twin Cities campus students, and the Next Generation Fund, supporting students on the Duluth campus.

A generous Medical School alumnus is offering a dollar-for-dollar match this year, up to \$5,000. Help us take advantage of this Twin Cities campus match! [MIB](#)

MEDICAL ALUMNI SOCIETY BOARD 2.0

The Medical School plans to reestablish the Medical Alumni Society Board, which will help the school grow an engaged, connected, and philanthropic alumni community. Alumni who have questions, feedback, or interest in serving on the board should contact Maureen Long, assistant director of alumni relations at the Medical School, mlong@umn.edu or 612-626-8045. [MIB](#)



It's crucial for health professionals to speak up and get involved in the tough conversations on disparities and discrimination in our nation, especially because it directly impacts patients' health and well-being every day.

– Mitchell Moe

other stuff comes out. I have talked to some patients for almost a half an hour about other things going on in their lives. Sometimes, it was information that their provider had never heard before.”

Moe's medical school experience has been bolstered by support from the Avera Marshall Regional Medical Center Scholarship Fund, which benefits students who are from the southwest part of the state.

“Having that scholarship is just a big sense of relief,” he says. “You kind of have those initial nerves, like, ‘Do I really belong here? Is this going to work out? What am I doing?’ When I received the scholarship, I remember

feeling much more at ease about going through medical school knowing that I had this additional support.”

His personal and academic experiences have put him on a path to realize the future he sees so clearly. And while he knows that fostering truly inclusive health care is an ambitious goal, Moe is confident he will be able to make a difference.

“I don't know how much a single person can change things, but I think it would mean a lot to the community if a doctor was vocal about creating safe spaces for all vulnerable people,” he says. “Doctors have a powerful platform to advocate for patients both in

and outside of the clinic. It's crucial for health professionals to speak up and get involved in the tough conversations on disparities and discrimination in our nation, especially because it directly impacts patients' health and well-being every day.” ^[MIB]

By Justin Harris, an editor-writer with the University of Minnesota Foundation

To make a scholarship gift or to learn more, please contact Carrie Albers with the University of Minnesota Foundation at albersc@umn.edu or 612-626-8481.

HOST a medical student

Help our Medical School students as they travel for residency interviews by signing up to HOST. The Help Our Students Travel Program connects current medical students with alumni as the students travel for residency and fellowship interviews. Alumni provide lodging for students in their homes and offer advice about the community in which the students are interviewing.

HOSTs are needed all across the country, especially in these high-demand cities where most of our students travel for interviews: Chicago, Dallas, Denver, Durham, Evanston,

Houston, Iowa City, Madison, New Haven, New York City, Rochester (New York), San Diego, San Francisco, Seattle, and Sioux Falls.

If you are unable to HOST students in your home, please consider becoming an eHOST. Alumni eHOSTs provide insight and guidance to students and residents via email and social media on specialties, research topics, area hospitals, and the local community. ^[MIB]

To sign up or find more information, please visit z.umn.edu/medHOST.

Medical School honors three distinguished graduates

THREE UNIVERSITY of Minnesota Medical School alumni were honored for their contributions to the medical profession at the Medical School Alumni Awards Banquet last spring at the University's McNamara Alumni Center.

The **Harold S. Diehl Award** is granted to individuals who have made outstanding contributions to the University of Minnesota Medical School, the University as a whole, and the community. It was established in honor of the Medical School's fifth dean, Harold Sheely Diehl, M.D.

MACARAN BAIRD, M.D., M.S.

Baird, head of the Medical School's Department of Family Medicine and Community Health for 15 years and a former certified



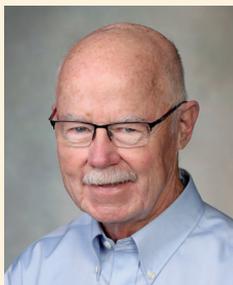
marriage and family therapist, is nationally and internationally recognized as a leader in the movement toward integrated primary care and behavioral health. Before his retirement from the department

in 2018, he accepted the position of interim University of Minnesota Physicians chief executive officer and copresident of University of Minnesota Health and was a key figure in creating M Health Fairview. A member of the Medical School Class of 1975, Baird is known for his strong work ethic and deep personal integrity.

