



# NORTH DAKOTA MEDICINE

University of North Dakota School of Medicine & Health Sciences

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**UNIVERSITY OF NORTH DAKOTA  
SCHOOL OF MEDICINE & HEALTH SCIENCES**

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ON THE COVER: A medical student in UND's Indians Into Medicine (INMED) program participates in a patient-centered learning (PCL) session at the SMHS in Grand Forks.



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# NORTH DAKOTA MEDICINE

University of North Dakota School of Medicine & Health Sciences

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Please note that photos in this magazine showing groups of people together without masks were taken before the COVID-19 pandemic had reached the United States.



# STILL PUSHING FORWARD

The new school year is in full swing. Because of major changes in the medical student curriculum that among other things allow students more elective time earlier in their studies, the Class of 2025 started in early July. That was quite a change from our traditional August start! The remainder of students arrived during the summer as usual. We remain in hybrid mode for education of our pre-clinical medical and health sciences students with a combination of in-person and virtual experiences; clinical experiences, of course, continue to be in-person. Several of our clinical affiliates where clinical training is done (that is, hospital systems) now require proof of vaccination not only of their own employees but also of our students and residents. We've clarified with legal counsel that students and residents do need to comply or the affiliates are within their rights to refuse entry to unvaccinated students. I don't anticipate that this requirement will be particularly problematic for our students, although it contrasts somewhat with our university system where there is no similar mandate.

We do require students, faculty, staff, and visitors to mask when indoors at any UND SMHS facility or function because of our frequent contact with potentially vulnerable patients. This is because of the unfortunate recent realization that fully vaccinated individuals may transmit the delta variant of SARS-CoV-2 even without any symptoms or other evidence of infection. Time will tell as the school year progresses whether additional protective measures may be required, but the recent change in pandemic mitigation recommendations from the Centers for Disease Control and Prevention after the reported experience with the delta variant on Cape Cod in Massachusetts suggests that we're not going to be done with SARS-CoV-2 any time soon!

The good news is that despite the pandemic, the School is doing well. The educational enterprise continues, thanks to the incredible dedication of our faculty, staff, and especially students.



Research productivity continues to grow and expand. One of the measures of this is the amount of external funding awarded to faculty and staff at the UND SMHS; the School currently is at an all-time high. Service to the community continues as well. One example of this is our Center for Rural Health, which provides support throughout the state.

Thus, despite the pandemic, we are moving forward. It's not without its costs, however. And the greatest cost clearly is not financial but emotional. All of us are tired of the pandemic and how it has upended our lives. As a school, we have worked to provide as much support as possible for faculty, staff, and



students in need. One of the programs that I've found helpful personally is an online meditation session lead by Michelle Montgomery, one of the wellness advocates for our students. As someone who has a go-go-go mentality and personality, it has been surprisingly refreshing to try to stop-stop-stop!

One of the ways we're moving forward is by recognizing the fantastic contributions of our faculty. To formalize this recognition, I recently announced the appointment of several faculty members to new deanship positions. By doing so, we officially welcome them into our senior leadership team so that we can easily solicit their thoughts and recommendations.

The newly appointed faculty include:

- Dr. Holly Brown-Borg, Assistant Dean for Gender Equity
- Dr. Jane Dunlevy, Assistant Dean for Phase 1 (of the medical curriculum)
- Dr. Susan Zelewski, Assistant Dean for Phase 2/3 (of the medical curriculum)
- Dr. Minnie Kalyanasundaram, Assistant Dean for Academic Support and Longitudinal Integration
- Dr. Kurt Borg, Assistant Dean for Assessment

I'm also delighted to report on two additional administrative appointments:

- Dr. Cornelius "Mac" Dyke, the new chair of the UND Department of Surgery
- Dr. Scott Engum, the new associate dean of the Southeast (Fargo) Campus

These additional appointments strengthen our already high-performing leadership team and should help us prepare even better for our upcoming medical program accreditation visit scheduled for next April. As I've mentioned before, these visits by the Liaison Committee on Medical Education (LCME) are a really big deal. Not too long ago, almost one in three medical schools was put on "warning" status or worse by the LCME, so we are taking the upcoming visit seriously. We've already finished various preparatory components, such as the Independent Student Analysis (ISA) and the Data Collection Instrument (DCI). But we still have a lot of work to do between now and April.

Finally, I'd like to highlight some of the remarkable achievements by Dr. Don Warne, associate dean for diversity, equity, and inclusion and director of our Indians into Medicine and public health programs and his colleagues. They have started the world's first Indigenous Health Ph.D. program that is now attracting students locally and from far and wide. Brian Schill, director of our Office of Alumni and Community

Relations and the media team from UND highlighted this impressive milestone, and their publicity efforts were recognized by the Association of American Medical Colleges with the awarding of a Gold Award for Excellence in the Diversity, Equity and Inclusion category. To further support the efforts in this regard, we recently established the world's first Department of Indigenous Health at the school so that faculty working in this area can share an academic home.

That's a brief update on what's happening at your UND School of Medicine & Health Sciences. I thank you again for your interest and support.



Joshua Wynne, MD, MBA, MPH  
Vice President for Health Affairs, UND  
Dean, School of Medicine & Health Sciences



### ANOTHER FIRST

Faculty contributing to the world's first Department of Indigenous Health. Left-to-right: Melanie Nadeau, Ph.D., Amber Lyon, Ph.D., Kyle Hill, Ph.D., Nicole Redvers, N.D., Joycelyn Dorscher, M.D., Shawnda Schroeder, Ph.D., Donald Warne, M.D., Allison Kelliher, M.D., Andrew Williams, Ph.D., and Ursula Running Bear, Ph.D. (Dr. Dorscher is co-teaching an Indigenous Health course with Dr. Warne this fall.)

# 'UNPRECEDENTED'





In another world-first, UND establishes a standalone Department of Indigenous Health.

“What’s being built here is unprecedented,” explained Don Warne. “Nothing like this exists in the world.”

While such a statement, delivered with complete sincerity, might sound exaggerated, it’s one hundred percent true.

Fresh off the establishment of the world’s first doctoral program in Indigenous Health at UND, which began at the UND School of Medicine & Health Sciences (SMHS) in 2020, Warne, the director of the School’s public health and Indians into Medicine (INMED) programs, was speaking of another world-first: the School’s brand-new Department of Indigenous Health.

“We’ve had a longstanding history of Indigenous programs at UND through INMED,” continued Warne. “Adding a specific Indigenous department in a medical school gives us the opportunity to promote more synergy across research, education, service, and other training opportunities that focus in Indigenous health and health equity. It creates a unique platform to expand the innovative work we’re already doing, and to start more innovative programs.”

#### **Community-based networking**

The formation of such a department became necessary, Warne said, as not only INMED and the doctoral program but additional programs dedicated to Indigenous health continue to sprout at UND. Such programs include the recently announced Indigenous Trauma & Resilience Research Center, the result of a five-year, \$10 million award from the National Institutes of Health, and the School’s new practice-based research network (PBRN) to be known as the American Indian Collaborative Research Network (AICoRN).

A PBRN is, in effect, a network of health providers in a region who want to do clinical research in a focused way. These clinicians provide the “laboratory” – the clinics – for studying broad populations of patients in community-based settings.

According to Dr. Allison Kelliher, the inaugural director of the UND-based AICoRN, although PBRNs are not a new concept nationally, there were no such research networks representing the Dakotas, Montana, and Wyoming.

Until now.

“[AICoRN] will be truly community-based, whether community-based clinics or participation with the American Indian/Alaska Native [AI/AN] communities,” added Kelliher, a family medicine physician from Nome, Alaska, who is also board certified integrative and holistic medicine. “This gives AICoRN its unique niche. We’re on the cutting edge of addressing health disparities and elevating Indigenous voices, which is much needed. This will require partnership with as many tribal stakeholders as are interested, be they tribal, urban, or Indian Health Service-based settings across our four states, in addition to collaborating internationally.”

As Kelliher noted, not only clinical but laboratory-based research often takes “a couple of decades,” historically speaking, to translate into real-time therapies for patients. But PBRNs – particularly if combined with the School’s emphasis on “translational” studies and when part of a Department of Indigenous Health – can help reduce that lag time considerably.

“Say someone is interested in water quality or resilience,” Kelliher explains. “Working with communities and providers to get those researchers connected to our PBRN and also utilize UND resources for statistics or research design can help identify problems in the community and develop research questions. Collaborating with our communities, particularly from the Indigenous perspective, will allow us to obtain meaningful information that can influence our practice and health today or tomorrow—not 20 years from now.”

Such information gathering is already underway at UND. Kelliher’s colleague Dr. Nicole Redvers, a member of the Deninu K’ue First Nation from the Northwest Territories, Canada, is directing the School’s first clinical trial via the Indigenous Trauma & Resilience Research Center. The trial is being conducted in partnership with the U.S. Department

of Agriculture (USDA) and the federally funded Human Nutrition & Research Center (HNRC) in Grand Forks.

“Indigenous communities deserve representation not only in research as leaders and participants, but also in the development of relevant research questions that amplify community strengths while getting to the heart of what matters most in communities,” added Redvers, whose trial will involve chokeberries. “I am humbled and proud of the support we’ve seen from the School, our partners, and faculty mentors at UND that have enabled me to lead the first clinical trial hosted at the SMHS. I am even more proud that this clinical trial will be investigating a traditional Indigenous food with a long history of use for healing in Indigenous communities.”

### **So, why UND?**

As a member of the Koyukon Athabaskan tribe from the Middle Yukon region of Alaska, Kelliher follows Redvers in being the second faculty that Warne has recruited to UND in 24 months from the higher latitudes of North America.

All of which begs the question: why UND?

“Because North Dakota has excellent Indigenous scholars!” smiled Kelliher in a matter-of-fact sort of way. “The key to me here is excellent cohorts, mentors, and mentees. The additional piece is that Grand Forks is a right-sized community with the right amount of enthusiasm and support to actually translate knowledge into action and affect outcomes.”

UND’s reputation is “renowned nationwide” for being a center for excellence and a model for training future physicians, particularly those who are Indigenous, said Kelliher.

“I’m a board member of the Association of American Indian Physicians, and I’ve worked with Dr. Warne at the traditional

Indian medicine cross-cultural workshops, that the AAIP holds each April, for years,” she said. “At that time I was really impressed with his scholastic approach to traditional medicine and his ability to explain and validate sacred things that can sometimes be difficult for our communities to translate into academics. It’s that kind of work by Drs. Redvers and Warne in particular that impressed me most.”

Redvers agreed, noting that she had just passed the two-year anniversary of being in the U.S.

“It was definitely a large move for my family and me from northern Canada, but the prospect of being a part of the first Indigenous Health Ph.D. program, and supporting the efforts in Indigenous health widely, were a large draw for me,” she added. “It’s one thing for an institution to say they support Indigenous health initiatives and scholarship and another to act and open those doors for faculty and students. We have seen UND walk the walk on these commitments to diversity here at the SMHS, and I am very proud to see the Department of Indigenous Health take shape.”

All of which makes what’s shaping up at the School of Medicine & Health Sciences unprecedented indeed.

