

Medical Bulletin

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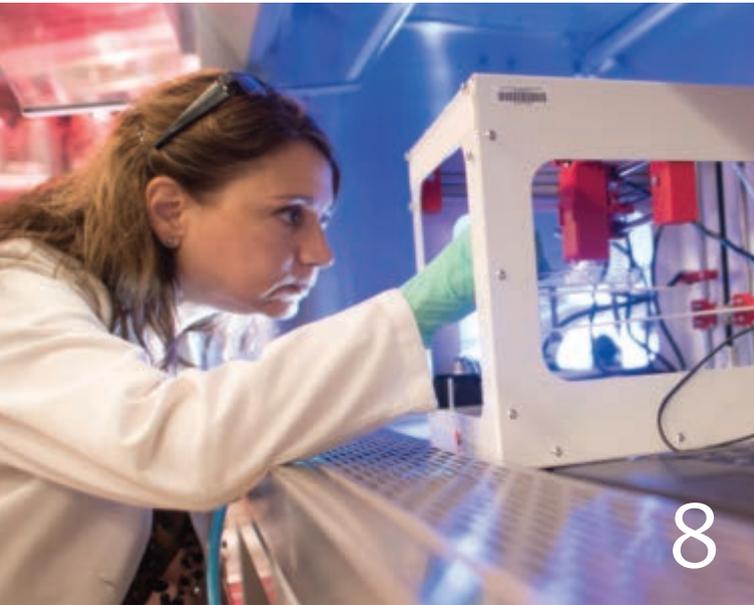
Made to order
The latest 3-D printers lay down
medicine's future



FALL 2015 A pioneering program helps doctors get comfortable talking about sexual health □

Pearls of wisdom from a retired U pediatrician who lived through the Holocaust □ Meet the Class of 2019

FALL 2015 Contents



About the Medical School

THE UNIVERSITY of Minnesota Medical School encourages collaborations that spur innovations—discoveries that advance biomedical knowledge, patient care, and educational programs. The Medical School now trains nearly 1,000 medical students and more than 900 residents and fellows and is home to 1,100 full-time faculty members.

Brooks Jackson, M.D., M.B.A.

Medical School Dean and
Vice President for Health Sciences



UNIVERSITY OF MINNESOTA

Medical School

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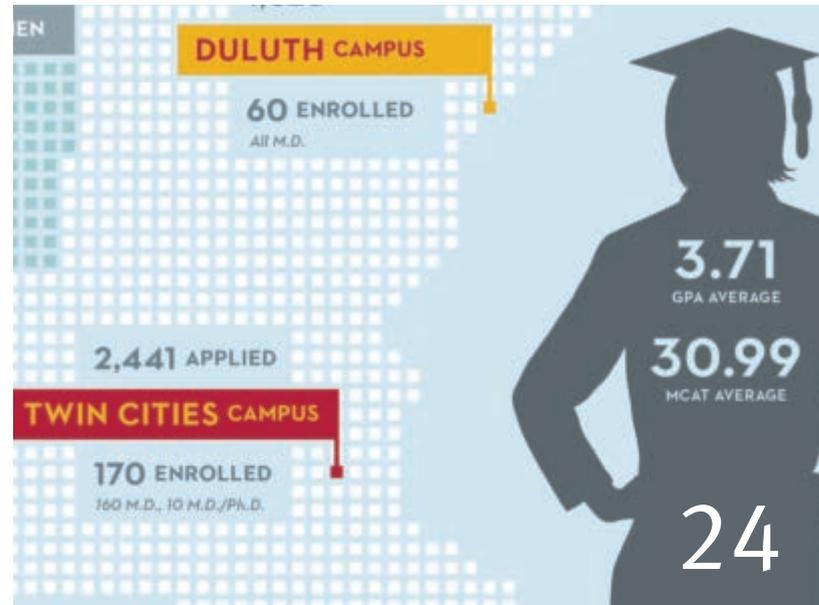
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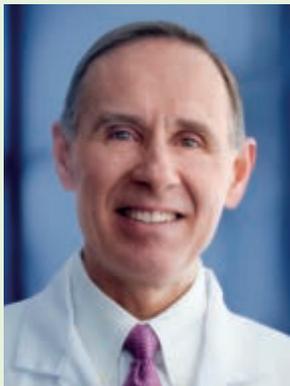
Web extras produced by Brian Carnell, Nicole Endres, and Shawn Sullivan



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Medical School News

Creating a fully integrated health system



ON OCTOBER 9, the University of Minnesota took an important step aimed at elevating our Medical School and our other health sciences schools when the Board of Regents approved a nonbinding letter of intent that calls for combining Fairview Health Services and University of Minnesota Physicians (UMP) into a single, fully integrated academic health system.

Operating under the University of Minnesota Health name, this new system would bring together one of the region's premier physician groups with one of the oldest and most respected health systems in the state. This would allow us to provide exceptional clinical care across Minnesota, while also supporting our critical education and research missions.

In developing the letter of intent, the University, UMP, and Fairview agreed to a set of key principles that are considered to be critical to the success of an academic health system and that will guide discussion about a definitive agreement. Among these core principles is the conviction that clinical care, research, training, and education will be at the core of the mission and vision of the combined enterprise.

The benefits of a fully integrated academic health system are clear—for our organizations, for our patients, and for our communities. It would:

- Strengthen our shared academic mission to improve health, discover new treatments and cures, and educate the health workforce to help people lead longer, healthier lives
- Deliver market-leading clinical quality, service, efficiency, and growth
- Accelerate research efforts and help bring new treatments and cures to patients more quickly and more efficiently
- Prepare the next generation of health professionals through a thriving Medical School and greater access to clinical training sites across the care continuum
- Help elevate the Medical School into the top tier of institutions across the country by generating additional resources to support it

This is a significant step forward for our Medical School and all of our health sciences. An academic health center needs to be part of a comprehensive health system to be world class in the prevention and treatment of disease and to train future health-science leaders. At the same time, a world-class health system needs access to the leading-edge medical breakthroughs that have the potential to transform patient treatment and care.

We are hopeful that we will be able to negotiate this historic agreement for possible approval by March 31, 2016, with a proposed effective date of July 1, 2016. Please check www.health.umn.edu/academic-health-system for updates on the negotiations.

Brooks Jackson, M.D., M.B.A.

Medical School Dean and Vice President for Health Sciences

Report highlights strength of Minnesota's academic research

When it comes to research, Minnesota publishes more – and gets cited more often – than the national average. And the state is especially strong in medical research.

A report released in April by academic publisher Elsevier in conjunction with the Council of State Governments highlights Minnesota's research strengths as part of a larger comparison of research performance across the nation. The report, called "America's Knowledge Economy: A State-by-State Review," lauds public research universities as crucial contributors to the knowledge economy – advancing knowledge and technology that drive innovation, attract jobs, and foster economic growth.

According to the report, the impact of academic research in Minnesota exceeds the national average for nearly all fields of study. Minnesota ranks third in the nation for the number of publications produced per \$1 million spent on

research and has the highest number of publications per capita in the Midwest.

The report also highlighted medicine as the field Minnesota research affects most, noting that almost 27 percent of the state's research pertains to the medical sector – the highest of any state – and its medical research is cited 32 percent more than the national average.

As the state's largest research university, the University of Minnesota plays an integral role in Minnesota's academic research and knowledge creation. The U ranks ninth among public universities in research spending, with more than \$850 million in research expenditures, and it generates an estimated \$8.6 billion annual economic impact for Minnesota. [MIB](#)

Find more Minnesota highlights from the report at z.umn.edu/mnknowledgeeconomy.

Infectious disease expert named Regents Professor

The University of Minnesota Board of Regents has named Michael Osterholm, Ph.D., M.P.H., a Regents Professor, the highest recognition given to faculty members by the University.

Osterholm, McKnight Presidential Endowed Chair in Public Health and director of the Center for Infectious Disease Research and Policy, is an international authority on public health and infectious disease and is frequently quoted by media around the world.

A distinguished scholar, researcher, and educator, he has advised 92 graduate students and epidemic intelligence officers from the Centers for Disease Control and Prevention and formally mentored more than 270 other graduate students at the University. [MIB](#)

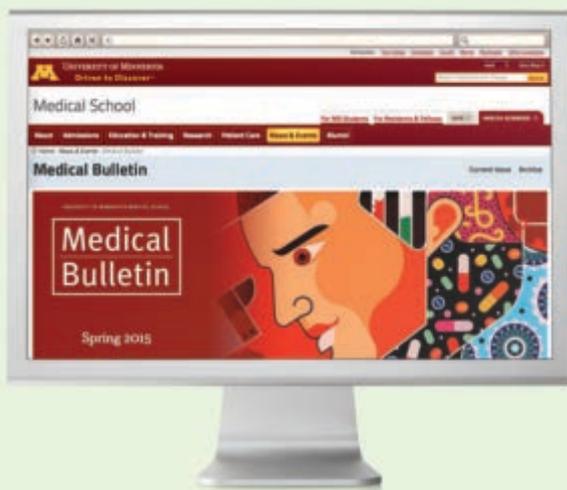


Michael Osterholm, Ph.D., M.P.H.



WEB EXTRA

Read a Q&A with Osterholm on the threats of infectious disease at z.umn.edu/osterholmqa.



Visit the Medical School's redesigned website

The Medical School has launched a new, responsive website that works just as well on mobile phones and tablets as it does on personal computers.

Because analytics showed that prospective students make up the website's largest audience, the new site makes admissions information more prominent and accessible. It also features more information about the school's research strengths and its Duluth campus, news from the Medical Alumni Society, and the online edition of the *Medical Bulletin* (medicalbulletin.umn.edu).

The redesign involved many stakeholders and better reflects the breadth and depth of the Medical School. Explore the new site at med.umn.edu. [MIB](#)

An innovative space for patient care

PATIENTS CAN EXPECT a more personalized experience when the 342,000-square-foot University of Minnesota Health Clinics and Surgery Center opens in late February.

With a wide range of specialists located in one, easy-to-access location, the center is designed for collaboration and will allow providers to work together seamlessly to meet each patient's unique needs.

Most of the outpatient clinics now located in the Phillips-Wangensteen Building on the University's East Bank campus will move to the new facility, which is just blocks away from I-94. It will house adult outpatient clinics, diagnostic and treatment services, and a same-day surgery and procedure center.

Patients will find the same innovative care from U specialists and will still have access to the latest treatments, technologies, and clinical studies at the new Clinics and Surgery Center—as well as extended clinic hours, more convenient scheduling, and easier parking.

Research and education at the University of Minnesota fuel the breakthroughs that make care with University of Minnesota Health exceptional. Visitors to the center will be able to see how academic medicine is changing the face of health care, now and in the future. They'll also learn about biomedical research and clinical studies at the U from digital displays incorporated throughout the building. [MB](#)



IMAGES: COURTESY OF CANNONDESIGN

The University of Minnesota Health Clinics and Surgery Center, designed to efficiently meet patients' clinical and research needs in single visits, is slated to open in late February.



WEB EXTRA

Watch a video about the Clinics and Surgery Center's commitment to education at z.umn.edu/csceducation.

U molecular biologist brings home one of science's top prizes

Masonic Cancer Center member Reuben Harris, Ph.D., joined an elite circle of scientists in May when he was named by the Howard Hughes Medical Institute (HHMI) as an HHMI Investigator.

With the award, Harris, a professor of biochemistry, molecular biology, and biophysics, will receive a full salary, benefits, and a research budget over his initial five-year appointment that's intended to allow him the creative freedom to take his research to the next level



Reuben Harris, Ph.D.

or in new directions. Harris' appointment may be renewed for additional five-year terms, each contingent on a successful scientific review.

Harris studies the physiological and pathological functions of a family of DNA-mutating enzymes known as "APOBECs," and his work illuminates the role that these enzymes play in boosting the effectiveness of immune responses to cancer, and in spurring the growth of cancer cells themselves.

"The most important factor in meaningful science is flexibility," Harris says. "I'm thrilled to have HHMI support because it will enable my lab to push current frontiers and explore new paths that are not yet visible. For instance, we have discovered that at least one of these enzymes promotes tumor evolution, and we are extremely excited about dissecting the underlying mechanism and leveraging this knowledge to improve cancer therapies."