The **Distinguished Alumni Award** recognizes University of Minnesota Medical School alumni who have made outstanding contributions to their communities – at the local, regional, or national level – through medical practice, teaching, research, or other humanitarian activities.

MARK V. DAHL, M.D.

A member of the Medical School Class of 1968, Dahl is a highly respected teacher and expert in immunodermatology. He is a former chairman of the dermatology departments at both the University of Minnesota Medical School and the Mayo Clinic College of Medicine in Arizona. Dahl founded Camp Discovery for children who have severe skin disorders, which has continued each summer for 25



years, and has helped to train hundreds of medical students, residents, and fellows. Those who know him appreciate his wit, commitment to research, and dedication to excellence.

The **Early Distinguished Career Alumni Award** is given to a physician for exceptional accomplishments within 15 years of graduating from or completing his or her residency at the University of Minnesota Medical School.

TERENCE (TERRY) C. BURNS, M.D., Ph.D.

Even in his days in the Medical School's Medical Scientist Training Program, Burns was making his mark on science, publishing



a landmark paper on methodological pitfalls in stem cell research. Burns, who earned his Ph.D. in neuroscience in 2007 and medical degree in 2009, is now a surgeon-scientist at the Mayo Clinic in Rochester, Minnesota. He is working to develop regenerative strategies to optimize function and quality of life for people who have brain tumors, neurologic injuries, and neurodegenerative diseases. Colleagues describe him as a passionate, empathetic, and driven clinical investigator. 

ester, Minnesota. He is working to develop regenerative strategies to optimize function and quality of life for people who have brain tumors, neurologic injuries, and neurodegenerative diseases. Colleagues describe him as a passionate, empathetic, and driven clinical investigator. 

HONOR AN OUTSTANDING ALUMNUS

The Medical School is seeking nominations for its 2020 alumni awards, which will be presented at an awards banquet on April 16 at the McNamara Alumni Center on the University of Minnesota's Twin Cities campus.

Please consider honoring a deserving colleague by recommending him or her for one of the following awards:

Harold S. Diehl Award, granted to individuals who have made outstanding professional contributions to the Medical School, the University, and the community.

Distinguished Alumni Award, which recognizes University of Minnesota Medical School graduates and resident alumni who have made outstanding contributions to their communities through medical practice, teaching, research, or other humanitarian activities.

Early Distinguished Career Alumni Award, given to a physician for exceptional accomplishments within 15 years of graduating from or completing their residency at the University of Minnesota Medical School.

Nominations are due by January 15, 2020. For more information and a list of past winners, visit z.umn.edu/medalumniawards.



The 2020 legislative session is still months away, but the University of Minnesota is identifying its priority building projects for the Legislature to consider in this year's bonding bill. In mid-October, the Board of Regents approved the following priorities:

- **Higher Education Asset Preservation and Repair:** to help preserve and renew existing campus facilities through updates that will improve campus safety, accessibility, and energy efficiency.
- **Child development building replacement:** to support a redesign of the Twin Cities east bank building that houses the Institute of Child Development, the No. 1-ranked developmental psychology program in the country (*U.S. News & World Report*, 2018).
- **A. B. Anderson Hall:** to update mechanical and life-safety systems and modernize teaching space for more than 4,500 students on the Duluth campus who are studying communication, philosophy, history, and art.
- **Chemistry undergraduate teaching laboratory:** to replace obsolete facilities with an addition to Fraser Hall that will advance active learning of undergraduate chemistry on the Twin Cities campus.
- **Clinical research facility and health sciences design:** to fund design, land acquisition, site preparation, and preconstruction services for the facility, as well as predesign and design of related health sciences strategic reinvestment projects.

The proposal for the clinical research facility—the Medical School's top legislative priority—calls for designing a patient-friendly facility on the Twin Cities campus that will include clinical research exam space and clinical trials support services.

The facility will strengthen the Medical School's collaborations with the biomedical industry, increase the medical enterprise's capacity to see patients, and enhance the school's national prominence. It is the next step in the development of a new health sciences district that will improve patients' access to advanced, high-quality care. MIB

To keep up with the University's legislative priorities, please join [UMN Advocates at \[advocates.umn.edu/join\]\(http://advocates.umn.edu/join\)](http://UMNAdvocates.at.advocates.umn.edu/join).