“We need to build the evidence base of culturally relevant interventions to improve health outcomes, which can lead to more resources for our communities to implement effective health programs,” concluded Warne, an enrolled member of the Oglala Lakota Tribe in Pine Ridge, S.D. “The other focus of this program will be to provide research mentorship to early career faculty and to establish them as independent investigators. This will lead to ripple effects in terms of additional grants, studies, resources, and programs through UND.”

*By Brian James Schill*



# SYSTEM SCIENCE

UND medical students use a Quality and Patient Safety elective course to save lives by analyzing health system data.

In the past decade, health systems and medical schools around the nation began grappling with a chronic problem: medical school graduates were entering residency and fellowship programs – and residency and fellowship graduates were entering practice in clinics and hospitals – with little understanding of how an increasingly complex American health system functioned in a big-picture sort of way: quality improvement (QI), patient safety, high value care, population health.

“We know that in their careers physicians are leaders on their team; this means that what they understand, care about, and talk about is what their teams understand and talk about,” said Mallory Koshiol, Director of System Safety & Quality at Allina Health in Minneapolis, Minn., and the former Director of Quality for Sanford Health in Fargo, N.D. “So integrating safety and quality into the curriculum early on is not only advantageous for the system, but also for the care teams in delivering our promise of ‘zero preventable harm’ and delivering the right patient care at right place and right time.”

In other words, there was a disconnect, said quality leaders, between things like what the provider teams – physicians, nurses, therapists – knew and did in the realm of patient care, and what the systems understood about themselves as institutions, never mind how they worked.

## The ‘science of health care delivery’

UND and safety & quality leaders wanted to change that – and hopefully improve the entire system in the process.

After a handful of conversations with health administrators and physicians in Fargo, including faculty at the UND School of Medicine & Health Sciences (SMHS), the Sanford Health Quality Team settled on the idea of an elective course for

fourth-year medical students focused on what the pioneers in the field were starting to call “health systems science.”

“We jumped on board as one of the very few medical schools in the country doing this in a formal way,” said Dr. Dinesh Bande, chair of the SMHS Department of Internal Medicine, who offered to house the elective in his department. “My idea was asking: why do medical students need to learn about quality of care and not just quantity of care? How do we stimulate them to think about the outcomes that are important? There are a lot of things we can teach in this elective about how to make an organization safer, things not formally taught as part of basic sciences or clinical sciences, like medication errors, diagnostic errors, hospital acquired infections, hospital acquired pressure injuries, and falls in the hospital.”

Enter IMED 9240, also known by the rather prosaic title “Quality Improvement,” a course that sends SMHS medical students to either Sanford in Fargo and Bismarck or Allina in an effort to develop and execute a project-based quality improvement plan using data provided by the systems themselves.

As its syllabus suggests, the course’s objective is to give students “practical knowledge of interdisciplinary teamwork in healthcare settings” and help them identify and propose solutions to a quality improvement project based on the student’s third- or fourth-year clinical experience and health system’s quality improvement priorities.

## From catheters to colonoscopy

And as far as students are concerned, the course is doing just that.

“What I liked about the elective is that it’s a way to see the work that you’re doing differently and help implement change in real time,” said Hallie Thompson, a first-year internal





**“There are a lot of things we can teach in this elective about how to make an organization safer, things not formally taught as part of basic sciences or clinical sciences.”**

////////////////////// DR. DINESH BANDE

medicine resident at UND in Fargo who took the fourth-year elective last year through Sanford Health.

Describing how Sanford wanted to get a better handle on central line-associated blood stream infections (CLABSI) occurring in its facilities, Thompson said the system gave her the task of determining where and how the system could reduce the incidence of CLABSI in patients.

“My project was femoral line use in Fargo, compared to other hospitals in the Sanford system, and looking for trends in the data,” she continued, adding that although UND’s and the health system’s internal medicine teams took the lead on the course, projects can apply to any specialty. “We took that data and formed a multidisciplinary team with anesthesiology, infectious disease, vascular access nurses, and the infection prevention team and created a continuing education module for physicians and nurses to attend [with the goal of reducing CLABSI]. It was a lot of fun, and I learned what goes on behind the scenes in QI and the physicians’ role in that area.”

Smiling at her project’s results, Thompson added that nearly one year later, Sanford’s incidence of CLABSI is much reduced.

Thompson’s colleague Logan Schmaltz, a first-year internal medicine resident at UND and SMHS grad, related a similar experience.

Looking for a way to better clinically analyze Allina health’s at-home stool based testing program – fecal immunochemical test (FIT) kits were sent to more than 40,000 average-risk patients in the Allina system who might benefit from colorectal cancer screening in 2020 – Schmaltz called her time pouring over the provider’s data “amazing.”

“After looking at 800 patient charts, we found that half of the patients who had positive screenings [from their FIT kit] never had a follow-up colonoscopy,” she said. “So, there were

over a dozen patients hanging out there that may have colon cancer but weren’t being treated for it. We found some holes in the Electronic Health Record that we could correct so that providers would be able to see this data more quickly. When you’re able to do those projects in real time and make actual changes as you’re moving along, we’re actually improving patients’ lives.”

#### **Value added**

All of this, said Tessi Ross, Allina’s Manager of Safety & Quality, is the value-add for systems: better care for more patients from an improved system.

“One example of something we’ve implemented this year because of Logan’s analysis is a centralized results hub for stool-based testing for colorectal cancer,” Ross explained. “Our registered nurses are now able to get patients educated on a positive result and schedule colonoscopies faster. That analysis motivated our leadership, who saw that we have an opportunity, and propelled the system to jump into solutions. A missed test or delayed diagnosis could be seen as ‘preventable harm’ and we are now addressing those positive tests better as a system.”

Sanford Quality and Safety Manager Laura Scott agreed.

“The Quality Improvement elective creates an opportunity to build a strong foundation for future physicians in regard to patient safety, experience, and outcomes,” said Scott, who has mentored over half a dozen quality projects with students. “Each medical student has brought a unique perspective to their project and has played a crucial role in influencing future care delivery at Sanford.”

“Oftentimes, these are projects that a health system’s safety and quality team may not have otherwise completed, at least not to this level of detail,” said Koshiol. “This elective allows



us to choose projects that require detailed chart reviews and some clinical perspective and analysis. Then we have a presentation to help us move major initiatives forward in the organization. We've had five UND students at Allina and I can say confidently that every single project has been of tremendous value for the healthcare system."

### **Curriculum 2.0**

Such a course, continued Bande, overlays nicely with the recently revised SMHS medical curriculum, known around the School as "Curriculum 2.0," which is getting students into the clinics and hospitals faster and offering them more elective options sooner.

"Historically, medical school curricula have a two-pillar system," added Bande. "You learn your basic sciences in year one and year two, then you go to the wards and learn patient care at the bedside and practice clinical sciences. But in the past five years, multiple organizations have been emphasizing this third pillar of medical education, which has been health system sciences."

Which, Bande said, UND was quick to adopt in partnership with area health systems, adding that it's his hope that this third pillar can eventually become an integral part of UND's curriculum.

"We're thinking about how to build quality and safety into each of the clerkships and courses students do, no matter where they are in the health system," he said. "Getting them to think about these things as central, not just an elective."

Or if not in the medical curriculum, at least in early post-graduate residencies. To that end, Bande said he's excited that Dr. Jennifer Raum, program director of UND SMHS-based internal medicine residency, has partnered with Kate Syverson, Director of Quality and Safety at Sanford,

to require a one-month quality and safety unit for first-year internal medicine residents.

"We're all looking at how to incorporate this into the medical curriculum right from the get-go," said Syverson. "That's a fundamental shift in medical education. What that requires is not just a small group of people thinking differently about how education is delivered; it challenges all instructors to invest in thinking differently about the courses they deliver."

Adding that the program has been so successful that Sanford is looking to expand it already, Sanford Fargo's vice president medical officer Dr. Douglas Griffin said he was excited to broaden the elective's scope for his facilities.

"The medical students embedded with the quality team during the rotation have helped facilitate deeper looks at clinical issues, which has led to some very significant improvements in care of patients in our facilities," said Griffin. "I have been impressed by their inquisitive nature and thoroughness of research. Being more senior students clearly has provided them a strong foundation for their work. We are, as an organization, very supportive of this work and look forward to seeing it continue."

"Logan did such great work," added Dr. Robert Quickel, vice president of Surgical Services at Allina, who sees the course as a sort of "evergreen" project. "From the health systems' standpoint, it's a good recruiting technique. We're seeing these students and they're getting exposure to our system. And they can go do their residency, but we keep an eye on them and when they're applying for jobs they will have already had experience in our system – improving that system. That's huge."

*By Brian James Schill*



# THE PRICE OF HEALING



The North Dakota Primary Care Office helps relieve the debt burden for rural health professionals through a variety of loan repayment incentives.

“The blessing of the program is that it allows the recipient to be relieved of the overwhelming burden and stresses of student debt, all while being able to enjoy providing care to the underserved populations in our rural communities,” said Dr. Markelle Gartner, speaking of a loan repayment program through the state of North Dakota that has given her debt relief in return for healthcare service to her rural area.

A North Dakota native who attended dental school at the University of Colorado, Gartner left dental school with nearly \$400,000 in student loan debt. She now practices at Orn Family Dentistry in Jamestown, N.D., but still sometimes feels weighed down by debt.

“Coming out of school and having a large debt really places a huge burden on the likelihood of being able to make any of those bigger purchases, such as a car, house, buying into a practice, or even sometimes having a family,” she said. “Large student loan debt adds a huge stressor in an already unknown situation as a new professional enters a practice just out of dental school.”

As Gartner’s story suggests, health professionals sacrifice a great deal, even before they begin working. Time and money arguably top the list.

In fact, according to the Association of American Medical Colleges, the median debt for medical students in 2019 was \$200,000. The average debt for medical students at the UND School of Medicine & Health Sciences (SMHS) at graduation is nearly \$170,000. In comparison, the American Dental Education Association reports that the average debt for a dental school graduate in 2019 was \$292,159. Nursing and Health Sciences students from North Dakota colleges can likewise easily see six-figure debt burdens.

Medical students, specifically, have the opportunity to forgo medical school debt altogether through the help of the RuralMed program, which forgives medical school tuition in exchange for five years of service in a rural North Dakota community. In addition, the North Dakota Primary Care Office (NDPCO) is there to help relieve the educational debt burden for healthcare professionals by encouraging recruitment and retention in underserved areas through a variety of loan repayment incentives.

**“Coming out of school and having a large debt really places a huge burden on the likelihood of being able to make any of those bigger purchases, such as a car, house, buying into a practice, or even sometimes having a family.”**



DR. MARKELLE GARTNER //

The NDPCO offers multiple loan repayment programs to healthcare professionals committing to serving in a rural or underserved area of the state, including the North Dakota Healthcare Professionals Loan Repayment Program, the North Dakota Dental Loan Repayment Program, the North Dakota Veterinarian Loan Repayment Program, and the Federal State Loan Repayment Program. Together, these programs offer debt relief to a variety of health professionals serving rural and underserved areas and populations in the state.

Jessica Schaible is another such professional. A licensed master social worker, Schaible is employed in the Dickinson, N.D., area. She completed her Bachelor's degree through Minot State University and then completed her Master of Social Work degree through Boise State University's online program. She entered the workforce with \$80,000 in educational loan debt.