The institute named 26 HHMI Investigators this year. Harris' appointment began in September. [MB](#)

Cancer researchers find partner to help advance NK cell therapies

The University of Minnesota has found a new research partner in the clinical-stage biopharmaceutical company Fate Therapeutics Inc. The company develops programmed cell therapies to treat life-threatening diseases and will work with Masonic Cancer Center scientists Jeffrey Miller, M.D., and Dan Kaufman, M.D., Ph.D., to further develop their research on natural killer (NK) cell-based cancer immunotherapies.

The collaboration will focus on two therapeutic programs that aim to exploit NK cells' inherent ability to detect and destroy cancerous cells while leaving normal cells unharmed—potentially without the side effects associated with high-dose chemotherapy or radiation.

While Masonic Cancer Center scientists have shown that NK cells can effectively and safely kill cancer cells, making enough of them to become a viable therapeutic option has been a challenge. Fate Therapeutics plans to use its cell programming approach and proprietary induced pluripotent stem cell technology to develop “off-the-shelf” NK cell-based cancer therapeutics—sparing the time and expense of having to isolate these cells from donors.

Much of Miller's and Kaufman's work leading up to this agreement was supported by the Masonic Cancer Center's Cancer Experimental Therapeutics Initiative and funded in large part by Minnesota Masonic Charities. [MIB](#)



Dan Kaufman, M.D., Ph.D. (top), and Jeffrey Miller, M.D.

UMMC named regional treatment center for Ebola

University of Minnesota Medical Center (UMMC) was named a regional treatment center for patients with Ebola or other severe, highly infectious diseases under a five-year, \$3.25 million federal grant awarded to the Minnesota Department of Health (MDH). MDH and UMMC were among nine health departments and their partner hospitals selected in June by the U.S. Department of Health and Human Services to become regional Ebola centers. UMMC will serve Region Five: Minnesota, Wisconsin, Illinois, Ohio, Michigan, and Indiana. The centers will accept patients from their regions if local facilities are unable to provide sufficient care.

In every state, local hospitals will still be prepared to treat Ebola patients, but without the regional designation. In Minnesota, the other three Ebola treatment centers are Mayo Clinic in Rochester, Unity Hospital in Fridley, and Children's Hospitals and Clinics of Minnesota in St. Paul.

UMMC's regional designation means that it will be equipped to receive patients within eight hours of notification and have the capacity, including beds and staff, to treat at least two—and eventually, four—Ebola patients at one time. [MIB](#)

U researchers find new osteosarcoma targets

A new mouse model developed by Masonic Cancer Center researchers has revealed genes and pathways that, when altered, can cause osteosarcoma. The information could be used to improve treatment targets for future patients.

The discoveries were published in the journal *Nature Genetics* in May.

“Human osteosarcoma tumors are so genetically disordered that it is nearly impossible to utilize the usual methods to identify the genes associated with them,” says Branden Moriarity, Ph.D., an assistant professor in the Medical School's Department of Pediatrics. “This model offers the first opportunity to identify and understand the genetic drivers of osteosarcoma on a broad scale.”

The scientists' genomic analysis uncovered several osteosarcoma genes that make proteins that could be targets for therapies in the future. The genes SEMA4D and SEMA6D were found to be expressed at high levels in more than half of all osteosarcomas in humans.

“SEMA4D seems to cause many human osteosarcomas to grow out of control,” says collaborator David Largaespada, Ph.D., a professor in the Department of Genetics, Cell Biology, and Development. Inhibiting the expression of that gene could help stop the growth of osteosarcoma, he adds.

The research was funded by the National Cancer Institute, American Cancer Society, Karen Wyckoff Rein in Sarcoma Foundation, and Zach Sobiech Osteosarcoma Fund of Children's Cancer Research Fund. [MIB](#)

Global Outreach | Robin Sautter

LOCATION: Ndori, Kenya MISSION: Helping girls get the most out of their education



Empowered to learn

It was a simple but important gift. As part of a lesson on health, which included information about menstruation and other bodily changes, University of Minnesota Medical School students Robin Sautter and Alana Jackson distributed 300 “sanitary kits” to 300 girls in rural Kenya.

The kits contain reusable cloth sanitary pads with Velcro flaps, a washcloth, and soap. Many of the girls didn’t have access to pads, Sautter says, so instead they would use loose pieces of fabric or paper, or worse: “They just wouldn’t come to school. Some girls would stay home for weeks at a time. It makes a big difference in your education when you miss so many days.”

Sautter and Jackson, now third-year students who matriculated from the Medical School’s Duluth campus, were in Kenya for five weeks in the summer of 2014 setting up a mentorship program for high school students. The curriculum – taught through the Pamoja Kenya Mentorship Alliance, an organization one of Sautter’s friends founded – is made up of 10 lessons on leadership, covering such topics as time management, entrepreneurship, and critical thinking. They distributed the sanitary kits while they were there courtesy of a partner nonprofit called Days for Girls International.

Though the mentorship program is set up to be self-sustaining, Sautter is already looking to build on her powerful experience. “I’m anticipating going back there as soon as I can,” she says. ^{MB}

– Nicole Endres



Robin Sautter and Alana Jackson

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.



This photo, taken by Robin Sautter, won first place in the Global Health Day 2014 photo contest, hosted by the U's Center for Global Health and Social Responsibility. Global Health Day 2015 is November 19. Learn more at z.umn.edu/globalhealthday.



WEB EXTRA

View more of Sautter's photos from Kenya at z.umn.edu/sautter.

MADE

TO

The latest 3-D printers
lay down medicine's future

BY GREG BREINING

ORDER

One of the earliest bioprinting projects at the U? Producing simple tubes made from esophageal tissue—with hopes that one day the process will be refined enough to print sections of esophagus for transplantation, says Angela Panoskaltis-Mortari, Ph.D.



PHOTO: SCOTT STREBLE



The print head of a 3-D printer scrolls back and forth with a whir, laying down a line of translucent gel 0.15 millimeters thick. A flash of blue light immediately cures the material, the first of 92 separate layers.

Soon, the outline of a nose appears.

“A nose this size will take about two hours,” says Angela Panoskaltis-Mortari, Ph.D., a professor in the Department of Pediatrics, transplant specialist, and head of the University’s new 3-D Bioprinting Facility.

A three-dimensional life-sized nose is just a showpiece to test the new printer, the only 3-D bioprinter on campus. But Panoskaltis-Mortari predicts that in just a few years, the facility and a few others around the country will be churning out basic body parts such as ears, skin, or blood vessels for transplantation. Some parts may even be manufactured with a

patient’s own cells to avoid rejection by the immune system.

With the ability to print a structure that’s exactly the size and specifications a patient needs, bioprinting has the potential to transform regenerative medicine. “It becomes a part of personalized medicine,” says Panoskaltis-Mortari.

Booming with potential

Bioprinting is just one of the more revolutionary medical applications of burgeoning 3-D printing technology. In the last couple of years, 3-D printing has provided models for teaching and for designing medical devices. It has allowed doctors to better communicate with patients and parents about surgical procedures. And it has replicated natural human systems such as hearts and blood vessels to help doctors evaluate surgical techniques.



DOCTORS
HAVE PRINTED
ORTHOTICS,
LIMB BRACES,
AND PROSTHETIC
ARMS.

SURGEONS USE
MODELS TO
REDUCE A
SURGERY'S
DURATION.

A PRINTED
STENT WAS
DESIGNED TO
DISSOLVE AND
DISAPPEAR AS
THE PATIENT'S
TRACHEA
HEALED.

Three-dimensional printing, sometimes called additive manufacturing, fabricates objects directly from digital files. Software slices a 3-D image into dozens, hundreds, or even thousands of layers. It then instructs the printer to lay down layer after layer of material, usually some kind of molten plastic or polymer hardened by exposure to ultraviolet light.

Prototypes appeared in the 1980s but were prohibitively expensive. In the last four years, prices have plummeted. You can spend hundreds of thousands of dollars on a high-quality industrial 3-D printer. Or you can buy a basic unit at Walmart for \$279.99.

As printers have become common, medical innovators have put them to use. Doctors have printed orthotics, limb braces, and prosthetic arms. Surgeons have produced model skulls to help shape reconstructive materials, reducing a surgery's duration. They have implanted 3-D-printed parts—including a titanium pelvis—for reconstructive surgery. A printed stent, implanted to repair a collapsed trachea, was designed to dissolve and disappear as the patient's trachea healed.

Paul Iaizzo, Ph.D., director of the University's Visible Heart Laboratory, puts 3-D-printed models of hearts to use for reference and training. He stands next to a bank of whirring MakerBot Replicator 2x printers cranking out various projects.

Many of his lab's models start out in the lab's heart library, where more than 350 human hearts are preserved in formaldehyde in row upon row of sealed containers. The hearts are

obtained as gifts from organ donors and their families either through the University of Minnesota Bequest Program or from LifeSource.

"It is a huge privilege for us to receive those," says Iaizzo.

Some were healthy. Most were not. Some were diseased in unusual ways. Others are still attached to implantable heart pumps or contain other devices. The library is open to students and researchers, who can use the hearts to learn basic cardiac anatomy, research a rare heart condition, or design a medical device.

Before 3-D printing, researchers examined the actual hearts, donning gloves and rinsing out preservative. Now, many of these hearts have been scanned by MRI and replicated, down to their valves and tiny trabeculae, by a 3-D printer.

The students who make the models learn both cardiac anatomy and the process of imaging and printing. Says Iaizzo, "They're being hired right out of the lab with their expertise in anatomy and the ability to make these models."

From theoretical to tangible

Robroy MacIver, M.D., M.P.H., a pediatric cardiothoracic surgeon at University of Minnesota Masonic Children's Hospital, 3-D-prints a life-sized heart from his young patient's MRI or CT scans. Then he can describe to the parents the defect and the surgery he is about to perform.

"Showing them a CT scan on the screen, you lose a little bit—the size for one thing, how small a vessel is or how small the heart is," says MacIver. "When



you have the actual heart printed, you can show them what you're talking about. It's much more tangible."

MacIver implants left ventricular assist devices, pumps that boost the output of a weak heart. A surgeon has some choice in where to join the pump's output to the patient's aorta, and he wondered how the location of the pump might affect the transport of blood clots, especially to the brain, where they could cause a stroke.

MacIver consulted with Filippo Coletti, Ph.D., an assistant professor of aerospace engineering and mechanics at the U, who uses MRI to study the flow of fluids through 3-D-printed replicas of various systems, from gas turbines to human lungs. "Our department has a strong focus in fluid mechanics across the board—not only in things that fly but even flow in biological settings, including the human body," says Coletti. "The lungs are three-dimensional and extremely complex.

If it wasn't for 3-D printing, I wouldn't be able to fabricate a replica."

To help MacIver evaluate the optimal location for the pump connection, Coletti 3-D-printed replicas of the aortic arch of some of MacIver's patients. He scanned the models with an MRI as water flowed through the passageways. He could change the location of the connection at will.

"Robroy's a cardiac surgeon, so he doesn't get a second chance," says Coletti. "He opens up people and he has to make the right decision; whereas I can play Frankenstein and make a 'surgery' on my 3-D replicas—no one is alive in the first place. If you tell me a clot is there and I know the flow pattern, I have a pretty good shot at telling you where the clot is going to go."

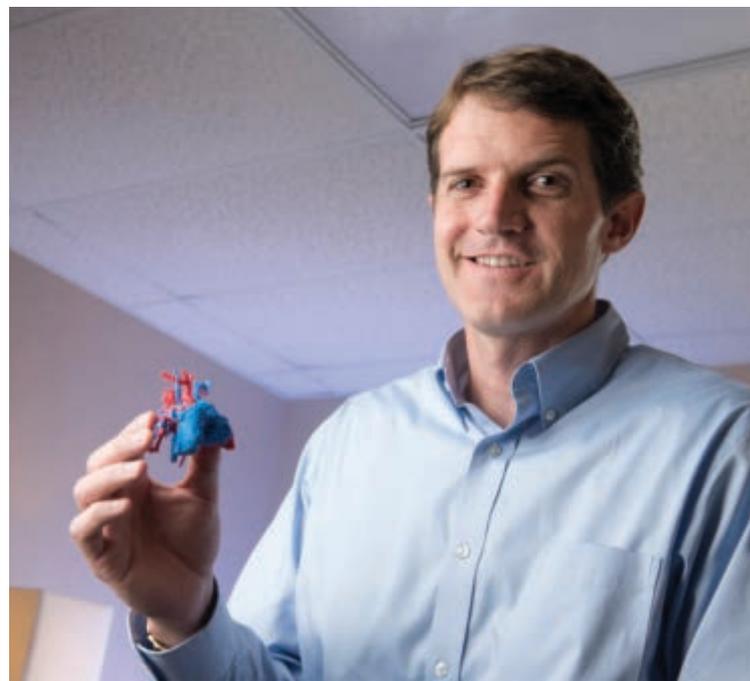
In another case, an orthopaedic surgeon planned to replace a patient's artificial hip. But there wasn't much bone left to anchor the new joint. So

The U's Visible Heart Lab has printed dozens of hearts modeled after those in its heart library. Here Paul Iaizzo, Ph.D., holds one of his favorites—a silicon model with an implanted pacemaker.