In Memoriam

EDITOR'S NOTE: The *Medical Bulletin* includes simple obituary announcements in print with a link to each person's online public obituary notice, when available. Find the links at z.umn.edu/memoriam-fall19.

DENNIS A. AMUNDSON, M.D., Class of 1974, Fergus Falls, Minn., died April 30 at age 70. Dr. Amundson practiced family medicine.

FREDERICK D. ARNY, M.D., Class of 1962, Roseville, Minn., died Feb. 23 at age 82. Dr. Arny practiced internal medicine.

DONALD A. BAKER, M.D., Class of 1976, Spokane, Wash., died April 29 at age 74. Dr. Baker practiced family medicine.

WARREN M. BARTHOLOMAE, M.D., Class of 1945, Goshen, Ohio, died Feb. 9 at age 98. Dr. Bartholomae practiced internal medicine.

WILLIAM J. BUGGY, M.D., Class of 1947, Milwaukee, Wis., died Aug. 16 at age 95. Dr. Buggy practiced obstetrics and gynecology.

W. BRUCE CLARK, M.D., Class of 1954, Roseville, Minn., died July 14 at age 90. Dr. Clark was an ophthalmologist.

HENRY W. COHEN, M.D., Class of 1950, Minnetonka, Minn., died July 31 at age 97. Dr. Cohen was an internist.

JOHN CRAIG EDGERTON, M.D., Class of 1957, Aztec, N.M., died July 30 at age 87. Dr. Edgerton was an ear, nose, and throat surgeon.

ROBERTA J. EDWARDS, M.D., Class of 1990, Coon Rapids, Minn., died July 27 at age 68. Dr. Edwards practiced family medicine.

PETER J. ERICKSON, M.D., Class of 1981, Port Angeles, Wash., died April 10 at age 65. Dr. Erickson practiced family medicine.

CARLETON C. EVANS, M.D., Class of 1966, Manassas, Va., died April 2 at age 84. Dr. Evans was a radiologist.

JAMES B. FLINN, M.D., Class of 1947, Redwood Falls, Minn., died Feb. 26 at age 94. Dr. Flinn practiced family medicine.

KENNETH G. HENRY, M.D., Class of 1952, Owatonna, Minn., died March 12 at age 98. Dr. Henry practiced family medicine.

THOMAS E. HINCK, M.D., Class of 1983, New Richmond, Wis., died May 24 at age 63. Dr. Hinck practiced family and emergency medicine.

DAVID L. HUNTER, M.D., Class of 1974, Scotts Valley, Calif., died July 26 at age 70. Dr. Hunter practiced emergency medicine.

BRADLEY D. JOHNSON, M.D., Class of 1963, Plymouth, Minn., died May 11 at age 81. Dr. Johnson practiced family medicine.

JOHN B. LALONDE, M.D., Class of 1960, Grand Forks, N.D., died June 24 at age 89. Dr. LaLonde was a general surgeon.

JOHN E. LARKIN JR., M.D., Class of 1960, St. Paul, Minn., died July 14 at age 88. Dr. Larkin was an orthopaedic surgeon.

JOHN G. MALEY, M.D., Class of 1967, Easton, Md., died May 24 at age 77. Dr. Maley was a radiologist.

DAVID L. MICKELSON, M.D., Class of 1976, Minneapolis, died Feb. 8 at age 68. Dr. Mickelson practiced family medicine.

CHARLES M. MOSS III, M.D., Class of 1998, St. Paul, Minn., died Feb. 14 at age 50. Dr. Moss was a psychiatrist.

GENE C. MUCHOW, M.D., Class of 1957, Austin, Minn., died Feb. 18 at age 87. Dr. Muchow practiced family medicine.

RAYMOND W. SCALLEN, M.D., Class of 1952, Minneapolis, died Feb. 25 at age 93. Dr. Scallen practiced internal medicine.

MARTIN A. SEGAL, M.D., Class of 1944, Minneapolis, died Aug. 25 at age 98. Dr. Segal was a pathologist.