"It is extremely stressful to enter practice with a large student loan debt. It makes you feel stuck in your position," she said, adding that when you add in other daily costs, such as groceries, mortgage or rent, and childcare, it can feel impossible to get ahead. "It seems like you will be paying off your student loans forever."

Dr. Trina Taszarek-Schilling of Wishek, N.D., felt the same stress weighing on her as she re-entered practice after taking some time off to complete her doctorate of nursing practice (DNP) degree. After building up educational debt from her nursing undergraduate program, and two master's programs (Master of Business Administration and Master of Management with concentration in healthcare administration), and finally her DNP degree, she found her student loan debt had reached nearly \$135,000.

"There are also other expenses not covered by student loans, including travel to and from clinical rotations," she said.

### Finding Help

With the weight of debt hanging over their heads, Schaible, Taszarek-Schilling, and Gartner sought out resources to help. They all landed on the NDPCO website, informing them that help was available. And due to their practice locations in the state, and the program's intent to reward healthcare professionals for serving in rural or underserved areas of the state, all three were awarded loan repayment.

"The loan repayment program has made it a little easier to be able to afford other costs in my life, like mortgage and children. I don't think we would be considering a different home [without

loan repayment assistance] due to the costs of my student loans," Schaible said.

Taszarek-Schilling now has a reachable goal of paying off her student loans in three years, a great improvement from the 10-year plan she was following prior to receiving the award. Receiving loan repayment assistance also allowed Gartner to breathe a sigh of relief.

Kalee Werner, director of the NDPCO, reports that there are currently 113 healthcare professionals actively serving the state under these loan repayment programs. She said these programs are vital to assisting communities fill healthcare workforce needs.

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**"There are also other expenses not covered by student loans."**



**DR. TRINA TASZAREK-SCHILLING** ///

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For Werner and the NDPCO, a key part of these programs is not only recruitment, but also retention. Between 2013 and 2019, there were 35 healthcare professionals awarded with SLRP funds, which is a two-year program. As of 2020, 95% of those professionals remained in North Dakota. In comparison, the North Dakota Healthcare Professionals Loan Repayment Program has an average retention rate of 68% for physicians, physician assistants, and nurse practitioners who received loan repayment from 1993 to 2020.

"Many of our rural communities are struggling to find qualified providers for healthcare services in their communities," Werner concluded. "These programs are valuable recruitment and retention tools, especially for rural communities, to gain qualified healthcare providers."

**Healthcare professionals who are interested can find out more about the various loan repayment programs in the state by visiting [www.ndhealth.gov/pco](http://www.ndhealth.gov/pco).**

*By Stacy Kusler*

# UND SETS EXAMPLE IN RURAL BEHAVIORAL HEALTH

Two UND faculty present findings to state legislators across the nation.



Each year, more than 20% of adults experience a behavioral health disorder in the U.S. The percentage of adults experiencing a behavioral health disorder in rural communities is even higher. The reasons for the high percentages, and solutions to combat the behavioral health issues, were shared during a meeting of the National Conference of State Legislatures (NCSL) last June.

Shawnda Schroeder, Ph.D., principal investigator for the Mountain Plains Mental Health Technology Transfer Center (MHTTC) at the Center for Rural Health housed within the University of North Dakota (UND) School of Medicine & Health Sciences (SMHS), and Andrew McLean, M.D., clinical professor and chair of the Psychiatry and Behavioral Science Department at UND SMHS, presented research findings during the virtual meeting.\*

### National Conference of State Legislatures

NCSL hosted the meeting to highlight state policy options for legislators aiming to increase access to rural behavioral health services. NCSL is a bipartisan organization that represents legislatures in the states, territories, and commonwealths of the U.S. Its mission is to advance the effectiveness, independence, and integrity of legislatures and to foster interstate cooperation and facilitate the exchange of information among legislatures.

Judy Lee is a North Dakota state senator from the 13th District. She has served in the North Dakota Legislative Assembly since 1995, with focus areas on health and human services.

“Educational offerings through NCSL are regularly provided,” Lee said. “There are webinars offered and also a national summit at which there are excellent national speakers and panelists. I always learn something good to bring back to North Dakota when I attend. The purpose of NCSL is for legislators to gather and share what works and what does not work at home, to hear presentations on multiple topics, and to provide many educational opportunities to staff members from each state. It leads to better policy in other states, because we can always contact NCSL staff members or other legislators whom we have met and who had shared their programs.”

“This was an excellent opportunity,” Schroeder said, “to share with state-level decision makers the barriers that exist to accessing behavioral healthcare among rural residents. These are the conversations that can lead to strong, data-driven policy decisions that truly support the advancement of behavioral healthcare delivery in rural areas.”

\* Since this story was written, Schroeder moved to UND’s new Department of Indigenous Health.

Originally a request was made to the Substance Abuse and Mental Health Services Administration (SAMHSA) to speak to mental health in rural areas. SAMHSA is the funder for MHTTC. The SAMHSA regional administrator contacted was unable to attend the meeting and deferred the request to Schroeder, who asked McLean to join her. Both have worked with the Behavioral Health Bridge, a website focused on mental health. Schroeder has spent a decade focused on rural health, and McLean has telehealth expertise.

“They were interested in policy and data showing the needs,” said McLean. “Being able to present broad data was useful. We looked at ways legislators can make changes to strengthen mental health, including enhancing resources, as well as ways to get more providers to learn how to do things more efficiently.”

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**“This was an excellent opportunity to share with state-level decision makers the barriers that exist to accessing behavioral healthcare among rural residents.”**



**SHAWNDA SCHROEDER, PH.D.** // // //

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### Solutions Exist

Schroeder and McLean shared possible solutions states may want to explore. Ideas such as working with state licensing boards, scope of practice changes, current workforce adjustments, loan forgiveness, and telebehavioral health issues are areas where states have some latitude to find solutions that will work best for their residents.

“One of the barriers for states has been the rules,” said McLean, “in terms of education and degree. These requirements vary from state to state, so one group in a state that is able to practice, see patients, and be licensed, might



not be able to in another state. That can be a significant barrier based on what the requirements are that licensing groups have. This can be managed by legislative change. We have gone through this process during every legislative session in North Dakota. If the associations and licensure groups aren't willing to make those changes that are reasonable, legislators are able to come in and say this is how we are going to do this differently. Reminding the legislatures that they have the power and authority not only to work with those boards, but also make changes if changes aren't coming."

McLean continued, "There are ideas in terms of some of the loan-forgiveness programs, access, and wanting to 'grow your own.' There are public-private agreements that can be put into place to attract people to go into these areas. There are state and national loan-forgiveness programs, but there isn't consistency. One of the things that has happened has been, for example, with the National Health Service Corps. There was a disincentive in terms of doing telebehavioral health because a provider had to be within a certain number of miles to get credit for the loan forgiveness. It would be great to have those people living in the communities, and that is the idea, but the next best thing is to be able to provide service to those communities. This is an example of loan-forgiveness rules that can be changed."

One of McLean's areas of focus has been working to assist rural practitioners with identifying and managing the care of

individuals with mental health needs who may not rise to the level of needing to see a psychiatrist.

He shared that one of the dilemmas when referring people to see a mental health practitioner is that often the default is to send the patient to psychiatry. But that can cause a bottleneck of people who really need to see psychiatry. When a provider has someone to turn to and consult with, often there are resources within the clinic that can help the patient.

"Some of the collaborative care is simply doing things more efficiently. And spreading the wealth of experience and information," he said.

### **Tribes and Reservations**

North Dakota, along with many other states that have Native American reservations within their borders, has an additional barrier to mental healthcare access. Schroeder shared, "Indigenous peoples are going to be presented with a dual disparity of both likely living rural and also lacking equitable and culturally responsive access to mental health services."

"One of the things our department has done," said McLean, "with the healthcare workforce initiative dollars is to increase our psychiatry residency numbers and focus on not only telepsychiatry training for those residents, but have them go out to those locations at least monthly. Part of that includes Tribal communities. There is a focus on getting to those communities."

## Policy Changes

Policy changes through state governments do make a difference on behavioral health, whether it be to allocate additional funding to expand the number of practitioners and trainees, or to find innovative ways to incorporate loan forgiveness and incentivize people to go into behavioral health fields. Strengthening the workforce in addiction, social work, therapy, nursing, and medicine, can remove the barriers to receiving quality mental healthcare.

“These are areas in which legislators can make a difference,” said McLean. “They also can change the scope of practice. One of the ways that has happened in North Dakota was with physician assistants and nurse practitioners. In North Dakota and many other states, the nurse practitioners are considered licensed independent practitioners who don’t require a collaborative agreement with physicians. Physician assistants still required that oversight by physicians. The legislature and licensing board agreed that they have many of the skills needed and allowed them to have a greater scope of practice so they can now prescribe medications they weren’t previously allowed to prescribe, or practice in different ways. Removing some of those barriers, in a safe manner, is one of the ways legislators can facilitate change.”

## National recognition

The presentation was well received and several state legislators who were unable to attend have reached out to Schroeder asking questions and for the slide set.

“It was an honor for North Dakota and for Dr. McLean and Dr. Schroeder to be invited to present,” said Lee, “and they did a wonderful job!”

Schroeder explained what is meant for North Dakota to be seen in front of a national audience.

“SAMSHA has a lot of respect for the work we are doing in North Dakota and at UND. They see the reach we have in rural, nationally, and see us as an expert in rural mental health,” she said. “We recognize the issues and concerns, and we can be innovative with some of the solutions. It was an opportunity for us to say let’s make some changes and see what we can do and be an example for other states with large rural and tribal populations.”

*By Jena Pierce*



# UNMET NEEDS FOR MENTAL HEALTHCARE IN RURAL AREAS

- Among the 51.5 million U.S. adults age 18 or older with a mental illness in 2019, 26% (or 13.3 million people) perceived an unmet need for mental health services in the past year.
- Among the 13.1 million adults aged 18 or older with a serious mental illness in 2019, 47% (or 6.2 million people) perceived an unmet need for mental health services in the past year.

Rural barriers to mental health services can be attributed to three areas:

- Availability
- Accessibility
- Acceptability

Availability speaks to the low number of mental health professionals working in counties that are more rural and had lower income levels. Workforce shortages are an issue across the country, but especially in large rural areas.

Accessibility refers to rural residents who may have limited access to mental healthcare. This may be due to cost of services, insurance coverage, and lower

behavioral health awareness that allows mental health concerns to go unrecognized and/or untreated. In addition, the remote nature of living rural may require residents to travel long distances to receive services.

“Accessibility really is unique for rural areas,” said Schroeder. “Issues around transportation go beyond needing to drive long distances to access the provider, but individuals who may be diagnosed with mental illness requiring a prescription may also need to frequently travel to the pharmacy. It can take a while to find the right dose and this may require several visits to the pharmacy that requires reliable transportation and time away from work and home.”

Acceptability indicates how rural residents often are facing stigma, fear, or embarrassment when considering reaching out for mental healthcare. Persons living in rural areas may also struggle to recognize the signs of various mental health issues that can serve as barriers.