ABOVE Ph.D. candidate Brian Howard demonstrates the capabilities of the six 3-D printers housed in the Visible Heart Lab.

ABOVE RIGHT Robroy MacIver, M.D., M.P.H., holds an intricate model showing the blood flow through one tiny patient's heart.



PHOTOS: SCOTT STREBLE

the surgeon brought CT scans of the patient's hip to the University's Medical Devices Center, which printed a replica.

"He wanted to practice—to see in 3-D what he was working with before he started," says Darrin Beekman, the center's lab supervisor. "He actually delayed the surgery until the print was available so he could strategize on how best to do that."

Practice makes perfect

While having a 3-D model to practice on can be extremely helpful, a lifelike model that moves like the tissue a doctor will be working with could be invaluable.

Robert Sweet, M.D., an associate professor of urology in the Medical School and director of the U's Center for Research in Education and Simulation Technologies (CREST), has worked on various "simulators" to train students, doctors, and other health care providers. Among his current projects

is creating a "next-generation mannequin," funded with a Department of Defense grant.

"This is a project that really came out of need," says Sweet. Until now, training mannequins were made with materials that might look or feel right, but "they're all based on subjective data," says Sweet. As a result, they do a poor job of replicating the human body.

So Sweet is developing a human tissue database. His lab tests cadaver tissue for measurable physical characteristics (such as indentation and tearing), appearance, electrical properties, and thermal conductivity. Eventually, the "library" will include data on tissues that are healthy and diseased, young and old, male and female.

"Data like that will help us do a lot of other things, such as [make] predictive models," says Sweet. It will inform computer simulations that might replicate a particular patient's anatomy

and predict the effectiveness of, for example, energy-based therapies for a tumor.

But the data will also be used to create an incredibly lifelike and responsive mannequin. Sweet plans to work with a 3-D printer manufacturer to develop materials to imitate tissues based on the characteristics in his database. These materials will be printed with 3-D printers to create mannequins useful both for training and for “patient rehearsal” (that is, practicing a particular surgery).

“None of [the models] at this point are really close to actual soft tissues, but that’s the Holy Grail that we’re getting closer and closer to,” Sweet says. “It becomes a pathway toward that goal of personalized medicine, which is one of the big themes of the future of medicine—predictive and personalized.”

Even newer—bioprinting

For all the excitement about 3-D printing, the possibility of printing with lifelike organic material, including a patient’s own cells—so-called bioprinting—is perhaps most novel.

Bioprinting may solve several problems, such as chronic shortages of organs and tissue for implants, and poor genetic matches between donor and patient that lead to tissue rejection.

With 3-D bioprinting, transplantable tissues and simple structures will be made to order and printed on demand, perhaps seeded with the patient’s own cells.

“Any shape you want, any size you want,” says Panoskaltsis-Mortari.

“I’ve been thinking about it for many years, ever since I saw some of the first reports.”

Then a bioprinter fell into her lap. The young founders of BioBots gave printers at deeply discounted prices to 20 research facilities around the world—including Panoskaltsis-Mortari’s lab.

“They wanted to see what people would come up with,” she says. “It’s a nice strategy. That way, people are free to follow whatever scientific approaches they’re taking.”

With the printer, other aspects of Panoskaltsis-Mortari’s bioprinting facility fell into place, including funding from the University’s Medical School, Lillehei Heart Institute, Institute for Engineering in Medicine, and Stem Cell Institute.

The team is beginning work on 3-D-printed pieces of artificial esophagus and trachea to sew into an animal such as a pig.

There are plenty of problems to solve. What kind of biocompatible material will be tough enough to hold sutures? Will it support cell growth? What’s the best way to seed cells on the piece? How thick can a printed part be? “Hopefully, we can coax blood vessels to grow into it, to provide nutrients to it,” Panoskaltsis-Mortari says.

How long before 3-D-printed vessels, tubes, skin, and other simple body parts will be printed and implanted in humans? Just a few years, she predicts. “Not long.” 

Greg Breining is a journalist and author based in St. Paul.



BIOPRINTING MAY SOLVE SEVERAL PROBLEMS, SUCH AS CHRONIC SHORTAGES OF ORGANS AND TISSUE FOR IMPLANTS, AND POOR GENETIC MATCHES BETWEEN DONOR AND PATIENT THAT LEAD TO TISSUE REJECTION.



WEB EXTRA

See the bioprinting process in action at z.umn.edu/madetoorder.

Comfort zone

The U's pioneering Program in Human Sexuality helps the next generation of doctors talk with patients about sexual health

BY BARBARA KNOX

After Keith Laken was treated for prostate cancer, he and his wife, Virginia, realized that there was still another battle to fight: In the wake of the cancer, their intimate relationship was suffering.

“He’d finished treatment and he was OK,” remembers Virginia, who lives with Keith in southern Minnesota, “but after that initial feeling of relief, we went through a very difficult time. Once we stopped touching, we started bickering, separating. We really needed professional help.”

The Lakens, who later wrote *Making Love Again*, a frank account of their tough journey back to intimacy, ultimately worked through their difficulties. Along the way, they became passionate about sharing their experience, speaking with cancer support groups, nurses, social workers—the audience kept growing, convincing the Lakens that medical professionals were hungry for information on how to help patients cope with sexual problems that often come hand in hand with other diagnoses.

But there’s an irony to the Lakens’ tale: After crisscrossing the country with their message, they discovered a

program—arguably the nation’s best—right here on their home turf, that’s been dedicated to expanding knowledge of sexual health for 45 years. Part of the U of M Medical School, the Program in Human Sexuality (PHS) has been a world leader in bringing greater understanding to a wide range of sexual health-related issues—intimacy concerns, transgender health, sexuality and aging (see sidebar, page 17), compulsive sexual behavior, criminal sexual behavior, female genital mutilation, and more.

Today, the Lakens are a valuable addition to the Medical School’s curriculum in human sexuality as they meet with medical students in the classroom to not just tell their story, but to allow students to interview them and get comfortable asking questions about sexuality.

“Almost any illness—cancer, stroke, amputation, broken bone—impacts your sexuality, your intimate relationship,” says Virginia Laken, “but health care workers rarely talk about it. Our hope is to get the next generation of doctors comfortable talking about sexuality—what a great gift that would be to their patients!”



A well-kept secret

Although they were longtime Minnesotans, the Lakens had never heard of PHS, and were finally referred there by an East Coast doctor.

“That program was right on our doorstep, and there we were, floundering,” Laken says.

So why is PHS such a well-kept secret? Because sexuality, even as it relates to health, continues to be stigmatized, says Eli Coleman, Ph.D., L.P., director of PHS and its clinic, the Center for Sexual Health, the nation’s largest and most internationally renowned clinic designed to help people with sexual disorders and dysfunction. “We enjoy

far more recognition nationally and internationally than we do here in Minnesota.

“As the largest such clinic in the country, we have more than 10,000 client visits every year...” Coleman pauses, sighs, “but [clients] don’t necessarily go home and tell their neighbors about the great therapy they’re getting here.”

Founded in 1971 to provide sexual health training to U medical students, PHS was truly charting untested waters. Among the first in the country to require sexual health classes, the Medical School designed a curriculum to get physicians comfortable dealing



Former surgeon general Joycelyn Elders, M.D., hopes that every major university will someday soon have a chair in sexual health education.

with sexuality and the diversity of sexual expression.

“Many of our worst problems in the area of human sexuality stem from our discomfort talking about sexuality in mature and open ways,” says Coleman. “But when it happens, that frank exchange between doctor and patient, it forms a powerful bond that is very profound for both.”

Recently, PHS has continued its pioneering work by establishing the world’s first endowed chair in sexual health education.

The greatest taboo

In the 1970s, when PHS began, frank talk about sex just didn’t happen. This was long before Rock Hudson’s death from AIDS, Tiger Woods’ much-publicized rehab for sex addiction, or Caitlin Jenner’s coming out as a transgender woman.

It was before one remarkable woman, Joycelyn Elders, M.D., surgeon general

in the Clinton administration, regularly took to the airwaves making blunt statements about sexual health education that caused politicians to demand that “the Condom Queen” be deposed.

Among her more controversial statements? Gays should be allowed to adopt and the Boy Scouts should welcome homosexuals.

Elders, who completed her internship in pediatrics at the U in the early 1960s, has always been passionate about sexual health education. (Among her most famous quotes is this one: “We’ve tried ignorance for a thousand years. It’s time we tried education.”) So it’s not surprising that when Coleman wanted an endowed chair in sexual health education, he turned to Elders.

“All I could do was cry when Eli asked me to put my name on a chair for sexual health education,” says Elders, “because I have felt so strongly for so many years that we are doing too little too late.”

While most endowed chairs come courtesy of wealthy families or companies committed to supporting research in a particular area, endowed chairs in human sexuality are almost nonexistent. Coleman holds the nation’s first endowed chair in sexual health, which was established in 2007 at the U’s Medical School.

“Because sexual health is stigmatized,” says Coleman, “raising funds for research or education is very difficult. Even if someone of means has been profoundly affected by work in this area, they don’t necessarily want to attach their name to an endowed chair with the word ‘sex’ in it.”

So rather than relying on one wealthy benefactor, fundraising efforts leveraged the power of Elders' name to bring more than 300 individuals, 23 organizations, 26 states, and eight countries together to fund the Joycelyn Elders Chair in Sexual Health Education. The 2014 rollout was a historic moment for the U.

"Dr. Elders is really loved and admired by her fellow surgeons general," says Coleman, "and three of them came to a symposium here that was designed not just to celebrate the new Elders Chair but to focus attention on this issue."

Meet Michael Ross

He hails from New Zealand, but Michael Ross, M.D., Ph.D., M.P.H. (plus eight other assorted degrees in criminology, education, and psychology) is truly a global figure in the realm of sexual health education. He has trained in Australia, England, and Sweden, and conducted extensive research on sexual disease and dysfunction across Asia and Africa.

"My medical training was in venereology—and there's a conversation stopper for you," quips Ross, the doctor now poised to lead sexual health education at the U. "But sexual health is about much more than just sexually transmitted infections (STIs). It's past time to put 'sexual health' back into 'health.' It never should have been separated out."

Elders is pleased with the appointment. "We were thrilled to get someone of Mike Ross' caliber," she says, "and I hope that someday soon every major university in the country will want to have a chair in sexual health education."



PHOTO: SCOTT STREBLE

"It's past time to put 'sexual health' back into 'health,'" says Michael Ross, M.D., Ph.D., M.P.H., who holds the Joycelyn Elders Chair in Sexual Health Education. "It never should have been separated out."

While the U currently has what Ross calls "the best sexual health education program for doctors in the U.S.," he plans to continue to improve that training and also develop new teaching curricula for health care programs around the country.

"There are still so many taboos about talking about sexual health," says Ross. "Combining that discomfort with lack of knowledge leads to very poor medical outcomes for patients with sexual health concerns, so helping to make comprehensive training widely available is one of my primary goals here."

Don't call it 'sex ed'

In addition to training medical students, nurses, and other health care workers, Ross would like to see public school "sex ed" classes improved and expanded. Acknowledging that no other area of child health and safety inspires the level of incendiary rhetoric that's commonly heard in discussions

SEXUALITY & AGING

"REALLY? People can have healthy sex lives into their 80s and 90s?"