JOHN B. SOMBECK, M.D., Class of 1956, Pekin, Ill., died Aug. 27 at age 88. Dr. Sombeck was an orthopaedic surgeon.

TERRY A. SOROM, M.D., Class of 1966, Wenatchee, Wash., died July 6 at age 79. Dr. Sorom was an ophthalmologist.

THOMAS A. STOLEE, M.D., Class of 1958, Northfield, Minn., died March 17 at age 84. Dr. Stolee was a pathologist.

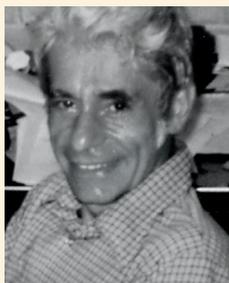
RICHARD E. STREU, M.D., Class of 1960, Minneapolis, died March 18 at age 89. Dr. Streu practiced family medicine.

HILDEGARD J. VIRNIG, M.D., Class of 1948, St. Cloud, Minn., died Feb. 17 at age 93. Dr. Virnig practiced family medicine.

HAROLD M. WEXLER, M.D., Class of 1951, St. Louis Park, Minn., died July 19 at age 93. Dr. Wexler practiced internal medicine.

PHILIP J. WORRELL, M.D., Class of 1960, Golden Valley, Minn., died June 3 at age 86. Dr. Worrell practiced family medicine.

MARVIN BACANER, M.D., Golden Valley, Minn., died Aug. 16 at age 96. After earning his medical degree from Boston University, Dr. Bacaner joined the Medical School's faculty in the Department of Physiology. During



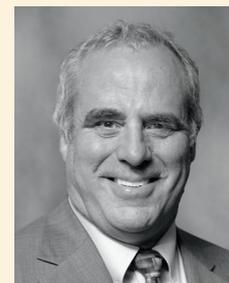
his career at the U of M, Dr. Bacaner developed bretylium, a lifesaving drug widely used to prevent and treat heart arrhythmias. In fact, Dr. Bacaner worked with former President Dwight Eisenhower's physician to use bretylium to treat the president's life-threatening arrhythmias. He also served as a physician in the 1960 Winter Olympics. Dr. Bacaner and his wife, Hadassah, established the Marvin Bacaner Endowed Chair in Cardiovascular Research at the Medical School to fund research into heart disease treatments.

WESLEY J. MILLER, M.D., Roseville, Minn., died July 15 at age 71. A 1977 residency and 1980 fellowship alumnus of the Medical School, Dr. Miller was the Nesbitt Chair and head of the Department of Medicine from



2009 until his retirement in 2015. As a hematologist, he played an instrumental role in the U's pioneering work in the field of bone marrow and stem cell transplantation. Throughout his more than four-decade career at the U of M, Dr. Miller was dedicated to the education of medical students, residents, and faculty. In 2016, he won the Harold S. Diehl Award in recognition of his professional contributions to the Medical School, the U of M, and the community.

HERBERT B. WARD, M.D., Ph.D., Class of 1977, St. Paul, Minn., died May 10 at age 71. Including his B.A. degree in biology, Dr. Ward was a three-time graduate of the U of M. He held the C. Walton and Richard



C. Lillehei Land-Grant Chair and was chief of the Medical School's Division of Cardiothoracic Surgery until 2017. Dr. Ward was passionate about mentoring and training young doctors and was in charge of a team of surgeons who completed thousands of open-heart surgeries in the Twin Cities over the course of his career. A skilled clinician himself, Dr. Ward continued to perform surgeries until a few months before his death.

Alumni Connections

In the clinic, sounds that soothe

THE TRANQUIL SOUND of the flute floats throughout the M Health Fairview Clinics and Surgery Center (CSC), drawing in staff, physicians, and patients alike.

"It is absolutely wonderful," says David Garcia, who was accompanying his mother to a clinic appointment. "It's healing."

Garcia was one of many who stopped to watch and listen as Megan Reich, a second-year master's student at the University of Minnesota School of Music, played. She is one of several music students who have performed in the CSC lobby as part of a class called "Music Outreach in Healthcare Settings," a collaboration of the U's Medical School and School of Music.