# DISRUPTING AGING

UND Continuing Education Symposium 2021 presenters chat aging and the so-called geriatric “4M’s” of healthcare.

*Americans are getting older. According to the nonprofit Population Reference Bureau, larger percentages of the U.S. population have been shifting steadily into older age cohorts for many years, due largely to the aging of the Baby Boom generation and slowing rates of childbirth and immigration generally. Given that this trend will have an enormous impact on the American healthcare system over the next several decades, the UND School of Medicine & Health Sciences has made the study of aging – and the production of health providers focused on the senior population – an important component of its mission. To that end, the School will host a Continuing Medical Education (CME) symposium entitled “Disrupting Aging” as part of its annual UND Homecoming 2021 festivities on Friday, Oct. 22. To get a better handle on the issues facing providers, researchers, and anyone expecting to get older in the next decade, North Dakota Medicine gathered the symposium’s presenters to chat aging and the so-called geriatric “4M’s” of healthcare provision: medication, mobility, mentation, and what matters.*

Interviews conducted and edited for space by  
Brian James Schill

**There’s obviously a lot happening in the lab, classroom, and clinic related to aging. What are some exciting developments in your respective disciplines?**

**Don Jurivich:** The excitement for me is that research is showing that we can stabilize and potentially reverse some of these aging processes. There’s preliminary evidence that have come out of human trials with specific diseases such as pulmonary fibrosis, which is an aging disease, that interventions have basically stabilized the disease rather than allowed it to progress. The second interesting point is the concept that we age at different rates, so our chronologic age may not match our biologic age. This raises the whole

question of how we can lower the population that is “older” than its stated age into a more youthful category. The third, somewhat controversial, thing we’re asking is whether life extension is possible. People have speculated that 120 years is the maximum human lifespan. But some researchers think it’s unlimited and that we just need to find the key to unlocking immortality. With that comes not only the biological but philosophical-spiritual questions.

**Holly Brown-Borg:** There are ways to slow aging, you know, diet, exercise, of course. But there are also pharmaceutical tools. I think the most exciting pharmaceutical aspect of that is something called senolytics or senotherapeutics. These are drugs that are already FDA approved for the most part, or they’re natural compounds, like polyflavonols, that have been found to increase longevity and increase healthy aging, at least in animal models. These senolytic compounds can kill off “senescent” cells—those that stop dividing but do not die. Researchers think this accumulation of senescent cells within tissues is what’s driving inflammation and inflammation is what’s driving a lot of decline in physiology.

**Which is for people who may already qualify as “older,” right? But that’s secondary to keeping people “younger” or healthier longer in the first place.**

**HBB:** Yes. Dietary restriction and exercise—that’s been the gold standard in the field for a long time. Those things can slow aging. Genetics is another method, but it’s not straightforward any longer. Although things like CRISPR have been in the news in terms of abilities to manipulate genes, that’s a ways off for the number of age related diseases as a whole.

**DJ:** And genetics really has very little to do with it. The problem is that researchers have studied centenarians and there are virtually no genes that can be identified as being

associated with living to 100 years old. Random events, environmental events, send us down this other rabbit hole in terms of things we can do to prevent those [physiological] changes in aging—diet, exercise, and maybe some of these antiaging interventions. As we progress in time, these so-called senescent cells will continually accumulate, so we need to keep addressing those year to year to try to remove these cells. That's the concept. In terms of senolytics, then, one theory is that the accumulation of senescent cells starts driving disability as we get older. But by selectively knocking these cells out—killing them—as we get older, we can perhaps stop that process, maybe can get a reset or rejuvenation.

**And this sort of thing is starting to make its way into the education of health providers, yes, the 4M's?**

**Meridee Danks:** Cindy and I both teach geriatrics, and so a lot of our students come in thinking [geriatrics] is not the route they're going to go. They often think, "I'm just going to treat people with a sports injury." I say to them, "You are going to treat older people. This is what's coming at you, so you need to prepare for this." After students take our geriatrics classes, they realize the complexity that occurs when you're treating somebody who is older. And they realize: this is real. The complex patients require a team of providers. It's getting that interprofessional connection which I think is really important. I mean, PT and OT, nursing, the doctor, the social worker, the dietician all have to work together because of all the different things going on. I'm focused on mobility, but I think it's interesting that with the 4M's, you're never dealing with one at a time. Medication affects mobility. And if you have dementia [mentation], that's going to affect your mobility.

**Rebecca Brynjulson:** At North Dakota State University, we teach PharmD students to consider many factors, including aging, to determine appropriate medication use for patients. Prescription medication, non-prescription medication, and herbal product and dietary supplement use should be evaluated routinely as patients age to assess for both benefit and/or risk with use. Helping students learn to optimize medication use and recognize when it is appropriate to recommend deprescribing medications can be impactful in geriatric patient care.

**Cindy Janssen:** My topic is What Matters to older adults. I tell students, if they're going to be working in a rehabilitation center, for example, 80% of the people they see are going to be geriatric, and that opens their eyes. Occupational therapy has historically been seen as rehabilitation after an illness or injury, with only 3% of OTs indicating they were working

in community settings in the 2015 workforce survey. We're changing that now, through community-based wellness, and OT has a program called Lifespan Redesign, a wellness program where Clark et al. (2011) found in a randomized controlled study that there was actually a cost savings by having community-dwelling older adults participate in wellness programs. OT is changing to include community care and health promotion, addressing both physical and mental functions for overall health and quality of life, through participation in meaningful activities.

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**“The excitement for me is that research is showing that we can stabilize and potentially reverse some of these aging processes.”**



**DONALD JURIVICH, D.O.** //////////////

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**Rick Van Eck:** And there's a fifth "M" now too—medical or multiple complexity, which reflects that fact the majority of people over age 65 have more than one health condition and multiple treatment regimens that interact and must be accounted for in providing care. In the past, society assumed that aging and complex medical conditions was a fact of life and meant you had to consider long-term care. But people over-65 represent a huge proportion of the population and they don't see it that way. Aging in place is what they expect and they have the attitude, money, and clout to lobby their representatives to make changes. Those things that you're talking about, Cindy, have to be covered. People are going to want to stay in their home as long as they can, and they have the clout to make that happen, and that's going to require changes in billing and in practice too.

**And you're part of a team, Rick, that has developed an aging game for students and providers, yes?**

**RVE:** That's right. We (Don's team) quickly realized the need for both in-depth training around the day-to-day geriatric



care challenges providers face. But part of the challenge is that many providers do not know about the 4M's and/or see them as an “add-on” that will increase time and cost and reduce care. The benefits of the 4M's are visible only over time and at the population level; it can be hard to see their impact on a patient-by-patient, annual basis. The video game allows providers to apply the 4M framework over time at the population level. In the first level, they apply the 4Ms to a panel of 100,000 patients for hypertension beginning with patients 65-74 and continuing treatment at 75-84 and 85-100. By doing so, they can see that fewer healthy people develop hypertension, mortality goes down as fewer with hypertension die, and cost goes down as disease prevalence goes down. Putting this into a game format is not about making it fun; it's about allowing them to see the longitudinal impacts of the 4M's through time compression and the scale of impact at the population level. As a result, more providers will be interested in digging into the 4M's more deeply, hopefully through a comprehensive geriatric certification program, which is also part of the grant.

**“We’re trying [in physical therapy] to get away from using the term elderly—it’s older adults, or just ‘adults.’”**



**MERIDEE DANKS, D.P.T.** // // // // //

**And with more people needing to think about this sort of thing, the culture changes more broadly.**

**DJ:** People in general don't reflect on their mortality. They often overestimate their lifespan, particularly in the face of multiple chronic conditions. There's a wide range of attitudes and understandings of lifespan. So, people on one extreme, who suffer and have disabilities, see a closer relationship to their mortality whereas people who are healthier don't reflect on that as much.

**HBB:** Along those lines, I'm in a course right now through the Gerontological Society of America that they call “reframing aging.” And because ageism is a big issue, they're trying to change the way people think about aging. Instead of an “illness”—decline, decline, decline, then death, you know, everything's devastating and detrimental—we should try to turn that around and convey that aging is an opportunity. It's a collective benefit. We used to just talk about wisdom, but it goes way beyond that. It starts at conception. That is, it doesn't just start at age 60. There are things we can do for all communities, if they have access and if it starts earlier, that can be incorporated into healthcare education and into our discussions with medical students and OT and PT. But it has to occur earlier, and we have to think in a more positive way, instead of “oh, it's awful when you get older.” That's something we should try to incorporate, and it goes beyond what we're doing today.

**MD:** We're trying [in physical therapy] to get away from using the term elderly—it's older adults, or just “adults.” I think just the mindset and trying to change things and to be honest about changes. There are changes for a toddler, going into adolescence and puberty. These are just additional changes in the body that occur that happen to be related to time.

**CJ:** Our textbook on aging [Functional Performance in Older Adults by Bonder, et al.] intentionally rewrote the cognitive changes chapter, and they don't use the term “cognitive slowing” anymore. They intentionally and transparently reframed their wording—and they were very open about this—telling the reader that they're no longer describing the negative changes of cognition, but just the “changes” that occur.



**MD:** Cindy and I do a fall prevention program called Stepping On. We do a seven-week program, with some exercise, and there has been a national study that showed such programs decrease falls by 30%. And it's not just meeting with the person, but it's meeting with the person and doing lifestyle changes over a period of time. You meet once a week for two hours for seven weeks, and they kind of buy into it. And the people love it. When I first started doing it, I thought “This is so basic; people are going to be bored.” But the older participants told us, “That's





what I needed to know—what I can do to keep myself more mobile; what I can do to keep my balance better.” These are basic exercises, but they just needed somebody to guide them.

**CJ:** From an OT standpoint, we’re tying it into function. For example, standing on one foot while brushing your teeth. It’s an evidence-based exercise, but you can enhance it here by tying it into normal activities and environments. I think it’s interesting that with the 4M’s, you’re never dealing with one at a time.

**RVE:** Yeah, and building right off of that, the thing that I think is most interesting is this shift away from reactive to proactive healthcare. Shifting to a population health framework and the interprofessional teams is all part of that idea, but the challenge has always been the right funding and the insurance model. The social determinants of health. We know that this is the direction that we have to go: to be more proactive and to provide healthcare, continually, where people are when they need it. And I think the convergence of this change with the pandemic has forced us to consider radical changes like telecare and telehealth. Because now that we want telehealth, now that people realize the convenience of being able to take a cell phone image of their kid’s mouth, send it to their pediatrician, and ask “Do I need to bring him in or not?” all without travel, time off work, etc., there is no putting the genie back in the bottle. And I think that’s the most exciting thing.