That was the reaction of theatergoers after seeing "No Expiration Date: Sexuality & Aging," a refreshingly frank theatrical production that translated research—conducted by Sara Mize, Ph.D., L.P., and Alex Iantaffi, Ph.D., L.M.F.T., both PHS faculty members and therapists at the Center for Sexual Health—onto the stage.

Written and directed by Pangea World Theater members and staged at Intermedia Arts in Minneapolis last June, the play was based on narratives generated in Mize's and Iantaffi's focus groups on sexuality and aging.

"We took the dialogue for the play directly from things we heard in the focus groups," says Mize, "and after each performance, we had a Q&A with the audience—and, wow, those conversations were awesome!"

Two strong themes emerged, Mize says: A feeling of hopefulness—yes, healthy sexuality is possible as I age!—and a sense of relief that it was OK to actually talk about it and discover that other older people had the same questions and concerns about their sex lives.

"Doing a theater piece got the research out there in a new way," says Mize. "Hearing people open up about the subject—that was so gratifying, and something you just don't get from publishing a research paper."



Eli Coleman, Ph.D., L.P., directs the U's Center for Sexual Health, which is nationally and internationally known but flies under the radar locally.

about public school sex ed, Ross says, first, it's time to change that term to "sexual health education"—because nobody wants to teach kids how to have sex, but rather to educate them about the myriad consequences that can come with sexual activity.

"The basic thinking among people who oppose education about sexual health," says Ross, "is that if we educate kids about sex, they'll go out and be sexually irresponsible, but, in fact, we have a mountain of data that says it's the people who *aren't* educated that get into trouble."

To those who oppose teaching kids about sexual health in America's public schools, Ross reminds them of some grim facts:

The United States has the highest teen birth rate in the industrialized world. And what follows teen birth continues a downward spiral: teen mothers are more likely to drop out of high school, live in poverty, and be in poor health. Ditto for the babies of teen moms.

Besides the obvious quality-of-life issues, teen pregnancy is also an expensive problem for the country: The National Campaign to Prevent Unplanned Pregnancy estimates that teen childbearing costs taxpayers upward of \$9.4 billion annually.

In a paper recently published in the *Journal of the American Medical Association*, Coleman describes some sobering numbers associated with sexual health: 50,000 new HIV infections, 20 million STIs, 3 million unintended pregnancies, and 1 million rapes annually in the United States.

"Those are the easy numbers to point to," says Coleman, "which is just some indication that people are not taking care of themselves and their partners. And it's costing us enormously to deal with those problems."

PHS faculty members acknowledge that there's a lot they need to learn about sexual health, a subject still in its academic infancy. But if doctors become as comfortable asking patients about their sexuality as they are about asking them if they use seat belts or smoke cigarettes, the sexual health landscape could shift dramatically. In that, the U's curriculum for doctors in training plays a crucial role.

"Sexuality is at the core of who we are as humans," Coleman says, "and doctors, as the first point of contact with patients, need to be able to give those patients both help and hope." MB

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

To support the Program in Human Sexuality, contact Holly Gulden at hmgulden@umn.edu or 612-625-8758, or visit give.umn.edu.



Pearls of wisdom

Retired U of M physician Robert Fisch, M.D., shares the insights he's gained during his eventful and influential life

BY JACK EL-HAI

Robert Fisch, M.D., painted "Creation" (above) as a gift to the Department of Pediatrics. The art is prominently displayed at University of Minnesota Masonic Children's Hospital.

"Yesterday is past. Tomorrow is a wish. Today is the only time in which to do something." – ROBERT O. FISCH, M.D.

Retired University of Minnesota pediatrician Robert Fisch, M.D., is talented at many things, including storytelling and laughing. The two often go together in his life, and Fisch has indulged his passion for creating aphorisms, wise and wry expressions that say a great deal about the human condition in short bursts. He has collected 450 of the best in his most recent book, *The Sky Is Not the Limit*, which he sometimes gives to visitors. "You will enjoy it," he tells them. "Some of them are very funny, some of them very sad. Some of them are very wise, some not so wise."



Fisch's painting "Inseparable" is meant to show how art and medicine are intertwined.

Funny, sad, wise—these words also describe the 90-year-old Fisch himself, who spent a long and influential career at the U of M, drawing from his singular experiences growing up during World War II and applying his professional skills to treat children, particularly those battling the genetic disease phenylketonuria (PKU). Though he's retired, Fisch stays connected to the U through an important scholarship program that he and his wife, Karen Bachman, established that uses art to broaden the vision and deepen the creative lives of medical students.

If one of Fisch's own aphorisms sums up his life, it may be, "Love can be learned, even from hate." He survived the Holocaust, and he found a way to

"Remain humane even in inhumane circumstances."

thrive and help others to survive. The months he spent in Nazi camps, and the losses he endured there, changed his life in unexpected ways.



A native of Hungary, the 19-year-old Fisch was torn from his Jewish family during the war, in 1944, and deported to a forced labor camp. Later, he was sent to Mauthausen concentration camp in a so-called "death march" from western Hungary through the Alps. Even worse, he recalls, was another forced march, this one to Guns kirchen extermination camp—a ploy by the Germans to keep prisoners out of the hands of advancing Allied soldiers. In the company of thousands of sick and near-dead prisoners, he walked in frequently stormy winter weather, went for days without food and water, and saw guards randomly shoot his fellow prisoners.

Despite the pain and horror, Fisch witnessed surprising gestures of kindness and generosity. Civilians chanced all to throw food to passing prisoners, a guard gave exhausted men unexpected time off from work, and his physically disabled family nanny, a Catholic nurse, took the dangerous risk of hiding Fisch's mother. Soon after his liberation by American forces on May 4, 1945, a hungry German approached him and pleaded for food. Fisch hated the Germans, wanted to see them all dead, and was of no mind to show compassion for one of his former tormentors. "But I had to make a choice," he says. Although he did not think he could forgive the Germans,

“We forget more and more with increasing age, so that when we meet with God we will have nothing to complain about.”

Fisch chose not to treat them as his captors had treated him. Instead, he looked to his memory of his father’s teachings. “I gave the German some food,” says Fisch. His father, as well as most of his other relatives, did not survive the war.

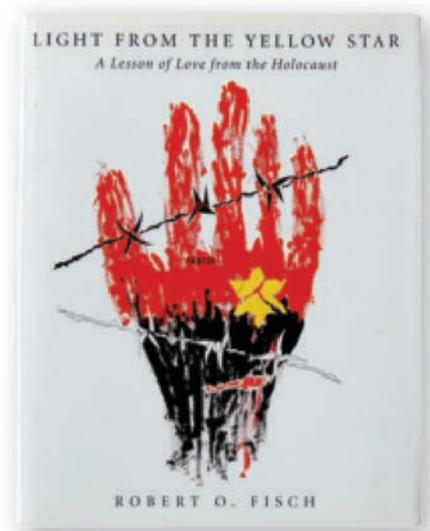
After the war, Fisch tried to pursue his interest in architecture. The bureaucratic hurdles to attending architecture school were too high, however, and he turned to his second choice, medicine. “I was not born wanting to save mankind,” he says. “Don’t expect that from me. But I liked medicine very much, and I took it seriously.” He graduated from medical school and studied art at the Academy of Fine Arts in Budapest. Caught up in the action when Hungary’s anticommunist revolution broke out in October 1956, Fisch and his colleagues stepped in to help, providing medical care to the injured—Hungarian and Russian alike.

His political activities made it dangerous for Fisch to remain in Hungary, so he immigrated to the United States the following year and had to choose where to pursue his internship in pediatrics. “They showed me a map, and I put my finger on Minneapolis, just like that,” he recalls. He did not know a single person there, but the random decision was a good one for him.

At the University of Minnesota, “I started a new life at 33 years of age, and I couldn’t have come to a better place.” Fisch says he felt no culture shock at the U of M, only welcome. “I couldn’t believe it,” he says. “The head of my department invited me during my first summer to his home, which was up north somewhere. We went with a boat, took it to an island, and we cooked outside. It was beyond anything I could dream about. These were wonderful people.”

Fisch had completed his internship and residency when a colleague who was leaving the University asked him to take care of his patients, many of whom had PKU. An inherited disorder caused by the body’s inability to metabolize the amino acid phenylalanine, PKU appears in infancy and can result in seizures, malformations, developmental delays, and mental disabilities.

Fisch had never considered himself a medical researcher, but PKU became the focus of his professional life. He improved PKU treatment and was the first to help a woman with PKU deliver a healthy baby using a gestational carrier. “We somehow became the U.S. center for research on PKU,” says Fisch, who authored 50 papers on the metabolic disease.



LESSONS OF LOVE

Robert Fisch, M.D., wrote and illustrated his first book, *Light from the Yellow Star: A Lesson of Love from the Holocaust*, after a school principal learned of his wartime background from a magazine article Fisch had written and suggested he write a book. After *Light from the Yellow Star* was published, in 1994, Fisch’s 17 paintings from the book were exhibited at the Weisman Art Museum as well as at galleries in Germany, Austria, Israel, and Hungary. Fisch traveled, too, accepting invitations to speak to schoolchildren around the world. The experience led to publication of a second book, *Dear Dr. Fisch: Children’s Letters to a Holocaust Survivor*, in 2004.



“Art relieves human suffering. It is an alternative medicine.”

to understand and appreciate the experiences of others. “Living is an art, and medicine is an art form to make life a little better and a little longer,” he has written. “Art and medicine are two consequences of the same desire to sustain life.”

One of Fisch’s own paintings, “Inseparable”—which shows the connection and dual roles of hands holding a scalpel and a paintbrush—serves as the graphic identity of the unique scholarship he endowed for University of Minnesota medical students.

Each year since 2007, several students have been selected to receive Fisch Art of Medicine Student Awards—funds that allow them to devote time to the exploration of an artistic interest. By taking time to step away from the intensity of their medical studies and focus on artistic expression, Fisch believes, they will become better doctors. During their year in the program, students have used the opportunity to immerse themselves in jewelry making, dance, photography, music, drawing, painting, and other artistic pursuits. Fisch meets with all of the award recipients during their artistic ventures. The year ends with a celebration at the Weisman Art Museum on the Twin Cities campus during which the recipients give presentations on their creative work and display it.

“The biggest risk is not to take any.”

Illustrations from the book
Light from the Yellow Star



WEB EXTRA

See more of Fisch’s art at
z.umn.edu/fisch.

Meanwhile, Fisch continued pursuing his long-held interest in art and resumed his study of painting at the U of M and at the Walker Art Center in Minneapolis. His artwork has been exhibited around the world, but he is convinced that making art can confer far more than honors upon the artist. He extols the potential of art to encourage contemplation, broaden the mind, and deepen one’s capacity

“Students credit the program for personal transformation,” says Jon Hallberg, M.D., who administers the Fisch Art of Medicine Student Awards, “including bringing them new happiness, more self-confidence, the reawakening of old passions, even stress reduction. Few see their efforts as a one-time-only experience.”

Fisch’s first book (he’s written several) focuses on his Holocaust experience, which he often discusses with groups of young people as well as adults. “I never talk of forgiveness for murderers,” he says, “but I ask people to respect others as much as anyone would expect to be respected.” He tells his audiences that they should not get stuck in the past or depend too much on the future; instead, they should treat every day as a gift. “When I put a potato in the microwave, that to me is a joy,” he observes. Even horrendous events from the past can lead to enlightenment and love. “As beautiful pearls are produced by the suffering of an oyster,” he says, “so the Holocaust created beautiful heroes.... We can learn good things even from the worst experience.”

Through his medical work, art, and distinctive perspective on the intertwining of horrors of the past and a brighter potential for the future, Fisch has left an enduring mark on the University. As he has memorably aphorized, “I have a special obligation to show that my life has been more than survival.” ^[MIB]

Jack El-Hai is the author of *The Nazi and the Psychiatrist* and *The Lobotomist*, both books on the history of medicine.