Now in its third semester, the class brings various musicians—students who play the piano, guitar, violin, cello, harp, and flute so

far—into the CSC. The students have received consistently positive feedback from passersby.

"We have amazing, world-class musicians, and we know music can be helpful," says Michael Silverman, Ph.D., who directs the School of Music's Music Therapy Program. "We wanted to bring their music to a wide audience who might not typically have access to it, in a nontraditional venue."

The experience helped Reich to grow as a performer—so much so that she decided to enroll in the class three consecutive semesters. Though she feels she gains a lot herself, she says she also enjoys what she is able to give.

"A clinic setting can sometimes be stressful—you might be waiting for news, or waiting for a ride at the end of a long day," she says. "Knowing that I can give those people something else to focus on, even for a short time, is really important to me." MIB



Full circle

Dr. Richard DeWall's 1955 invention paves the way for his great-grandniece's recent recovery

SYLVIE HOGAN WON'T REMEMBER her trip to the Smithsonian in April 2018 because she was just 3 months old. But the photo below shows her fascination with a nifty contraption that would become more significant in her life only one year later.

That interesting machine is a replica of the Lillehei-DeWall Bubble Oxygenator, and the original was invented by Richard DeWall, M.D., Medical School Class of 1952 and surgery residency Class of 1962 – the uncle of Sylvie's grandfather.

DeWall was a resident working under famed heart surgeon C. Walton Lillehei, M.D., Ph.D., when he was charged with finding a way to eliminate bubbles from oxygenated blood in the surgical

heart-support machines of the time. This was literally a critical task, as gas bubbles in a patient's blood could lead to a stroke.

Sylvie's grandfather, Jim DeWall, remembers visiting "Uncle Dick" in his lab many times in the early 1950s while his uncle was working on this important assignment.

"We used to come down to University football games because my parents were strong backers," recalls Jim DeWall, who grew up in Morris, Minnesota. "We'd always come down early to the Medical School because we'd have lunch with Uncle Dick. After a cafeteria lunch, Dad would say, 'Come on, Dick, let's go to the game.' Dick would say, 'Sorry, Bob, I'm working.'"

Doctors first used Richard DeWall's machine on a human patient in 1955 – and it was a dramatic technological breakthrough. The efficient instrument was also inexpensive – just \$15. It would become the basis for future generations of heart-lung machines, including those used in cardiopulmonary bypass surgery today.

Which brings us back to curious Sylvie, who was 1 year old when her pediatrician detected a heart murmur at a well-check. Upon further investigation, doctors found a leaking heart. A defect called an aorto-left ventricular tunnel, or an LV aortic tunnel, was responsible for it.