# 2021 SYMPOSIUM

The Homecoming 2021 “Disrupting Aging” CME Symposium will be held from 8:30 to 11:30 a.m. on Friday, Oct. 22, at the UND School of Medicine & Health Sciences in Grand Forks (plus online). Several panelists will discuss new developments in geriatric research and care, focusing on the geriatric 4M’s: medication, mobility, mentation, and what matters. Presentations include:



**Ageing overview by Holly Brown-Borg, Ph.D.**

Chester Fritz Distinguished Professor,  
UND Department of Biomedical Sciences



**Mobility by Meridee Danks, D.P.T.**

Associate Professor,  
UND Department of Physical Therapy,  
Neurologic Certified Specialist



**What Matters by Cindy Janssen, Ph.D., OTR/L**

Associate Professor,  
UND Department of Occupational Therapy



**Mentation by Donald Jurivich, D.O.**

Chair and Professor,  
UND Department of Geriatrics



**Medication by Rebecca Brynjulson, Pharm.D.**

Director of Introductory Pharmacy Practice Experiences  
and Assistant Professor of Pharmacy Practice at  
North Dakota State University



**Medical Complexity by Richard Van Eck, Ph.D.**

Associate Dean for Teaching and Learning,  
SMHS Department of Education & Faculty Affairs and  
Founding Monson Endowed Chair for Medical Education,  
Education Resources

# FINDING THE SWEET SPOT



## GIVING BACK

Dr. Michael (right) and Michela Howell.

Dr. L. Michael Howell (BS Med '64) discusses the new scholarship endowment bearing his name.

"I have a sweet spot in my heart for the UND medical school," admitted Dr. L. Michael Howell. "My two years there were some of the best years of my life. There was a camaraderie in those two years—the best I ever had anywhere."

A better endorsement of UND's School of Medicine & Health Sciences (SMHS), the only school of its kind in North Dakota, was perhaps never made.

In an effort to give back to the school that gave him such a "sweet" start on a 40-year career as a surgeon, the Lisbon, N.D., native, along with his spouse, recently established the Dr. Michael and Michela Howell Scholarship Endowment. The \$100,000 endowment (coming to UND in five annual gifts of \$20,000) will provide scholarships to individual SMHS medical students.

"That should grow somewhat over time and provide a steady scholarship to students who could significantly benefit from it," Howell said.

A 1964 graduate of UND's Bachelor of Science in Medicine program, Howell obtained his M.D. from Georgetown University in 1966—about a decade before UND began offering its four-year MD program. After completing a residency in general surgery, across three states, and serving two years as a surgeon in the U.S. Army, Howell and Michela, a Michigan native and former ICU nurse, eventually settled in Fargo, N.D.

Being close to UND gave the Howells an opportunity to re-establish ties to the school.

"I joined the Fargo Clinic in 1973 and this proved to be an excellent choice," explained Howell, who oversaw UND medical students and at one point had his own son—2001 MD program grad Michael J. Howell—on surgery rotation. "I was a regular teacher of surgery to the med students and was later appointed a clinical professor of surgery for UND. My wife didn't initially want to move North Dakota, but after a few years she thought it was great here and was happy we could raise our four children here."

Calling the term general surgery "a bit of a misnomer," Howell said he did find a sub-specialty in gastric bypass surgery for persons grappling with extreme obesity.

"I did 5,000 [gastric bypass surgeries] over 38 years," he explained, adding that he worked hard to improve his technique on a very challenging open operation that still doesn't always lend itself well to a laparoscopy. "I was the first person to do [gastric bypass] in the area. Gastric bypass on a 400-pound person is a very difficult operation because if the patient is a certain size, you really can't do it laparoscopically. It continues to be a technically challenging and difficult operation. But I persisted at it and became the predominant obesity surgeon in North Dakota."

Calling the emergence of laparoscopy and eventually robotic techniques the biggest change he saw in surgery during his career, Howell added that these operations greatly helped the individual patient and he enjoyed sharing in their happiness at their weight loss. He notes, however, that obesity continues to be a major health problem worldwide.

"We never ran out of patients," he said. "There were exceptions, but most patients were motivated to let the operation work. It did take a long time for the medical community to accept that this operation was worthwhile for severely obese patients. Once you saw patients a year post-op, and how happy they were and how it helped them, it justified the procedure."

In the end, Howell credits Michela with helping make his career a success.

"My success was dependent upon our success in marriage," he said. "We have four wonderful children and 10 grandchildren, and we feel like we've accomplished a lot and are enjoying the fruits of our labor. Some doctors my age say they didn't want their kids to go to medical school, but I don't think that at all. I thought it was a great career."

**To learn more about how you too can establish a scholarship endowment for medicine or health sciences students with the UND Alumni Association & Foundation, visit [undalumni.org/smhs](http://undalumni.org/smhs).**

*By Brian James Schill*

# ADOPT-A-MED-STUDENT PROGRAM CELEBRATES 11TH YEAR

For eleven years running, thoughtful donors from across the U.S. have given gifts that provide stethoscopes to SMHS medical students. COVID-19 again prevented the School from formally presenting the stethoscopes to the M.D. Class of 2025 during a White Coat Ceremony in July. Nonetheless, the students appreciated receiving the stethoscopes when their in-person classes resumed in August.

Thank you to each of the nearly 60 donors who gave to this year's Adopt-A-Med-Student campaign. Your generosity helps make us all healthier. This year's donors are:



Judith Adler, Rancho Sante Fe, Calif.  
Gordon Anderson, Silverthorne, Colo.  
Frederick Arnason, Edina, Minn.  
Philip Barney, Polson, Mont.  
Julie Blehm, Fargo, N.D.  
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Steffen Christensen, Fargo, N.D.  
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**TOUCH AND GO**

Officials from the SMHS Department of Medical Laboratory Science test out their new analyzer.

# UPGRADE IN THE LABORATORY

UND’s Department of Medical Laboratory Science receives a new blood analyzer courtesy of Sysmex America.

Medical Laboratory Science (MLS) students at the UND School of Medicine & Health Sciences (SMHS) are getting an upgrade.

In May 2021, the Department of Medical Laboratory Science at the School learned it was to be the recipient of a new Sysmex® XN-450 automated hematology analyzer. The analyzer was a gift from Sysmex America, a global laboratory technology company that provides diagnostic analyzers, reagents, and information systems for laboratories, medical colleges, and healthcare facilities throughout the hemisphere.

And to hear MLS program Chair Brooke Solberg tell it, the donation came none too soon.

“Often educational programs like ours get older analyzers donated to them – from a clinical affiliate or from a lab where one of our former students works that is replacing it with newer technology,” said Solberg. “While we certainly use and appreciate those donations, the opportunity to have a brand-new one is very exciting.”

Part of why the gift is so significant, added Solberg’s colleague Heather Gilbert, manager of the School’s Dr. Robert and Charlene Kyle Medical Laboratory, is that this new machine is exactly the type of technology being used in hospital and clinic laboratories now—and in some cases is even newer than analyzers in area labs.

“And our students get to use it,” Gilbert said. “It’ll help them connect the dots a little bit.”

As Gilbert explained, human blood is comprised of plasma, a liquid, and solid cellular components: white blood cells, red blood cells, platelets, and so on. What this analyzer allows program students to do now is assess more accurately the different levels of these components in blood samples, giving users a better complete blood count. It also can assess other body fluids as needed.

“Early on, our focus is more on the theory and manual side of things, so later in the program when students get to their clinical rotations and see all of the automated and hi-tech pieces, there can be a steep learning curve,” she added. “Being able to expose them to this technology sooner is huge—not only on the application but on solidifying their understanding of clinical knowledge.”

Solberg added that earlier exposure to this type of equipment also takes some teaching pressure off of the program’s affiliated clinical sites, which is helpful given that many of them are facing staffing shortages.

According to Gilbert and Solberg, the program was exploring the purchase of a new analyzer with Sysmex when the donation essentially fell into their laps.

“It was a no-brainer for us,” smiled Sharon Johnson, director of Hemostasis Business Development for Sysmex, who worked with Gilbert and Solberg on the analyzer’s acquisition. “When we see somebody who’s doing good work – what a joy it is to be able to place something brand new in a place that has done so much for medical laboratory science. The effort Heather made to keep an older instrument up and running for her students showed that the program values hands-on, instrument training in the classroom. So we decided an ‘upgrade’ was in order! Why wouldn’t we want to partner with a school that puts its money where its values are?”

The Sysmex Education Partners program began in 2014 and has donated 20 automated hematology instruments to schools with MLS programs, said Johnson. Recipients include traditional two- and four-year colleges, as well as technical schools and hospital-based programs designed for students who have already earned an undergraduate degree.

UND fit several of those categories, said Gilbert, referencing UND’s affiliation with Mayo Clinic and other clinical sites across the region, and UND’s distance, histology, and “categorical” programs for working laboratory professionals.

“They told us the size of our program in comparison to others made us that perfect candidate for their [educational] program,” Gilbert said. “We’re quite large for an MLS program. We have a diverse student population as well. That was significant. We’re not only for on-campus 18-to-22 year-olds – we have a lot of non-traditional students that complete our programs.”

Or as Johnson put it, the SMHS “has made major investments to create a positive learning environment for many medical professions, including [Medical Laboratory Science]. It feels really good to be able to put an instrument in a place where they appreciate it.”

The gift totals approximately \$100,000 and includes ancillary analyzer supplies for three years. The machine itself was installed over the summer and is now being used by MLS students of all levels and tracks, which, added Solberg, will be good for much-needed recruitment purposes for the profession.



“We are seeing desperation at some medical labs,” said Solberg, referencing the shortage of medical laboratorians that the pandemic exacerbated. “Individuals from health systems are reaching out to us non-stop – to help connect them with former and upcoming graduates they could hire. People had reached out before, but the number of requests has really grown lately. We want to do everything we can to help them.”

New technology at the School is one way to start.

“As a company led and driven by laboratory scientists, we focus on the important work of supporting the professionals that provide the insights to determine next steps for treatment,” stated Andy Hay, Chief Operating Officer of Sysmex America. “We are very proud to partner with the UND SMHS as we continue to promote the next generation of laboratorians.”

*By Brian James Schill*





**AUGMENTING REALITY**

SMHS Department of Surgery faculty and residents test out AR technology in a simulated surgery.

# A.R. IN THE O.R.

UND's departments of surgery and computer science team up to explore augmented reality technology in the operating room.

"It's not like changing the alternator in your car where you can easily reference the repair manual or a technical read-out in the moment," explained Dr. Stefan Johnson of teaching surgery to medical students and residents. "We're still teaching with a mentor and pointing out things with a forceps or surgical instrument and saying 'cut here' or 'watch me do this and then you repeat the maneuver.'"

Laparoscopy and robotics notwithstanding, this is how surgical training has been done for centuries, said Johnson.

Thanks to a partnership between the UND's School of Medicine & Health Sciences (SMHS) Department of Surgery and the School of Electrical Engineering and Computer Sciences (SEECs) within the UND College of Engineering and Mines, though, this age-old method of surgical education is getting an update.

Over the past eighteen months, faculty from the two UND teams have been helping the Surgery Residency Program that Johnson directs experiment with augmented reality (AR) technology in the surgical suite.

Not quite virtual reality, the AR concept uses enhanced glasses that allow for supplemental images or videos to overlay what the physician sees in the operating room (OR). These images or videos can be anything, Johnson said, from radiological images like X-rays or CT scans to patients' vital signs, instructional videos, and even pages from the surgery textbook, all passed in front of surgeons' field of vision.

"So, in the old days, residents would essentially practice on cadavers and patients—they didn't have much choice,"



continued Johnson, who explained that where patient safety is concerned, the real OR is hardly the place for cumbersome, and potentially unclean, medical gear, textbooks, or video monitors. “But this technology has potential to bring better knowledge into the education environment, and for clinical use in general, safely.”