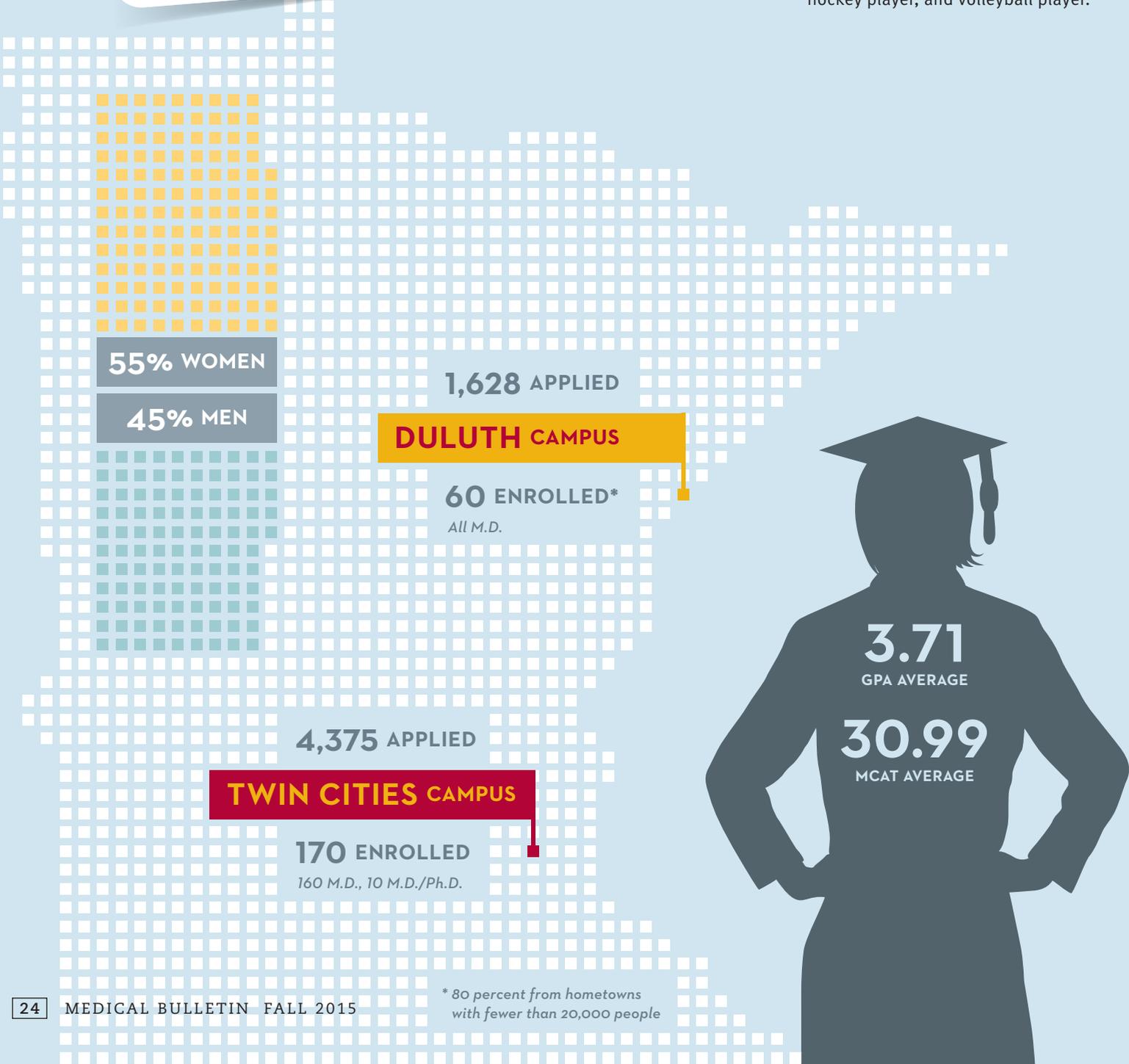
IMAGES: COURTESY OF ROBERT FISCH, M.D.

*“At the end, look not with sorrow
but with joy at what has happened.”*

HELLO
my name is

**Medical School
Class of 2019**

From art to zoology, members of the University of Minnesota Medical School's incoming class encompass a wide variety of backgrounds and interests. Among the 230 students enrolled this year on the Twin Cities and Duluth campuses combined are two Rhodes Scholars, a Fulbright Scholar, and a professional boxer, hockey player, and volleyball player.



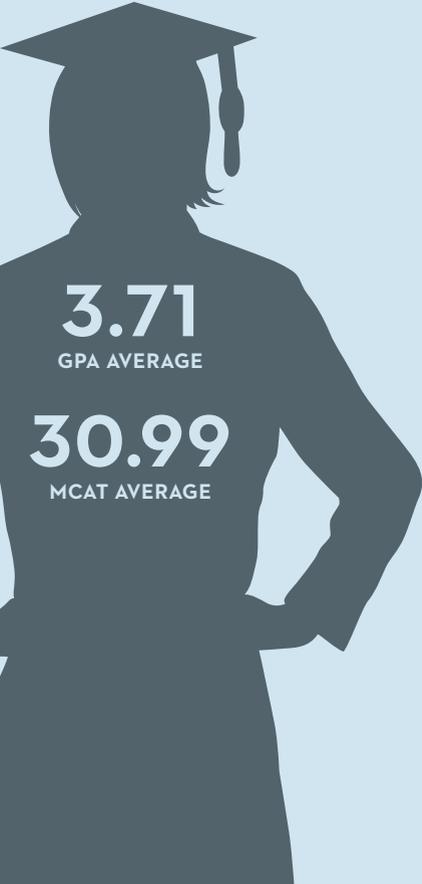
55% WOMEN

45% MEN

1,628 APPLIED

DULUTH CAMPUS

60 ENROLLED*
All M.D.



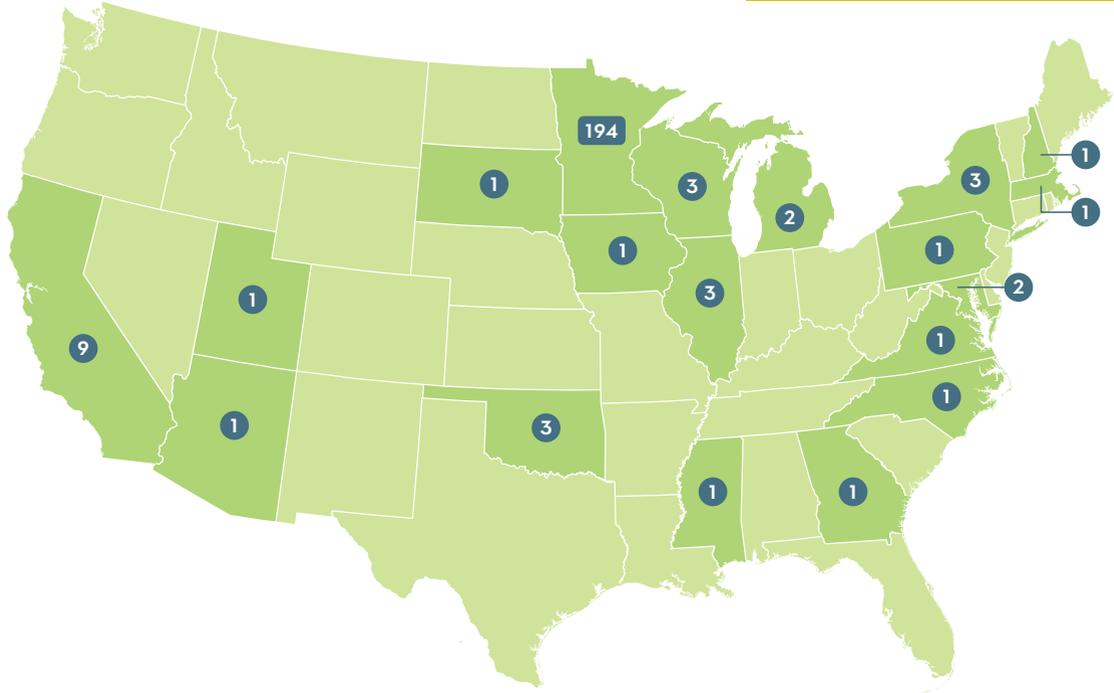
4,375 APPLIED

TWIN CITIES CAMPUS

170 ENROLLED
160 M.D., 10 M.D./Ph.D.

* 80 percent from hometowns with fewer than 20,000 people

WHERE THEY'RE FROM



There's representation from the United States Army, Navy, Coast Guard, and Army Reserves; Minnesota National Guard and Air Force; Indian Army Medical Corps; and AmeriCorps, Peace Corps, and Teach for America.

There's no doubt that the Class of 2019 is a driven, high-achieving bunch. But let's let the numbers speak for themselves. MIB



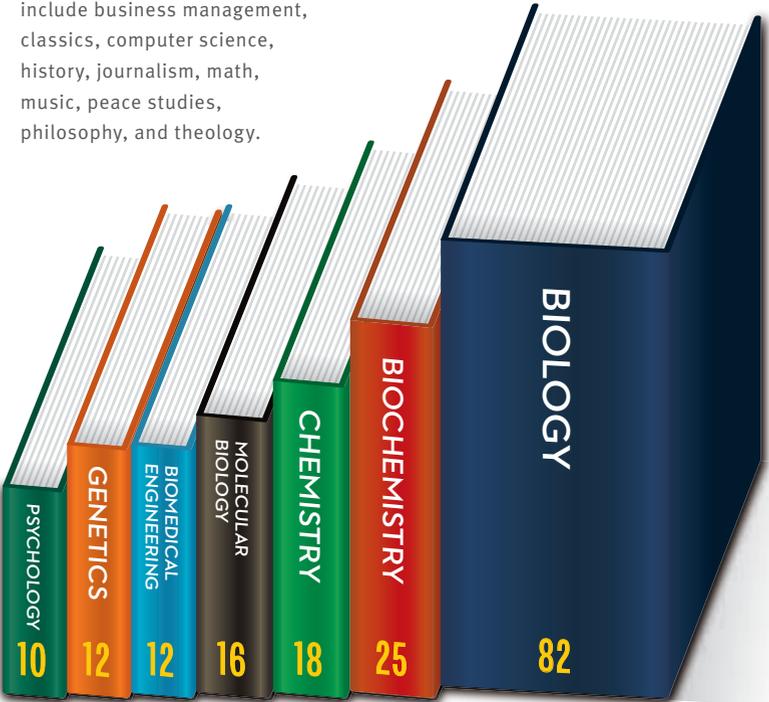
MINNESOTA'S FUTURE DOCTORS

11 PROGRAM PARTICIPANTS

The University's Minnesota's Future Doctors program helps prepare undergraduates from underrepresented communities across the state for admission to medical school.

ACADEMIC MAJORS

Less common undergraduate majors include business management, classics, computer science, history, journalism, math, music, peace studies, philosophy, and theology.



STUDENT DIVERSITY

Students from communities underrepresented in medicine

14 AFRICAN AMERICAN, BLACK

14 HISPANIC/LATINO, CUBAN

10 AMERICAN INDIAN OR ALASKA NATIVE

3 HMONG

1 HISPANIC/LATINO & AFRICAN AMERICAN

Alumni Spotlight | Richard Lindstrom, M.D.

NASA taps this innovative Twin Cities ophthalmologist to help solve a mysterious vision problem associated with space missions

NASA HOPES TO SEND a mission to Mars in 2030. But the agency's longtime dream of landing a team of astronauts on the Red Planet requires bridging the enormous distance between the Earth and Mars—a trip estimated at 150 million miles.

What's more, achieving that goal may depend on correcting a vision problem associated with long-duration space travel.

The vision problem is just one of several health side effects caused by the zero-gravity environment found in space, says Twin Cities ophthalmologist and University of Minnesota graduate Richard L. Lindstrom, '72 M.D. Without the pull of gravity, blood distributes itself more evenly throughout the human body.

"The fluid shifts toward your head, and about two liters of fluid that should be in your lower extremities end up above the heart," Lindstrom says.

To make a long story short, all the king's horses and all the king's men haven't been able to figure this out.

— Richard Lindstrom, M.D.

The result is pressure on the optic nerve and, potentially, a flattening of the eye that may cause temporary or even permanent changes in an astronaut's vision.

Lindstrom is one of a handful of vision experts—including a glaucoma specialist, a retina specialist, and former Top Gun pilot turned refractive surgeon—recently tapped by NASA to investigate the problem and suggest potential solutions. The advisory group, including both ophthalmologists and vision-industry leaders, has met twice to discuss the problem with members of the National Space Biomedical Research Institute (NSBRI), a NASA-funded consortium.