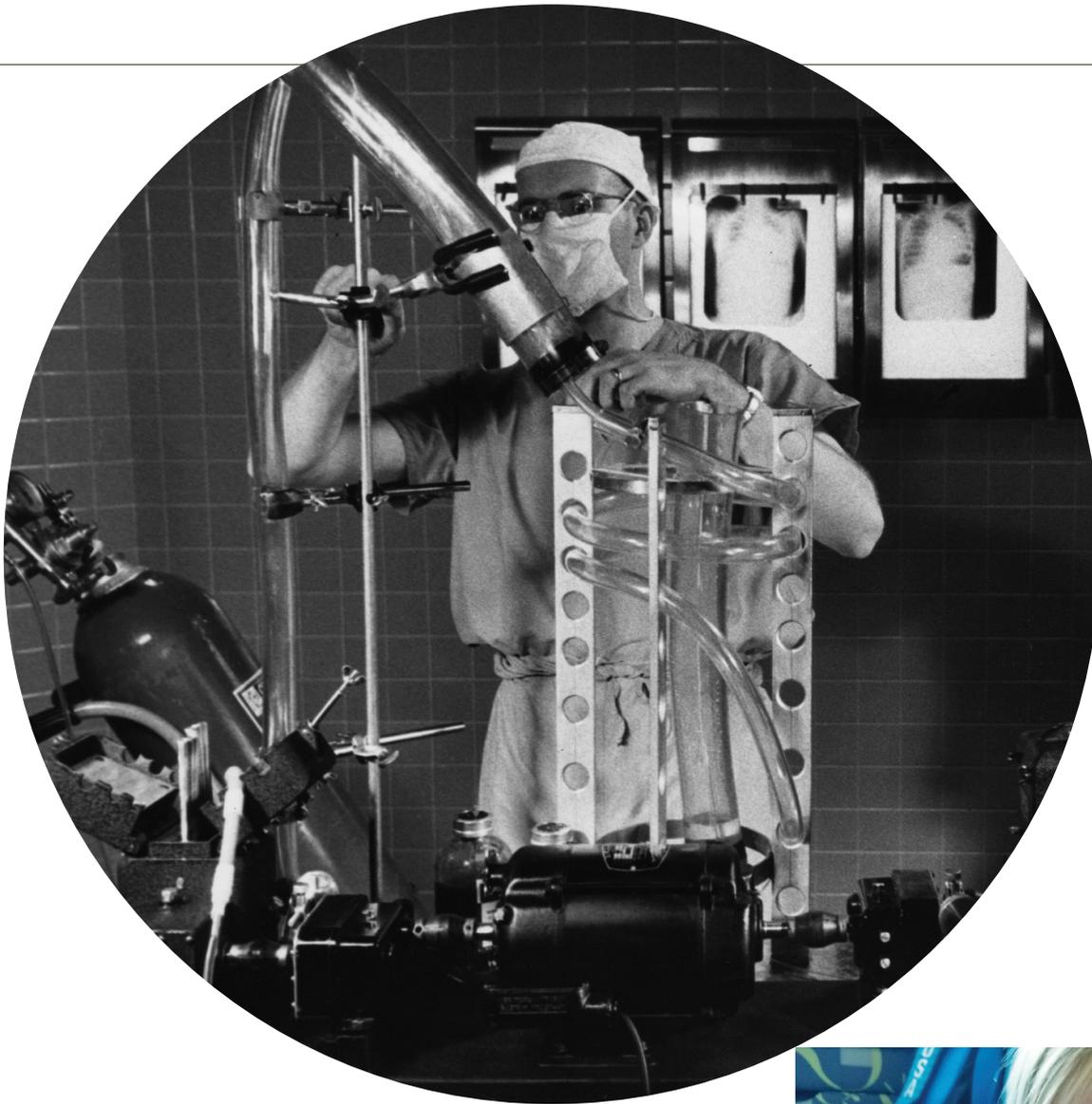
"It's extremely rare," says her mom, Lindsay Hogan, "something like one in a million."

On May 28, 2019, Sylvie's care team hooked her up to a modern heart-lung machine and closed the hole in an hour-long open-heart surgery made possible by her great-granduncle's invention. Days later, 16-month-old Sylvie was toddling around with more energy than ever.

As much as little Sylvie makes Jim DeWall smile, so too does his pride in his uncle's invention. For a family with many connections to the U of M – Jim's father, Robert DeWall, helped to establish the University of Minnesota Morris in the 1960s, and Jim



PHOTO: COURTESY OF JIM DEWALL



LEFT Richard DeWall, M.D., with his Lillehei-DeWall Bubble Oxygenator in 1956. Urban legend has it that the plastic tubing used in DeWall's prototype came from iconic U of M campus restaurant and pub Stub and Herb's.

OPPOSITE Lindsay Hogan (at right) holds Sylvie on a 2018 visit to the Smithsonian to see a replica of their relative's invention. They are joined by Lindsay's sister Amber Hickory and her daughter Kaya.

BELOW Sylvie Hogan had more energy than ever after her surgery.

himself graduated from the U's Twin Cities campus in 1968—the legacy represented in the photo makes him beam with delight.

“It’s such an ironic, fun picture, to see the three of them looking at the camera, and there’s little Sylvie staring at the machine,” Jim DeWall says. “Just the fact that she’s looking at it, and one year later, modifications of that machine allowed for her surgery, as it has for millions of other people in the world. What a happy story.” ^{MIB}

By Nicole Endres, managing editor of the *Medical Bulletin*



PHOTO: COURTESY OF LINDSAY HOGAN



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