The AR glasses concept was developed by former SMHS clinical professor of surgery Mark Jensen, M.D., who helped

that works on these glasses. The Zoom capability gives us everything we want, so we basically we took over figuring out how you get the AR part to work from the technical standpoint.”

If the software and wireless connectivity issues can be ironed out, said Marsh, this relatively inexpensive technology – \$500 per pair of glasses – could radically improve the practice of not only clinical surgery but rural medicine.

“If you’re in the military or maybe with first responders in rural areas, it gives you a truly interactive telemedicine for these emergency surgery situations,” said Marsh. “This should be really exciting, because in traumatic situations I think this could save lives.”

Before such technology is deployed in the field, though, Johnson said that his vision is to get to a point where preceptors can provide such real-time instructions and feedback to learners through the glasses in the educational setting.

“It’s wide open,” Johnson continued. “You could do this in the anatomy lab, maybe put images from the surgery textbook into the glasses as students practice these operations on cadavers. You couldn’t do that in a sterile OR. We can call up any image we want in the glasses.”

And with UND leading the way, operating rooms across the region may be able to do just that.

“We now have capabilities of creating 3D reconstructions of imaging from CT scans that detail anatomical relationships of blood vessels and the location of tumors,” added Dr. Sabha Ganai, an associate professor of surgery for the SMHS who specializes in surgical oncology, hepatobiliary surgery, and endocrine surgery at Sanford Health in Fargo, N.D. “What is nice about AR glasses is it allows us the ability to superimpose the visualization of prior imaging and real time ultrasounds to help guide doing complex therapies like microwave ablations. We currently have to turn our head while we are working, but the future is an integration of our actions with what we see ahead of us.”

*By Brian James Schill*

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## “But this technology has potential to bring better knowledge into the education environment, and for clinical use in general, safely.”

DR. STEFAN JOHNSON



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UND secure a \$20,000 National Institutes of Health SHARPhub grant to study the concept. Although he retired before the grant period ended, Jensen said the fact that nothing has, to date, been published in the medical literature on AR in the surgical suite means UND has an opportunity to be a world-leader.

Enter Ron Marsh, Ph.D., professor in the SEECs who knows Jensen from their mutual interest in ham radio and asked Jensen how his team could help.

“I have a student doing research in virtual reality,” said Marsh whose team is handling the software side of the project. “We looked at some of the different glasses and settled on the set that we’re using now. Then, we were in contact with the manufacturer and discovered that they had developed a Zoom application

“Let’s say you’re a doctor in Cando, which means you’re maybe not a trauma surgeon,” Marsh mused. “And somebody’s brought in who’s critically injured. Now Cando is pretty rural. If they have a pair of these glasses, and the trauma center in Fargo has a pair of glasses, with Zoom in these glasses the two providers can connect and the doc in Cando can look down at the patient – there’s a camera in the glasses – and the surgeon in Fargo could literally see what his colleagues see.”

In effect, said Marsh, the “active” space on the AR lenses would allow the surgeon in Fargo to advise the physician in Cando by writing or mapping out, with a stylus, instructions on the Cando physician’s field of vision in real-time – cut here, suture there – from Fargo.

## UND Schools of Law and Medicine & Health Sciences announce new dual JD/MPH degree



The UND School of Law and School of Medicine & Health Sciences (SMHS) are proud to announce their new dual Juris Doctorate (J.D.) and Master of Public Health (M.P.H.) degree. The joint program provides future attorneys with a specialized, accelerated health policy track allowing them not only to specialize in public health law, but obtain an M.P.H. degree simultaneous to the J.D.

While not a new concept, the dual degree is the only one of its kind in North and South Dakota and the only such program between the states of Washington and Minnesota.

“For students interested in public health law, this is an ideal dual degree,” said Don Warne, M.D., M.P.H., director of the SMHS Master of Public Health program and its new doctoral program in Indigenous Health. “These graduates will have skillsets in health law, health policy, and public health.”

At nearly ten years old, UND’s public health program has already graduated dozens of public health professionals working across the nation in population health research, epidemiology, health systems and policy,

and Indigenous health. The program announced the world’s first doctoral program in Indigenous Health in 2020. The new dual degree with the School of Law will expand the program’s productivity, opening up the study of public health to more professionals.

“The School of Law is very excited about this new joint degree partnership with the UND School of Medicine and Health Sciences,” added Michael McGinniss, J.D., dean of the UND School of Law. “By sharing faculty expertise and curricular resources, we will provide our law students with a strong foundation of knowledge and skills for professional success in the growing field of public health. They will graduate very well-positioned to serve both public and private health institutions in meeting their legal needs and obligations.”

Graduation requirements for completing the degrees are the same for other dual degrees at the Law School, which “houses” the program, added McGinniss. The School of Law will accept up to nine credits of courses taken as part of the M.P.H. program towards completion of the J.D.

## Flom-Meland named new chair of UND’s Department of Physical Therapy



**Cindy Flom-Meland, P.T., M.P.T., Ph.D.**

Professor Cindy Flom-Meland, P.T., M.P.T., Ph.D., has been named chair of the UND School of Medicine & Health Sciences Department of Physical Therapy (PT).

A veteran practitioner and faculty member

who teaches in the areas of communication and professional behavior in PT, in addition to motor control, psychology, and neuro-rehabilitation in PT, Flom-Meland takes over the role of chair from Dave Relling, P.T., Ph.D., who was recently named the School’s new Associate Dean for Health Sciences. She is only the fourth department chair in its more than 50-year history and its first female chair, taking the reins of a program formerly managed by Relling and his predecessors Tom Mohr and former Grand Forks mayor Henry “Bud” Wessman.

Having earned both her Bachelor of Science in Physical Therapy and Master of Physical Therapy degrees from UND in 1991 and 1993, respectively, Flom-Meland earned a doctorate in teaching and learning from UND’s College of Education and Human Development in 2004. A full professor in the Department since 2018, she began as a PT instructor for UND in 1998.

“I am excited for the opportunity and the challenge of being department chair,” said Flom-Meland. “I am following in the footsteps of great leaders, and look forward to working with the faculty and staff of the PT program to carry on the great tradition of UND PT.”

The SMHS Department of Physical Therapy oversees the University’s three-year Doctor of Physical Therapy (DPT) program, which has graduated at least 98% of its matriculants since 2018.

## Scott Engum named Associate Dean of UND School of Medicine & Health Sciences Southeast Campus



**Scott Engum, M.D.**

Dr. Scott Engum, professor of surgery with the UND School of Medicine & Health Sciences (SMHS), has been named Associate Dean for the School's Southeast Campus

in Fargo. Engum succeeds Dr. Cornelius "Mac" Dyke, who was recently named chair of the SMHS Department of Surgery.

A widely published practitioner-scholar, Dr. Engum received his medical degree from the UND SMHS in 1989. After completing both a general surgery residency and pediatric surgery fellowship at the Indiana University (IU) School of Medicine, Engum was a professor of surgery with the IU Department

of Surgery until 2014, when he moved back to North Dakota to practice in Fargo.

A fellow with the American College of Surgeons, American Academy of Pediatrics, and American Pediatric Surgical Association, Dr. Engum is also an award-winning instructor who has secured numerous research grants and fellowships, most of which have focused on improving medical education. He is certified by the American Board of Surgery in both general and pediatric surgery.

"I am very excited and appreciative of the UND School of Medicine & Health Sciences for allowing me the opportunity to transition back into an academic leadership position on the frontline with students, faculty, and

curriculum," noted Engum, who practices pediatric surgery at Sanford Health. "I was incredibly blessed with the training I received at SMHS, which has allowed me to reach all of my professional aspirations. Becoming an active member of the UND team to make each student's journey as rewarding as possible is my primary focus."

As the primary representative of the SMHS and the Office of the Dean in North Dakota's largest metro region, the associate dean in Fargo develops and meets curriculum goals and objectives for the School, provides a resource for volunteer faculty, recommends campus physicians for clinical appointment, and serves as a student advocate who organizes third- and fourth-year student clinical rotations in the community.

## UND School of Medicine & Health Sciences announces Relling as new Associate Dean for Health Sciences



**Dave Relling, P.T., Ph.D.**

The UND School of Medicine & Health Sciences (SMHS) is pleased to announce that Dave Relling, P.T., Ph.D., will be the School's new Associate Dean for Health Sciences. As of July

1, 2021, Relling replaces retiring associate dean Tom Mohr, who has held the position since 2014.

A graduate of the SMHS physical therapy program and former chair of the Department of Physical Therapy (PT), Relling comes into his new position with a wealth of experience at the level of both health sciences education and departmental operations at UND.

"The health sciences departments and programs at the SMHS have excellent leadership, faculty, staff, and students," said Relling, who took his doctorate from UND's former Department of Physiology, Pharmacology and Therapeutics. "It is an

honor to have this opportunity to work cooperatively with each of the department chairs and programs as they serve the people of North Dakota through education, research, and service."

A consistent researcher and award-winning instructor, Relling claims many publications and conference presentations, most of which focus on the biomechanical analysis of movement and sport, utilization and assessment of technology in physical therapy education, and cardiovascular and pulmonary physiology. An advocate of interprofessional education, Relling teaches courses on cardiopulmonary physical therapy, differential screening for physical therapists, and introductory patient care techniques.

A Dilworth, Minn., native, Relling is a member of the Board of Directors of the Federation of State Boards of Physical Therapy, the physical therapy professional association, and the Health Regulatory Research Institute. He has also served on the North

Dakota State Board of Physical Therapy.

"As the first Associate Dean for Health Sciences, Tom demonstrated exceptional leadership, developed strong interprofessional collaborations, and assured a solid foundation for continued excellence in educating and developing future clinicians in the health professions," Relling said. "He will be greatly missed, but he leaves a legacy of outstanding department chairs and program directors who continue to advance their respective programs to prepare the healthcare workforce for an ever-changing healthcare environment."

As Mohr put it, despite the evolution of the PT and health sciences curricula over the years, the quality of students coming into the School has remained consistently high. "They are certainly some of the best and brightest students on campus," he said. "It was that way in 1978 and it is the same in 2021."



## Golovko receives major NIH grant to study metabolism in the brain



**Mikhail Golovko, Ph.D.**

The National Institutes of Health (NIH) has awarded a \$2.3 million R01 grant to Mikhail Golovko, Ph.D., associate professor in the Department of Biomedical Sciences at the UND School of Medicine & Health Sciences (SMHS).

The new R01 grant, the most prestigious research award of its type the NIH provides, will allow Dr. Golovko's team to continue its study of a unique mechanism for brain-blood regulation specifically focused on understanding how the brain controls oxygen and nutrient uptake.

"Understanding brain metabolism and the ways to correct it under pathophysiological conditions has long been a research

interest of mine," said Golovko, whose lab has maintained uninterrupted NIH funding for the past 12 years, including multiple R01 and R21 category grants. "The grant will also allow our lab to explore long-term blood supply regulation in the brain, including novel vessel formation, a process called angiogenesis."