A fresh view

NASA and NSBRI have known of the problem, referred to as visual impairment and intracranial pressure syndrome (VIIP), for many years. After eight to 12 weeks in space, some astronauts start to develop blurry vision as blood pressure builds. But the malady doesn't strike every individual, and it generally subsides when the team returns to Earth, so NASA officials haven't been all that worried—until now.

Most space trips are fairly short, and problems associated with VIIP have generally begun after roughly 90 days in space. A trip to Mars, however, is expected to take up to 950 days. Which is why NASA wants to find a fix.

"To make a long story short, all the king's horses and all the king's men haven't been able to figure this out," Lindstrom says.

Research on VIIP was first published in medical journals in 2011. (Its symptoms have been found in Russian cosmonauts as well as American astronauts.) But that basic understanding of the problem didn't lead to any immediate solutions. So NASA assembled the advisory group and asked its members to take a fresh look at the problem. "They wanted some new thinking, and they didn't want us to be influenced by all the things that they were thinking," Lindstrom says.

Diving deep into the existing research data, Lindstrom found additional information that ultimately may help NASA remedy or sidestep the issue. Perhaps most interesting, he discovered that VIIP seems to affect more men than women.

"Of course, not that many women have been sent into space," Lindstrom notes. (NASA's culture and history have long been dominated by men.) "But the guys who you think are 'The Right Stuff'—muscular-built types—seem to be more prone to the syndrome."

One possible solution for the Mars mission? Send only women, Lindstrom says.

Credentials and creativity

Lindstrom's review of related medical literature led to a second discovery as well: a similar syndrome affects some inhabitants of Earth. Called "idiopathic benign progressive hyperopia with choroidal folds and papilledema," it's a rare condition with symptoms similar to the space-induced changes. But the cause is unknown.



The NSBRI/NASA team has proposed a few possible remedies so far. Drugs may help lessen the pressure—but the most likely medications, at this point, become toxic at high levels. Adjustable eye-glasses may be a temporary solution, but they wouldn't lessen the possibility of permanent damage, Lindstrom observes.

Plus, any approved solutions would have to be tested in space—which would take planning and protocols.

"I'm confident the problem can be solved," Lindstrom says. "We have the right team. We have the research background and the creativity. It's just going to take some time." ^[M]_B

By JOEL HOEKSTRA, a Twin Cities freelance writer and editor

Richard Lindstrom, M.D., is part of an elite NASA advisory group charged with figuring out how to help astronauts remediate or avoid vision damage caused by long-duration space travel.

EARTHLY ACCOMPLISHMENTS

As a kid growing up in the Minneapolis suburb of Wayzata, Richard Lindstrom never really longed to be a rocket man—but he did briefly consider becoming an aeronautical engineer.

His education at the University of Minnesota, however, proved pivotal in steering him toward medicine: His freshman adviser, H. Mead Cavert, M.D., Ph.D.—who happened to be an associate dean of the Medical School—encouraged him to go premed.

Lindstrom ultimately earned a B.S., B.A., and M.D., landed a teaching job at the U, was awarded an endowed chair, and became the U's chief specialist in corneal replacement. In 1989 he left the U to establish his own private practice, now a multipartner practice called Minnesota Eye Consultants. He holds more than 30 patents and has developed several solutions, intraocular lenses, and instruments that are used today in clinical practices globally.

Lindstrom now serves on the University of Minnesota Foundation's Board of Trustees.

Scholarship Winner | Brenda Her

Rebel in a white coat

DON'T BE MISLED by Brenda Her's kind demeanor and petite stature. The second-year medical student, Dean's Scholar, and Tae Kwon Do green belt is a force to reckon with—and has a stubborn streak that helped push her into medicine.

The oldest of 11 children in a traditional Hmong family, Her says she was raised under a different set of expectations than her brothers were.

"Hmong culture is patriarchal: women are expected to cook, clean, and care for the children," she says. "But I realized that my strength was doing well in school." That not only fired her intellectually but also served as a refuge from domestic responsibilities.

Her's parents nudged her toward becoming a nurse, and although she enjoyed the nursing prerequisites she took as an undergrad, it was an organic chemistry class—she eventually earned a bachelor's degree in biochemistry—that really got her thinking about medical school.

"And it was a little bit of a rebellion," she adds with a smile.

A Twin Cities native, Her enjoyed her last two years of high school in Roseville—after turbulent freshman and sophomore years in a small Wisconsin town where her family experienced overt racism. One of her younger brothers, an eighth-grader at the time, was constantly picked on.

"The school labeled it as bullying instead of racism. I didn't like that; I felt there was more to the story than just bullying. Students would come by our house with a bat and hit our mailbox.

"Roseville was better. I felt like I belonged and I was safe."

A sense of belonging

The U immediately felt like home, too, Her says. "I only applied to four [medical] schools, but the U was my number-one choice. Faculty and my classmates are so supportive—everyone wants to help each

other. You hear stories from other schools; it's not like that everywhere else. Here, I feel like I can be competitive with myself.

"And I love the Twin Cities. I love how diverse it is; I love learning about different cultures. I especially like working with people from underserved communities."

She's actively sought such engagement for years, volunteering in college as a tutor at Project for Pride in Living in Minneapolis, where she worked mostly with Somali students. "Somali culture is similar in some ways to Hmong culture; I really enjoyed that."

Her continues that mentorship role today, both formally through The Ladder—a North Minneapolis health professions mentorship program run by the U's Urban Research and Outreach-Engagement Center—and informally, as a role model and academic coach for her younger sisters. She also fulfills her passion for serving others at the U's Phillips Neighborhood Clinic, which she calls "a great way to learn about medicine in an inter-professional team environment." The student-run clinic includes not only medical students, but also students in nursing, pharmacy, social work, and other health fields who work together to provide free care to this underserved Minneapolis community.

Setting an example

Her speaks gratefully of Glen Nelson, M.D., the retired physician who funded her Dean's Scholarship, and of the many faculty who are supporting her. The merit-based scholarship was designed to keep especially high-achieving prospective medical students in Minnesota.



PHOTO: SCOTT STREBLE

Brenda Her's stubborn streak helped push her into a career in medicine.

Helping Hmong American youth preserve their culture in the 21st century while inspiring girls to achieve their full potential is a mission that strongly appeals to the aspiring primary care provider.

“During my first semester, I really started to doubt myself—but then I reminded myself, they gave me that scholarship because they believed in me,” she says. “Having them trust me inspires me to want to make them proud. One day I hope to be able to give back to other students in the same way.”

Her was thrilled to earn a prestigious summer research scholarship through the U’s Lillehei Heart Institute, working with stem cell researcher Rita Perlingeiro, Ph.D., to spur muscle regeneration as a path to treating muscular dystrophy.

Proud of her Hmong heritage, Her hopes to set an example, throughout her career, for other Hmong youth—including her younger sisters, who often come to her apartment to study. That pride and respect deepened two years ago on a trip to Thailand, the country of her parents’ birth.

“I like the food and the clothing and the spiritual practices,” Her says. “But I don’t like the gender roles. That’s something I won’t pass on to my children.”

Helping Hmong American youth preserve their culture in the 21st century while inspiring girls to achieve their full potential is a mission that appeals to the aspiring primary care provider.

“I want to help build a bridge between the younger generation and the older generation, because I feel that’s really important. I love hearing my grandparents’ stories and my parents’ stories. They have a lot to teach us, like how to work hard in life, how to take advantage of every opportunity.”

Those are lessons Her has clearly taken to heart. MIB

By SUSAN MAAS, a freelance writer who lives in Minneapolis

To make a gift to support Medical School scholarships or to learn more, contact Dan Brasch at the University of Minnesota Foundation: dbrasch@umn.edu or 612-624-6453.

Different title, same commitment

Longtime student advocate Kathy Watson, M.D., has stepped down as the Medical School’s senior associate dean for undergraduate students after 11 years in the position.

Watson, who arrived at the Medical School in 1974 as a medical student, returned to teaching and resumed her clinical practice in internal medicine this fall, following a two-month leave that allowed her to spend time enjoying some of her favorite activities: gardening, bird-watching, and playing with her granddaughter.

In her associate dean’s role, Watson advocated for students and was a compassionate leader for change.

She was instrumental in launching the faculty adviser program, which pairs each medical student with a faculty physician who helps guide the student’s path to residency.

Says Watson, “It’s the best job I ever had, and our team right now is the best it’s ever been. It’s been a joy to work with so many talented future physicians. I just think now is the right time for someone with fresh perspectives to come aboard.” MIB



Kathy Watson, M.D.

Medical Alumni Society honors five distinguished graduates

FIVE UNIVERSITY OF MINNESOTA Medical School alumni were honored for their contributions to the medical profession at the Medical School Alumni Awards Banquet on Thursday, September 17, at the McNamara Alumni Center on the University of Minnesota's East Bank campus.

The University of Minnesota Medical Alumni Society (MAS) recognized these graduates with the following awards:

HAROLD S. DIEHL AWARD

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.



MICHAEL BELZER, M.D.

Belzer's passion for educating the next generation of physicians intersects with his dedication to caring for patients throughout his many roles. A 1974 graduate of the Medical School, Belzer joined Hennepin

County Medical Center (HCMC) in 1980 as a hematologist/oncologist. Within 10 years, he was named chief medical officer of this teaching hospital dedicated to caring for the underserved and has used this role to be an advocate for medical education and care. Belzer was named associate dean of the Medical School in 2002, becoming the first off-campus member of the dean's office and fostering a vital alliance between HCMC and the Medical School that continues today.

DISTINGUISHED ALUMNI AWARD

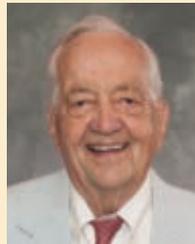
The **Distinguished Alumni Award** recognizes University of Minnesota Medical School alumni who have made outstanding contributions to their communities—at the local, regional, or national level—through medical practice, teaching, research, or other humanitarian activities.



PAUL MATSON, M.D.

Matson, an orthopaedic surgeon who graduated from the Medical School in 1981, has dedicated his career to enhancing the quality of medical care. Since an early-career experience as a medical missionary in Cameroon, Matson has made several trips to Bethany Crippled Children's Center and Kijabe Medical Center in Kenya, treating patients and educating local health care workers. In addition to seeing patients at the

Orthopaedic and Fracture Clinic in Mankato, Minnesota, and serving as a clinical associate professor at the Medical School, Matson has a long history of leadership with the Minnesota Medical Association, advocating for improvements in care quality and professionalism in medicine.



WILLIAM PETERSEN, M.D.

Petersen is known as a compassionate caregiver, health care leader, and dedicated educator. A 1945 graduate of the Medical School, Petersen practiced internal medicine for 32 years. As he approached retirement from private practice, he directed his skills toward hospital management, becoming vice president of medical affairs for Abbott Northwestern Hospital, where he contributed a new vision of patient care and physician collaboration. He also cofounded the Center for Health and Medical Affairs at the University of St. Thomas, where physicians learn management skills to lead private practices and health care delivery systems as well as improve health outcomes and patient care.



ROBERT VAN TASSEL, M.D.

Van Tassel, a member of the Medical School Class of 1964, is regarded as a leader and medical visionary. A practicing cardiologist until 2010, Van Tassel is credited with performing the first coronary angioplasty in Minnesota. He cofounded the Minneapolis Heart Institute and its corresponding foundation, a union that allowed for high-level cardiac care to be accompanied by innovative clinical research. He also served

as a clinical associate professor of medicine at the U of M for more than 30 years. An inventor and entrepreneur, Van Tassel founded three medical device companies and holds 30 medical device-related patents.

Alumni Connections

EARLY DISTINGUISHED CAREER ALUMNI AWARD

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.



BRIAN SICK, M.D.

Since completing a dual residency in internal medicine and pediatrics at the University in 2004, Sick has emerged as a leader in the field of inter-professional education

and patient care. Since 2007, Sick has served as medical director of the Phillips Neighborhood Clinic, a free, student-run clinic where U students of medicine, dentistry, nursing, pharmacy, physical therapy, public health, and social work collaborate to provide care to more than 1,100 underserved patients per year. An assistant professor at the Medical School, Sick is also responsible for the Academic Health Center's interprofessional education curriculum. ^{MIB}



Boynton's ringmaster

Health service's chief medical officer rounds up the (un)usual suspects to reduce student stress

SEND IN THE CLOWNS.

No, really, send in the clowns, says Gary Christenson, M.D. (above right), chief medical officer at the University of Minnesota's Boynton Health Service. In fact, send in the dogs and bunnies while you're at it. They can help to reduce stress and anxiety for U students, says Christenson, a psychiatrist by training and a 1986 Medical School alumnus. Christenson is being honored this year with the University of Minnesota President's Award for Outstanding Service for having demonstrated "an unusual commitment to the University community."

It's not the first time the word "unusual" has been used when describing his work. But Christenson is proud of having been the driving force behind a few creative ways to get students talking about mental health.

"Cirque De-Stress," for instance, is a day full of circus performances on the hour. Between performances, students learn about the many mental health resources available at the U.

On the first Cirque De-Stress performance day in 2013, 2,300 people came through the door, Christenson reports. They came because they liked circuses, surveys later told him, but they also found value in learning about mental health there. It's now an annual event.

And what's more calming than petting a warm, soft dog? Or chicken? One of Christenson's proudest accomplishments is launching the Pet Away Worries and Stress (PAWS) program with animal-assisted-interactions expert Tanya Bailey. After two years, the weekly program averages about 150 attendees.

The ideas keep coming because Christenson keeps listening to what students want. His office conducts a lot of surveys to find out what they're dealing with—stress, anxiety, depression, and homesickness (for pets, too) aren't uncommon. These surveys also reveal a changing mindset: the majority of students say they wouldn't think less of someone who had a mental health-related diagnosis, but they fear that others would think less of them if they had such a diagnosis, Christenson says.

"One of our challenges with stigma is educating: actually, most people are on the same page with you," he says.

Besides, who's got time for judgment when there's a fluffy bunny just waiting for a cuddle? ^{MIB}

— Nicole Endres



WEB EXTRA

Watch a video about the PAWS program at z.umn.edu/paws.

Changing with the times

Though it's been around for nearly a century, Boynton Health Service stays current by evolving to meet students' needs

The University of Minnesota Student Health Service opened its doors almost 100 years ago in the midst of one of the most serious health crises in the nation's history. As the fall semester of 1918 began, the great flu pandemic was sweeping the globe, bringing the health service its first patients.

Under its first director, John Sundwall, M.D., Ph.D., a small staff of nurses, medical students, and doctors drawn from the University Hospital were swamped by more than 2,000 victims of the virus. So quickly and virulently did the flu spread that the University of Minnesota closed its doors in mid-October, for the first and only time in its history. Classrooms were shuttered and students sent home for the rest of the month.

The new health service, housed in the basement of Pillsbury Hall, continued to see influenza patients through the winter and into the spring of 1919. In all, 20 students succumbed to the epidemic, but the clinic had proved its worth.

Ruth Boynton's Medical School graduation portrait, 1920



Boynton steps in

In 1921, Sundwall left his post and was replaced by Harold Diehl ('18 M.D., '21 M.A.). Hired that same year were Ruth Boynton ('20 M.D., '27 M.P.H.) and William Shepard ('22 M.D.).

Boynton had arrived in Minneapolis in the midst of the flu epidemic and was thrust into service as a medical student volunteer. She contracted the virus herself while working at the clinic but recovered, went on to complete her medical degree at the U of M School of Medicine, and wound up back at the University's Student Health Service working under Diehl. She would spend most of her professional career at the clinic, ultimately succeeding Diehl as director of the health service when he was named dean of the U's College of Medical Sciences in 1936.

Rapid growth

In its first years, the health service grew rapidly—from just over 16,000 student visits in 1918–19 to more than 35,000 in 1922–23. The staff grew commensurately. By 1924, the health service had six full- and eight part-time doctors; one full- and 10 part-time dentists; 10 nurses; plus dental assistants, lab and X-ray technicians, and clerks and other office help.

Also by 1924, a second student health clinic building had opened on the St. Paul campus to join the first one at Pillsbury Hall on the main campus. Aside from providing day-to-day medical and dental services to students, the clinics performed physicals, which were required of all entering students, and they monitored and controlled any communicable diseases that might afflict the campuses' students.

Tuberculosis was the most devastating of these concerns in the early years of the health service, with an average of two cases diagnosed every month. There were also outbreaks of smallpox and scarlet fever on campus in the 1920s, and a 25-bed infirmary was available for students who needed overnight care.

Expanding services

When Boynton became director of the Student Health Service, she quickly established a reputation for innovation and expansion of services to meet new and pressing student needs. The health

A Look Back

By shortly after World War II, the clinics offered the most comprehensive medical care of any student health service in the country.

service was among the first in the nation to hire a dietitian, and it established a special diet table for students with diabetes, gastric ulcers, and other nutritional issues.

After the Health Service outgrew its Pillsbury home, it moved into a new space adjoining the U's hospital complex in 1929.

Boynton expanded the clinics' mental health services after World War II to meet the needs of soldiers returning from the traumas of war. By shortly after the war, the clinics offered the most comprehensive medical care of any student health service in the country. It also was the nation's largest student health service both in number of staff and number of people served.

All the while, student enrollment skyrocketed and so did the number of visits to the clinics. The 40,000 visits to the Minneapolis Student Health Service in the last year of the war doubled in just two years and would hit 200,000 10 years later. More space was needed, so the U broke ground on a new health service building at its current site on Church Street. The building was completed by 1950, expanded in 1955, and expanded again in 1960.

Student Health Service in 1929, the first year this building was open



After Boynton retired, in 1961, the health service continued to evolve. Renamed Boynton Health Service in 1975, it continued its innovative ways, pioneering women's health initiatives, including offering gynecological and counseling services to coincide with the sexual revolution of the 1960s and '70s. Optometry, pharmacy, and psychiatric services also have expanded through the years, as have programs to provide health education to University students.

Born in crisis and nurtured through the remarkable growth of the University through the 20th century, the Boynton Health Service remains primed to respond to student needs. ^[MIB]

By TIM BRADY, a St. Paul freelance writer



WEB EXTRA

View a collection of posters about student health concerns throughout the years at z.umn.edu/healthposters.

Out in front

The University of Minnesota's Student Health Service was the first of its kind nationally to:

- hire a woman to direct a coeducational health service (1936)
- require a tuberculosis test in routine physical exams and to X-ray those who tested positive (1928)
- require a syphilis test during routine physical exams (1938)
- hire a health educator (1954)
- receive accreditation from the Accreditation Association for Ambulatory Health Care (1979)

It also was at the forefront in addressing the storage and disposal of radioactive waste and other environmental hazards and hired a public health engineer to tackle these issues in 1949.

In Memoriam

CARROLL J. BELLIS, M.D., Ph.D., Class of 1935, Rolling Hills, Calif., died Feb. 3 at age 106. Dr. Bellis invented the mersilene mesh hernia procedure. He is survived by his wife, Mildred; 1 daughter; and 1 grandson.

DALE A. BERGERON, M.D., Class of 1955, Rapid City, S.D., died March 18 at age 85. Dr. Bergeron practiced both internal and nuclear medicine. He is survived by 4 children, 13 grandchildren, and 31 great-grandchildren.

ERIC M. BROWN, M.D., Class of 1999, Minneapolis, died March 12 at age 44. Dr. Brown practiced psychiatry and served as medical director at the Minneapolis VA Medical Center. He is survived by his wife, Lisa, and 2 daughters.

JOHN M. BROWN, M.D., Class of 1956, Vadnais Heights, Minn., died April 5 at age 83. Dr. Brown practiced ob/gyn. He is survived by his wife, Karin; 3 children; and 4 grandchildren.

EDMUND C. BURKE, M.D., Class of 1944, Rochester, Minn., died May 13 at age 95. Dr. Burke was a pediatric nephrologist. He was preceded in death by his first wife, Beebe, and 3 children. He is survived by his wife, Clarice; 6 children; 10 grandchildren; and 10 great-grandchildren.

SHERMAN B. CHILD, M.D., Class of 1952, Scottsdale, Ariz., died Feb. 9 at age 88. Dr. Child was a family practitioner who founded the Twin Cities' first cardiac stress-testing facility. He is survived by his wife, Mary; 3 children; and 2 grandchildren.

ELEANOR COLLE-MACLEAN, M.D., Class of 1950, Verdun, Quebec, died June 2 at age 89. Dr. Colle-MacLean helped to establish pediatric endocrinology as a medical discipline. She was preceded in death by her husband, Lloyd MacLean. She is survived by 5 children and 10 grandchildren.

MYRON E. ERICKSON, M.D., Class of 1947, Sacred Heart, Minn., died May 17 at age 92. Dr. Erickson was a family physician. He is survived by his wife, Katherine; 4 sons; and 1 granddaughter.

FREDERICK V. FEATHERSTONE, M.D., Class of 1958, Winnetka, Ill., died June 19 at age 82. Dr. Featherstone was an orthopaedic surgeon and a Public Health Service officer. He was preceded in death by 1 son. He is survived by his wife, Barbara; 2 children; and 4 grandchildren.

THOMAS P. FERRY, M.D., Class of 1992, Sauk Centre, Minn., died June 22 at age 49. Dr. Ferry practiced family medicine. He is survived by his wife, Michelle, and 8 children.

LEONARD T. FIELDING, M.D., Class of 1962, Prescott, Ariz., died March 10 at age 78. Dr. Fielding was a psychiatrist and medical director at the Brainerd State Hospital. He is survived by his wife, Lois; 5 children; 10 grandchildren; and 1 great-grandson.

DAVID E. GAMBILL, M.D., Class of 1968, Manomet, Mass., died June 22 at age 73. Dr. Gambill was a radiologist. He is survived by his wife, Michelle; 2 sons; and 2 grandchildren.

THEODORE M. GILL, M.D., Class of 1951, Albert Lea, Minn., died May 10 at age 91. Dr. Gill was an ophthalmologist. He was preceded in death by his wife, Suanne, and 1 son. He is survived by 5 children, 4 grandchildren, and 2 great-grandchildren.

MILDRED S. HANSON, M.D., Class of 1951, Edina, Minn., died March 4 at age 91. Dr. Hanson was an ob/gyn and a 2001 recipient of the Medical Alumni Society's Harold S. Diehl Award. She is survived by 4 children and 3 grandchildren.

ROGER W. HEDIN, M.D., Class of 1949, San Rafael, Calif., died April 28 at age 95. Dr. Hedin practiced general medicine. He was preceded in death by his wife, Mary. He is survived by 4 children, 6 grandchildren, and 5 great-grandchildren.

WILLIAM R. HILGEDICK, M.D., Class of 1955, St. Paul, Minn., died August 14 at age 85. Dr. Hilgedick practiced family medicine at the Columbia Park Medical Group. He is survived by his wife, Barbara; 3 children; and 8 grandchildren.

ROGER J. JACKMAN, M.D., Class of 1962, Palo Alto, Calif., died July 7 at age 78. Dr. Jackman was a diagnostic radiologist. He is survived by his wife, Mary; 3 children; and 3 grandchildren.

MARK O. JOHNSON, M.D., Class of 1987, Glenwood, Minn., died Feb. 17 at age 56. Dr. Johnson was a family physician. He is survived by his wife, Mary, and 2 daughters.

CHARLES E. KEENAN JR., M.D., Class of 1960, Simi Valley, Calif., died July 19 at age 82. Dr. Keenan established a family medicine practice and later became chief of staff at Santa Monica Hospital and an associate clinical professor at UCLA. He is survived by 5 children and 12 grandchildren.

THOMAS J. KENNEDY, M.D., Class of 1941, Greenwood Village, Colo., died Oct. 20, 2013, at age 98. Dr. Kennedy was a radiologist. He is survived by his wife, Eleanor; 3 children; 7 grandchildren; and 3 great-grandchildren.

BRUCE E. KLOSTER, M.D., Class of 1979, Des Moines, Iowa, died April 1 at age 63. Dr. Kloster was a pathologist. He is survived by his wife, Mary, and 2 children.

ROBERT A. KNIGHT, M.D., Class of 1980, Thornton, Colo., died Feb. 15 at age 60. Dr. Knight practiced internal medicine. He is survived by 2 sons.

W. DAVID KNOWLES, M.D., Class of 1968, St. Peter, Minn., died May 17 at age 77. Dr. Knowles was a family medicine practitioner who also served as training camp physician for the Minnesota Vikings for 35 years. He is survived by 3 children and 7 grandchildren.