According to Golovko, either too much or too little angiogenesis in the brain can be problematic. Decreased angiogenesis may cause brain ischemia (stroke), neurodegeneration, and increase age-related damage, while increased angiogenesis has been linked to the development of brain tumors and other pathologies. And because brain angiogenesis is critically important for recovery after stroke and traumatic brain injury, a better understanding of the mechanisms regulating adult cerebral

angiogenesis can help researchers identify new therapies for these conditions.

And now, Golovko's team has a green light from the NIH to further pursue its work on developing a way to control angiogenesis.

"Our novel mechanism for modulating brain angiogenesis was originally discovered using mass spectrometry," continued Golovko, who is also director of the SMHS Mass Spectrometry Core, describing the lab technique used to measure the mass-to-charge ratio of ions in a solid or liquid sample. "Mass spectrometry allowed us to look at all the molecules in a sample of brain tissue and view any alterations under different conditions. Using this approach, we found a novel signaling molecule that is increased under conditions that require angiogenesis, and showed its pro-angiogenic properties."

## UND and Sanford Health launch new Graduate Medical Education programs to enhance specialty care across the region

The UND School of Medicine & Health Sciences (SMHS) and Sanford Health have officially launched their Sanford-based Hematology-Oncology Fellowship Program and Neurology Resident Training Program.

The new programs are part of a historic \$300 million philanthropic investment, announced by Sanford Health in March, to transform rural health care delivery for generations. The unprecedented expansion will bring highly sought-after clinical expertise, resources and subspecialties to North Dakota, South Dakota and Minnesota so patients can access high-quality care close to home.

Both specializations are growing in demand nationally – and both are facing a shortage of providers, according to the Association of American Medical Colleges (AAMC), with neurology in particular set to see a "substantial increase in demand" over the next decade, according to one AAMC report.

The programs are sponsored by UND SMHS and funded by Sanford. The organizations will continue to partner to develop additional training programs to address the need for more physicians across the region.

"North Dakota has a very severe shortage of neurologists," said Dr. Jau-Shin Lou, chair of neurology at both Sanford Health and UND, of the specialization dedicated to diagnosing and treating conditions such as Parkinson's disease, multiple sclerosis, and Alzheimer's disease. "We need about 40 neurologists, but we have only 22 right now. And the need for neurologists is expected to increase over the next two decades because of the aging population."

The case is similar for the cancer-based hematology-oncology specialization, added hematologist/oncologist at Sanford Health, Matthew Tinguely, M.D., whose new program will be conducting applicant interviews this fall for fellows who will begin July 2022.

"In 2017 the Centers for Disease Control released a report revealing that while cancer death rates decreased nationwide between 2006 through 2015, there was a gap between urban and rural results," Dr. Tinguely said. "Even though cancer death rates in rural America are decreasing, the decrease is not on par with urban America. In fact, the incidence of cervical, lung, and colorectal are still higher in rural America, as are death rates from cervical, prostate, colorectal, and lung cancers."

The neurology residency has accepted three residents this year for its four-year program and will have three residents per year. The three-year hematology-oncology fellowship will take two post-graduate fellows per year. In contrast with a residency, a fellowship is a program for physicians who have completed a residency in a related specialty.

## MD Class of 2025 begins studies at UND School of Medicine & Health Sciences

Seventy-three first-year medical students, members of the Doctor of Medicine (MD) Class of 2025, began their journey recently to become physicians at the University of North Dakota School of Medicine & Health Sciences (UND SMHS).

The medical students' first week was dedicated to orientation, including an introduction to UND's nationally recognized, four-year, patient-centered learning curriculum where biomedical and clinical sciences are taught in the context of an interdisciplinary educational setting.

Although orientation traditionally concludes with a White Coat Ceremony, wherein students recite the Oath of Hippocrates and receive their first white coats that have been donated by the North Dakota Medical Association, the pandemic has forced the School to reschedule its annual ceremony to later in the academic year.

This year's medical student class is notable for the fact that 45 of its 73 new students (nearly 62%) are female. This is the highest percentage of female first-year students the class has ever seen.

The students, ranging in age from 20 to 35 years and the majority of whom are from North Dakota, come to medical school with experience in an array of fields, including: athletic training, biochemistry, biology, chemistry, computer science, electrical engineering, forensic science, genetics, Italian, kinesiology, medical laboratory science, microbiology, music, nursing, psychology, and social work.

### New MD students with hometowns:

- Emily Anderson, Bismarck, N.D.
- Thomas Baker, St. Augusta, Minn.
- Hollie Ann Bearce, Maltby, Wash.
- Johnathan Beaudrie, Cody, Wyo.
- Tatiana Roberts, Deland, Fla.
- Trysten Beyer, Minot, N.D.
- Katrina Blommel, Freeport, Minn.
- Trenton Bohan, Bismarck, N.D.
- Mika Bordak, Buffalo, Minn.
- Alexa Braaten, Oxbow, N.D.
- Regan Bradley, Bismarck, N.D.
- Andrew Braun, North Oaks, Minn.
- Lauren Hollingsworth, Bismarck, N.D.
- Seth Buryska, Rochester, Minn.
- Whitney Carriveau, Mankato, Minn.
- Matthew Cohoe, Williston, N.D.
- Sarah Didonna, Bismarck, N.D.
- Jack Dirnberger, Waconia, Minn.
- Anyamaria Edwards, Grand Forks, N.D.
- William Fleck, Mandan, N.D.
- Lauren Fleming, Bismarck, N.D.
- Miriah Forness, West Fargo, N.D.
- April Hagemeister, Fessenden, N.D.
- Rebecca Solloway, Glenburn, N.D.
- Amanda Hansmann, Farmington, Minn.
- Brenna Hanson, Bismarck, N.D.
- Courtney Hanson, Bismarck, N.D.
- Joshua Haus, Fargo, N.D.
- Parker Heger, Underwood, N.D.
- Edjay Ralph Hernandez, Malolos, Bulacan, Philippines
- Austin Hill, Bismarck, N.D.
- Elizabeth Holzwarth, New Rockford, N.D.
- Chloe Kaelberer, Plymouth, Minn.
- Joshua Kaelberer, Bismarck, N.D.
- Emma Kangas, Dayton, Minn.
- Shahmeer Kanwar, Watford City, N.D.
- Megan Kelly, Moorhead, Minn.
- Sean Keup, Plymouth, Minn.
- Bo Lauckner, Leeds, N.D.
- Brianna Lupo, Eden Prairie, Minn.
- Lindsey Martens, Sartell, Minn.
- Amanda Mathies, Lino Lakes, Minn.
- Kennedy Mueller, Bismarck, N.D.
- Liberty Nguyen, Eyota, Minn.
- Danielle O'Hare, Mounds View, Minn.
- Jordan Oliphant, Spring Creek, Nevada
- Morgan Pierce, Mandan, N.D.
- Abigail Pleiss, Mankato, Minn.
- Annika Price, Bismarck, N.D.
- Mark Raymond, Bozeman, Mont.
- Grace Rerick, Grand Forks, N.D.
- Sarah Rhodes, Duluth, Minn.
- Cole Rokke, Fargo, N.D.
- Tessa Rose, Fargo, N.D.
- Mikaylah Ross, Valley City, N.D.
- Regina Schlichting, Bloomington, Minn.
- Connor Sheridan, Gilbert, Ariz.
- Nicole Sinclair, Fargo, N.D.
- Mikayla Soelter, Fairmont, Minn.
- Allie Stover, Fargo, N.D.
- Sarah Streed, Eagan, Minn.
- Steffan Stroh, Underwood, Minn.
- Adam Swanson, Fergus Falls, Minn.
- Marie Tate, Crookston, Minn.
- Maria Tibesar, St. Paul, Minn.
- Chase Urie, Proctor, Minn.
- Ethlyn, Voorhies, Grand Forks, N.D.
- Brailyn Weber, Fargo, N.D.
- Kyle Wegner, Dickinson, N.D.
- Benjiman, Wilebski, Greenbush, Minn.
- Jackson Wilson, Rochester, Minn.
- Dylan Wrede, Edina, Minn.
- Joel Zimmerman, Elk River, Minn.

**John Blaisdell, BS Med '58**, passed away June 25, 2021, in Snowflake, Ariz., of Alzheimer's. He was born to Henry and Ann (Larson) Blaisdell on November 16, 1933, in Minot, N.D. John graduated from Minot High School and received an appointment to West Point. Not wanting a military career, he joined the army to meet his military obligation and served proudly with the 82nd Airborne Division. After his honorable discharge, he went to the University of North Dakota and University of Cincinnati and became a board certified surgeon. He is survived by his wife of 59 years, Sylvia Blaisdell; his sister, Kay Hovland; brothers, George Blaisdell and Bill Hoppe; daughters, Lori Bickler and Nancy Blaisdell; and son, Mark Blaisdell; his grandchildren, Ryan and Reed Bickler, Andrew Garrett, and Brett Blaisdell. He is preceded in death by his parents and stepmother, Dorothy Hoppe, and brother, Henry Blaisdell, Jr.

**Blaine V. Houmes, MD '88**, age 68, of Cedar Rapids, Iowa, died peacefully at his home on June 6, 2021, of amyloidosis, a blood cell malignancy. Private interment will occur at a late date. His survivors include his beloved wife, Nancy Pfutzenreuter; his two children, Sam (Cindy Weaver) of Anoka, Minn., and Katrina (Sean Atwell) of Minneapolis, Minn.; and three sisters, Nancy Stage (Tim) of Dike, Iowa, Cleda Houmes of Salinas, Calif., and Allison Larson of Algona, Iowa. Blaine was born Sept. 13, 1952, in Cedar Rapids, the son of Dr. Richard L. Houmes and Alice L. (Kubec) Houmes. A 1970 graduate of Central City High School, he earned a bachelor's degree in microbiology at Iowa State University in 1974. He continued with one year of graduate school at Ames, then began a career in a Cedar Rapids quality assurance lab and quickly found it boring. Eager for something completely different, he was hired as an EMT at the Cedar Rapids Area Ambulance Service. During this new role he simultaneously completed one of the first paramedic certifications in Iowa, along with a second bachelor's degree (in English) at the University of Iowa. He followed this by volunteering as a human "guinea pig" for a year in a USDA nutrition laboratory in Grand Forks, N.D. Blaine graduated from the University of North Dakota School of Medicine in 1988, and then completed internship and residency programs at Cook County Hospital in Chicago. He practiced emergency medicine at Mercy Hospital in Cedar Rapids for many years then briefly at Jones Regional Hospital in Anamosa until retirement. He was a member of the Iowa Medical Society, the American College of Emergency Physicians, the American Academy of Emergency Medicine, and the American Academy of Forensic Sciences. He served a term on the Iowa Board of Medicine and for 10 years was a deputy medical examiner for Linn County. He researched, implemented, and was director of Mercy's Sexual Assault

Nurse Examiner program, the first in Cedar Rapids. He also served on the Mercy Hospital Ethics Committee, although whenever friends learned of this they would invariably erupt in laughter. He considered medicine an honorable profession, but his true avocation revolved around his family, travels, hobbies, art, music, laughter, yearly mailings of bizarre Christmas letters, and Abraham Lincoln.