BRUCE A. KOTTKE, M.D., Class of 1954, Lakeland, Fla., died June 16 at age 86. Dr. Kottke practiced internal medicine. He is survived by his wife, Ivette, and 4 sons.

JEFFREY M. KOWITZ, M.D., Class of 1983, Watertown, S.D., died July 21 at age 58. Dr. Kowitz, a pulmonologist, is survived by his wife, Lorraine; 7 children; and 3 grandchildren.

ALAN F. KREMEN, M.D., Ph.D., Class of 1976, Stockton, Calif., died June 13 at age 68. Dr. Kremen was a general, vascular/thoracic, and trauma surgeon. He is survived by 2 daughters.

RONALD R. KYLLONEN, M.D., Class of 1957, El Sobrante, Calif., died April 5 at age 83. Dr. Kyllonen was a child psychiatrist and an assistant professor at the University of Wisconsin. He is survived by 4 children and 4 grandchildren.

ROGER C. LARSON, M.D., Class of 1950, Golden Valley, Minn., died March 27 at age 88. Dr. Larson practiced ob/gyn with his brother, Donald. He was preceded in death by his wife, Elaine. He is survived by 3 children and several grandchildren.

CHARLES W. LEWIS, M.D., Class of 1945, Cape Coral, Fla., died July 26 at age 95. Dr. Lewis was a rural Minnesota family physician and surgeon. He is survived by his wife, Shirley; 4 children; 2 grandchildren; and 3 great-grandchildren.

MICHAEL R. LYNCH, M.D., Class of 2007, Stillwater, Minn., died March 1 at age 35. Dr. Lynch specialized in family medicine. He is survived by his wife, Andean Nguyen, and 2 children.

ROYD J. MAHOWALD, M.D., Class of 1973, Los Angeles, died Feb. 23 at age 66. Dr. Mahowald, a radiologist, worked at Kaiser Permanente for 20 years. He is survived by his life partner, Edgar Nell.

KENNETH P. MANICK, M.D., Class of 1960, Edina, Minn., died May 28 at age 87. Dr. Manick taught at the University of Minnesota Medical School and was chief of dermatology at the Minneapolis VA Medical Center. He was preceded in death by his wife, Jane. He is survived by 2 daughters, 2 grandchildren, and 4 great-grandchildren.

JAMES C. MANKEY, M.D., Class of 1943, Bloomington, Minn., died May 25 at age 97. Dr. Mankey practiced internal medicine and founded Southwest Internists P.A. He was

ROBERT B. HOWARD, M.D., Ph.D., Class of 1944, Walnut Creek, Calif., died Feb. 7 at age 94. Dr. Howard was named dean of the University of Minnesota's College of Medical Sciences in 1958, and in 1970, he became director of Abbott Northwestern Hospital's internal medicine residency program. Dr. Howard concluded his career as editor-in-chief of *Postgraduate Medicine*, combining his love of medicine and words. He was preceded in death by his first wife, Lorraine; second wife, Ardys; and 2 children and 1 stepson. He is survived by 4 children and 1 stepson, 6 grandchildren, and 8 great-grandchildren.



JAMES R. JUDE, M.D., Class of 1953, Coral Gables, Fla., died July 28 at age 87. Dr. Jude was a thoracic surgeon whose realization that external manual pressure could revive a stalled heart led to the development of cardiopulmonary resuscitation (CPR). He was chief of thoracic and cardiovascular surgery at the University of Miami School of Medicine and Jackson Memorial Hospital in Miami, where he and several colleagues outfitted some of the first mobile cardiac units and trained paramedics in CPR. He is survived by his wife, Sallye; 6 children; 13 grandchildren; and 3 great-grandchildren.



preceded in death by his wife, Margaret, and 2 children. He is survived by 6 children, 19 grandchildren, 7 great-grandchildren, and 1 great-great-grandchild.

JOHN R. MCQUILLAN, M.D., Class of 1946, Helena, Mont., died June 2 at age 90. Dr. McQuillan was an internist and chief of staff at the Fort Harrison VA Medical Center. He was preceded in death by his first wife, Hilde, and 1 daughter. He is survived by his wife, Joan; 4 children and 3 stepchildren; 7 grandchildren; and 2 great-grandchildren.

JOHN E. MIDDLEBROOK, M.D., Class of 1951, Minneapolis, died May 25 at age 88. Dr. Middlebrook was the team doctor for the U of M basketball team for 20 years. He was preceded in death by his wife, Phyllis, and 2 grandchildren. He is survived by 5 children, 7 grandchildren, and 6 great-grandchildren.

ROBERT D. MUSSEY, M.D., Class of 1942, Urbana, Ill., died March 18 at age 98. Dr. Mussey was an orthopaedic surgeon. He was preceded in death by his first wife, Jean. He is survived by his

wife, Elizabeth; 5 children; 6 grandchildren; and 8 great-grandchildren.

LOREN E. NELSON, M.D., Class of 1946, Fountain Hills, Ariz., died October 11, 2013, at age 88. Dr. Nelson was a colon and rectal surgeon. He was preceded in death by his wife, Barbara. He is survived by 4 children and 7 grandchildren.

PAUL H. POBOR, M.D., Class of 1957, Shell Beach, Calif., died July 17 at age 85. Dr. Pobor was an anesthesiologist. He is survived by his wife, Vicki, and 4 children.

BERNARD POLLARA, M.D., Ph.D., Class of 1960, Tampa, Fla., died May 10 at age 87. Dr. Pollara was an expert in childhood immunology. He is survived by his wife, Jeannette Fleischer; 5 children; and 6 grandchildren.

LELAND G. REICHEL, M.D., Class of 1956, Wadena, Minn., died May 23 at age 84. Dr. Reichelt was a family physician. He was preceded in death by 1 son. He is survived by his wife, Carolyn, and 1 son.

continued on page 36

Hanging up his lab coat

After 50 years, Jack Delaney, M.D., Ph.D., packed up his lab in June to retire from research.

During his six decades at the University of Minnesota, starting in medical school in 1951, Delaney saw many evolutions of the school and in the field of medicine. He watched the transformation of the U's medical enterprise into today's Academic Health Center. He saw the start of one of the most significant changes in American medicine, Medicare.

Delaney began his surgical career as a general surgery resident under the famed surgical educator Owen Wangensteen, M.D., Ph.D.

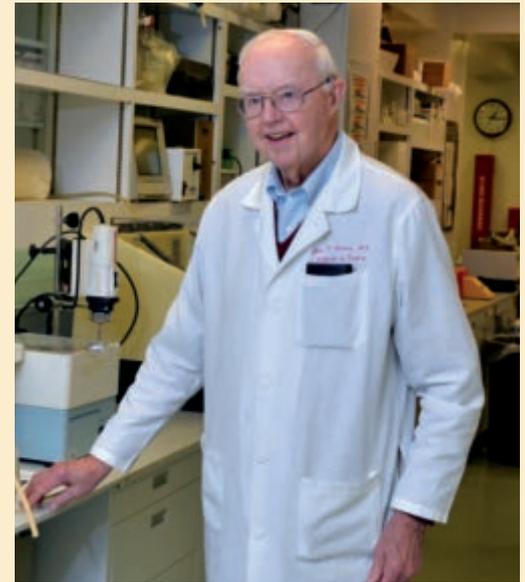
Wangensteen insisted that all residents spend considerable time—usually several years—in the laboratories, both surgical and basic science. As a result, Delaney says, the U had probably the most productive resident research program in the nation in the 1950s and into the '80s. Delaney says the experiences he had in physiology and surgery labs as a resident engendered a lifelong

love for investigation. He encourages all residents to learn scientific methods.

“Lab experience helps all residents, regardless what their career is going to be,” he says. “The clinical surgeon thinks more critically having studied the background, the statistics, the believability of medical papers. Writing papers is particularly instructive.”

Although he's not in the lab anymore, Delaney continues to write papers and can still be found at surgical Grand Rounds every Tuesday. MB

— Annie Montemayor



Jack Delaney, M.D., Ph.D., retired from clinical work 14 years ago but just closed his lab in June. “I enjoyed the process of conducting and teaching research,” he says, “so I hung on longer than most people do.”

PHOTO: JERRY VINCENT

IN MEMORIAM *continued*

ROBERT T. ROWLAND, M.D., Class of 1941, San Diego, Calif., died February 8 at age 99. Dr. Rowland practiced internal medicine. He was preceded in death by his first wife, Kathryn, and his second wife, Ruth. He is survived by 1 daughter, 2 step-grandsons, and 2 step-great-grandsons.

SHELDON C. SIEGEL, M.D., Class of 1945, Palos Verdes Estates, Calif., died May 19 at age 93. Dr. Siegel cofounded the Asthma and Allergy Foundation of America. He was preceded in death by his wife, Priscilla, and 1 daughter. He is survived by 1 daughter, 4 grandchildren, and 5 great-grandchildren.

ALAN G. SMITH, M.D., Class of 1955, Brooklyn, N.Y., died April 5 at age 87. Dr. Smith was chief of orthopaedic surgery at the Brooklyn VA Hospital. He was preceded in death by 1 son. He is survived by his wife, Joyce; 2 children; and 4 grandchildren.

JAMES O. WALL, M.D., Class of 1945, St. Paul, Minn., died March 22 at age 90. Dr. Wall was an ob/gyn. He was preceded in death by his wife, Margaret. He is survived by 5 children, 11 grandchildren, and 7 great-grandchildren.

HAROLD A. WENTE, M.D., Class of 1946, Rochester, Minn., died Feb. 21 at age 92. Dr. Wente began a solo medical practice that grew to become the Olmsted Medical Center. He was preceded in death by 1 daughter. He is survived by his wife, Elaine; 7 children; 17 grandchildren; and 10 great-grandchildren.

ROBERT W. WESTAFER, M.D., Class of 1967, Long Beach, Calif., died March 18 at age 72. Dr. Westafer was an emergency and family physician. He is survived by his wife, Sharon; 3 children; and 2 grandchildren.

HOWARD M. WIKOFF, M.D., Class of 1940, Crookston, Minn., died Jan. 6, 2014, at age 98. Dr. Wikoff practiced internal medicine. He was preceded in death by his wife, Bernice. He is survived by 8 children and many grandchildren.

LORENTZ E. WITTMERS JR., M.D., Ph.D., Class of 1971, Duluth, Minn., died April 25 at age 73. Dr. Wittmers was an associate professor in the Department of Biomedical Sciences, director of graduate studies in physiology, and interim director of the Center of American Indian and Minority Health at the University of Minnesota Medical School, Duluth campus. He is survived by his wife, Ruth; 5 children; and 8 grandchildren.

RONALD D. WORKMAN, M.D., Class of 1972, Carmichael, Calif., died July 8 at age 68. Dr. Workman was a pathologist and physician executive. He is survived by his wife, Diana; 2 daughters; and 2 grandchildren.

JOHN L. ZENK, M.D., Class of 1983, Eden Prairie, Minn., died June 29 at age 62. Dr. Zenk was an internist and chief medical and scientific officer for Humanetics Corporation.

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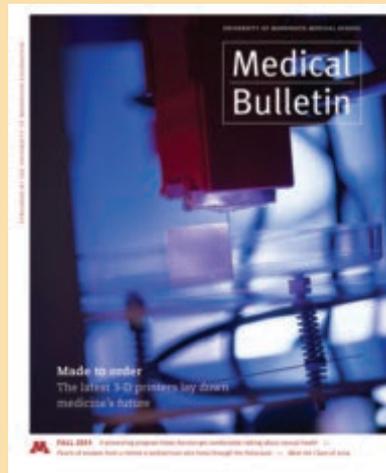
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WHAT DRIVES JAKUB TOLAR TO THINK A HUMAN CELL CAN BE SMART ENOUGH TO CURE ITSELF?



One day your doctor may be able to program your DNA to cure a wide range of chronic diseases or even to rebuild your immune system. That day can't come soon enough for Dr. Jakub Tolar and other researchers at the University of Minnesota who are on the leading edge of regenerative medicine. "Regenerative medicine is the next great leap forward in health," Tolar says. "Instead of prescribing drugs with side effects or limitations, we will be able tell your cells how to heal your body. And they will."

umn.edu/tolar



UNIVERSITY OF MINNESOTA
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