**Kenneth Kihle, BS Med '57** passed away at his Lake Metigoshe, N.D., home on July 9, 2021, with his family by his side. Dr. Kenneth Kihle was born April 4, 1934, in Noonan, N.D. His parents were Art and Linnie Kihle. In 1940, the family moved to Minot where he graduated from high school in 1952. He attended one year of college at Minot State and then transferred to the University of North Dakota in 1953. He graduated with a bachelor's degree in arts and sciences and was elected to the Phi Beta Kappa Honor Society. He attended two years of medical school at UND. In 1957, he transferred to University of Kansas School of Medicine and received his degree in medicine in 1959. He interned at St. John's Hospital in Fargo from 1959-1960. He and LeAnn Cole were married June 3, 1957, in Sarles, N.D. In July 1960, they moved to Bottineau, N.D., where Dr. Kihle began his medical practice with Dr. Bill McCullough. He co-founded the Bottineau Clinic and was instrumental in raising \$280,000 towards a St. Andrews Hospital addition. He helped create the Bottineau Ambulance Service in 1961 and served as both medical director and instructor for 40 years. He was an assistant professor and preceptor for clerkships for the UND medical school. Ken served as regional vice president of the American Heart Association. He was the medical consultant for Head Start preschool. He also served as Federal Aviation Association medical examiner. Ken was a member of the Bottineau school board for 12 years. He was one of the founders of the foundation at Dakota College in Bottineau. Dr. Kihle was a founder, director, and instructor at Turtle Mountain School of medical technique for 25 years. He served in the Army Reserve from 1961-1963 and the North Dakota National Guard from 1963-1968. Dr. Kihle served as medical director of the Bottineau Good Samaritan Center until present. He received many awards during his career, which included the J.C. Distinguished Service Award, National Merit Award from the American Heart Association, and the Outstanding Rural Provider Award in 2007. In 2010, Dr. Kihle was recognized for 50 years of service to the community of Bottineau and continued to practice in Bottineau and Westhope. Dr. Kihle was 22-year cancer survivor and encouraged his patients to take all treatments available. He was an avid reader, gardener, and loved to travel. With his family, he traveled to all 50 states.



He and LeAnn traveled to 55 countries, visiting all seven continents and had the opportunity to be a part of a 21-day tour around the world. Of all the places visited, Dr. Kihle was able to return to Thailand 14 times, to China three times, Australia twice, and many times to Jamaica. He is survived by his wife, LeAnn; sons, Timothy (Cynthia) of Bottineau, Mark of Vail, Colo., and Todd (Jo) of Bottineau; and the joy of his life, his grandchildren, Zachary Kihle of Bottineau and Alexis Kihle of Denver, Colo.; brother Galen (Verla) of Minneapolis; and numerous nieces and nephews. He was preceded in death by his parents, twin brother, Donald, and sister-in-law Judy.

**Daniel Lee Moline, BS Med '67**, was born on April 24, 1944, and passed away on May 28, 2021.

**Nichollette Celeste Schulz, BS MT '66**, was born Aug. 1, 1944, in Beulah, N.D., and passed peacefully on Monday, May 10, 2021, in Laguna Woods, Calif. Born to Jack and Martha Fiergola, "Nicky" had five siblings: Kenneth Stelzmler (passed), George Stelzmler (passed), Marian Spears (surviving and living in Kerrville, Texas), Greg Fiergola (passed), and Jackie Miller (passed). She is survived by her husband Norlyn, daughter Britany Shotkoski and her husband Paul (of Omaha, Neb.) and their two children Nick and Lauren, and her son John Schulz and his wife Erika (of Bellevue, Neb.) and their four children Jeff, Logan, Jack, and Elliana. Nicky went to college at the University of North Dakota, and graduated with a medical technology degree in 1966. After graduating, she married the love of her life and husband of 54 years, Norlyn Schulz. Nicky worked as a med tech until the birth of Britany in 1968. After the kids were grown, she worked as a fundraising coordinator for various charities in Bismarck, including the North Dakota Heritage Foundation, the Dakota Zoo, Good Shepherd Lutheran Church, and Bismarck State College Foundation. She spent many hours during her lifetime volunteering for charities, including the American Diabetes Association and her church. Nicky's pride and joy was her family, spending countless hours attending and cheering her kids' and grandkids' sporting events, music events, dance recitals, graduations, and being there for everyone. She loved it! Nicky spent countless hours creating memory (photo) albums and doting on her children and grandchildren. She loved traveling and the planning related thereto, giving her children and grandchildren experiences of new cultures and food. Nicky loved to live. Nicky was soft-hearted, friendly, giving, and generous with her time and talents, loved to create memories with her family and friends, was caring, kind, loved people and creating relationships, protective, faithful, musical, always a bright light, and helpful. She was someone you would turn to when you needed advice, and will be greatly missed by all.

**Daryl A. Sieg**, 55, of Grand Forks, N.D., passed away on May 5, 2021 at Sanford Medical Center in Fargo. He was born March 12, 1966, in Northwood, N.D., to Ardell and Wanda (Wiegandt) Sieg. He grew up on the family farm outside of Thompson, N.D., and graduated from Red River High School. Daryl worked a variety of jobs after high school until he found his true calling in life, medicine. He started his medical career as an EMT while he attended Northwestern Technical college to earn an Associate Applied Science degree in Paramedicine in 1995. He was dedicated to the care of patients as a paramedic and manager of the volunteer ambulance service in Oakes, N.D., but felt a calling to do more. He furthered his education in biology at Northern State University and the University of Minnesota-Crookston. In 2000, Daryl received his Primary Care Associate (or physician assistant, PA) degree from Stanford University. He also held national certifications in family practice and surgery. Daryl practiced as a PA in both Rapid City, S.D., and Fargo, N.D. His experience included family medicine, emergency medicine, neurosurgery, and cardiothoracic surgery. As a physician assistant, Daryl was dedicated to providing compassionate care for his patients. He took the time to listen and explain treatment options to patients. An allergic reaction to surgical gloves changed his path and he began working in administration at Sanford Medical Center. In 2016 he took a position at the University of North Dakota's School of Medicine & Health Sciences as an assistant professor of physician assistant studies, where he taught and shared his knowledge with the next generation of physician assistants. While working at UND, Daryl received his Masters of Science in Physician Assistant Studies from A.T. Still University of Health Studies with a concentration in education and leadership. Outside of his medical career, Daryl always put his family first. He was a proud dad, grandpa, uncle, brother, and son. He loved spending time with family at the lake, on an annual canoe trip, boating, fishing, and riding his Harley. He enjoyed traveling with his fiancée, Amy, as well as his children. He was always up to have a good time with friends and family, enjoyed listening to music, and spreading humor. Daryl is survived by his fiancée Amy Wilkens; mother Wanda Sieg, children Sage (J.J.) Doehler, Andy (Holly) Johnson, Robert (Shannon) Sieg, Alexa Sieg, River Dockter, Isabelle Muchow, and Gabriella Muchow; brother Darren (Lavon) Sieg; Kyle (Tim) Shern; Jeri (Carey) Isaacson; grandchildren: Piper Sieg, Zachary Sieg, Ethan Johnson, Emery Johnson, Ivy Johnson, and Avalon Johnson; aunt Marilyn Sieg; and numerous nieces, cousins, and nephews. He was preceded in death by his father, Ardell.

■ '00s

**Andrew McCoy, MD '07**, is now the general surgeon at the Tioga Medical Center in Tioga, ND. McCoy, a Williston native, had been the general surgeon at the Mark Twain Medical Center in central California for seven years.

**Constance Soper, MPAS '08**, is now seeing patients at the Essentia Health-West Acres Clinic in Fargo, N.D. Soper specializes in family medicine.



Constance Soper, PA-C

**AT THE FAIR**

Young local artists help colorize the SMHS poster at the Grand Forks County Fair in July 2021.



**HEALTH PEDDLER**

SMHS Simulation Center director Dr. Jon Allen (right) and his spouse gear up. In Sept. 2021, Dr. Allen biked 525 miles in eight days – from San Francisco to Los Angeles, Calif. – for the Arthritis Foundation's Arthritis Bike Classic.



**FARE THEE WELL**

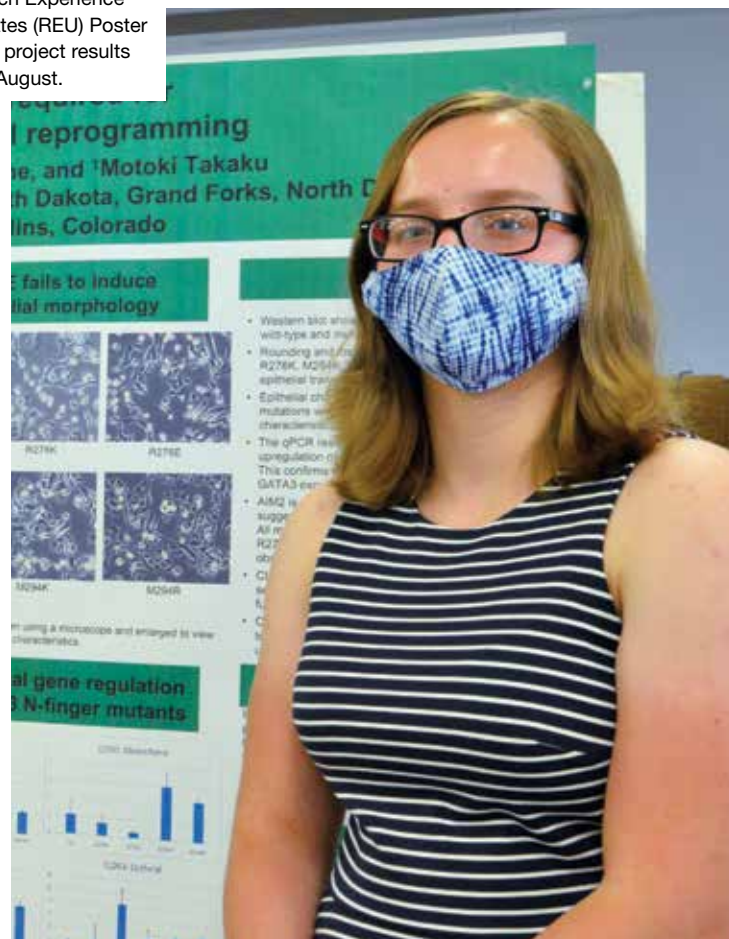
Former SMHS Associate Dean of Health Sciences Tom Mohr (left) receives a gift from his successor, Dave Relling, at Mohr's retirement celebration in June 2021.







**REU READY?**  
 Participants in our annual Summer Research Experience for Undergraduates (REU) Poster Session discuss project results at the SMHS in August.





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# UPCOMING EVENTS\*

## JOGGIN' WITH JOSH

4:30 p.m. | Thursday, Sept. 23

Outside the UND School of Medicine & Health Sciences  
[med.UND.edu/events/joggin-with-josh](http://med.UND.edu/events/joggin-with-josh)



\* Events subject to change per local COVID-19 conditions and policies.



## HOMECOMING 2021

Mark your calendars for Homecoming 2021,  
to be held Oct. 18-23 in Grand Forks.  
[med.UND.edu/events/homecoming](http://med.UND.edu/events/homecoming)