

NORTH DAKOTA MEDICINE

THE UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE & HEALTH SCIENCES

From Lab Bench to the Bedside

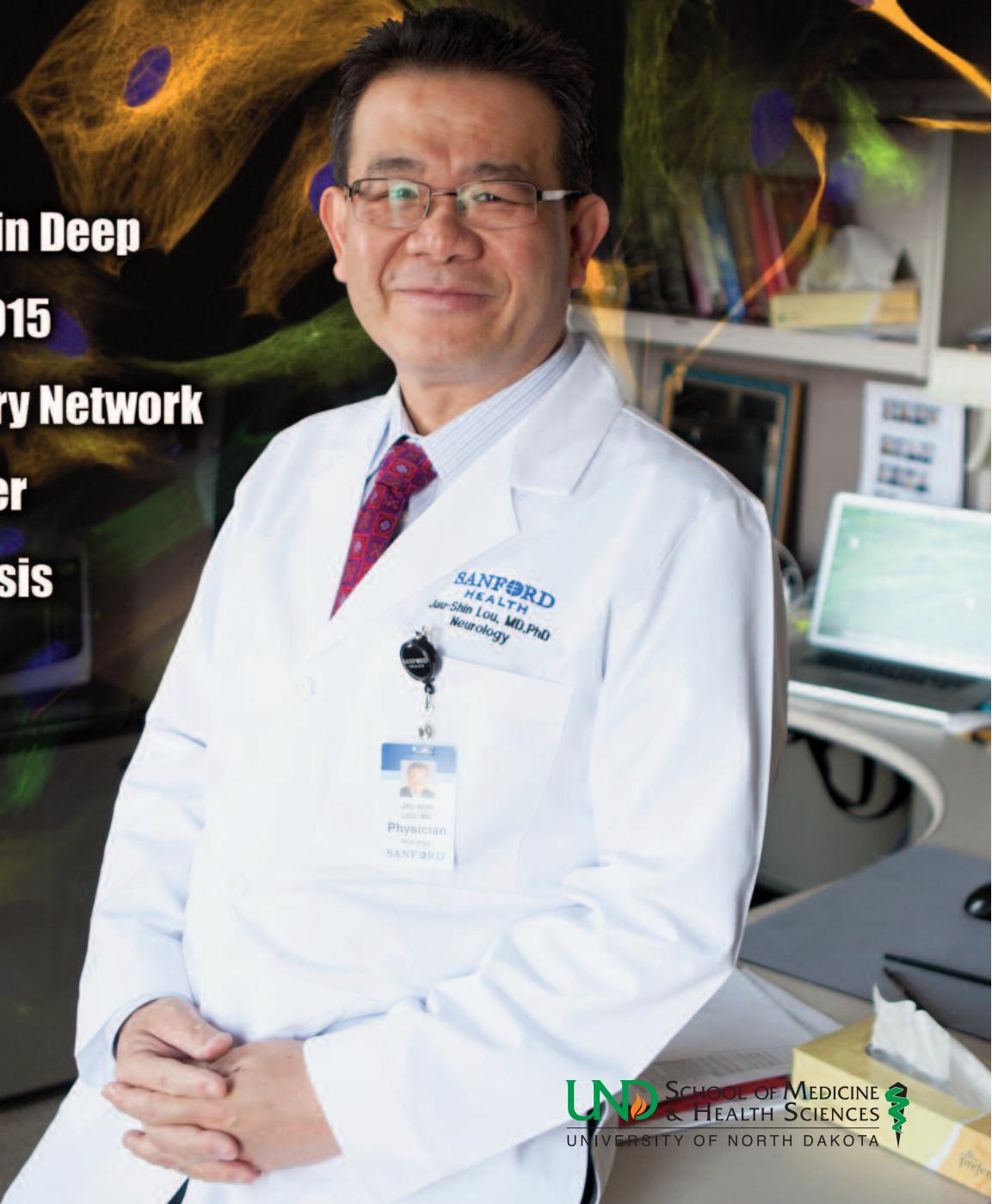
More than Skin Deep

PA Class of 2015

ND Brain Injury Network

A New Chapter

Photo Synthesis



Spring 2014

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Building the Healthcare

“It is, after all, the people’s building!”



Let the building begin! The new School of Medicine and Health Sciences facility is beginning to take shape. Support pilings have been hammered into the ground to support the new building, and groundbreaking will take place early this summer, with an expected completion date of two years hence. The building will be a four-story facility with a north-south oriented “Main Street” around which will be clustered various educational classrooms, small-group rooms, lecture halls, simulation and gross anatomy labs, and other associated pedagogical support space. To the east will be a wing for faculty and administrative offices, and the west wing will house much of our research enterprise. Our architectural consultants from JLG Architects currently are preparing construction blueprints that will be used to solicit bids for the construction phase of the project. One can feel the excitement build as everyone realizes that what once was a dream is fast becoming a reality! One of the features of the layout that I really like are the two offices that will be by the front door of the building to service our two most important constituencies—students and the people of North Dakota who are footing the bill for the new facility. The Office of Student

Affairs and Admissions will be front and center to welcome prospective and to assist current students. The Office of Alumni and Community Relations will similarly welcome and assist the public and alumni visiting the building. We very much hope that the community will utilize their building, and to facilitate this, we’ve designed a spacious learning hall (auditorium) right by the front entrance and adjacent to the two office suites. It is, after all, the people’s building! You can see renderings and floor plans of the building at this link:
<http://www.med.und.edu/construction/renderings.cfm>.

But let’s keep the excitement about the new building in perspective—if that is possible!—and recall that the primary reason we need a new building is to accommodate the class size expansion that will be required to provide the healthcare workers we’ll need in the future as our population ages and grows. So how are we doing on helping to provide the healthcare workforce our citizens need and deserve? Pretty well, I think. We’ve already expanded the medical student class size by eight students this past year, and the health sciences class size by 15. And we’ve added new residency slots in rural family

Workforce

medicine, rural surgery, and hospitalist medicine. Eight more medical students (a total of 16 additional students) and 15 more health sciences students (a total of 30 additional students) will join us this fall. Thanks to enhanced emphasis during our admission process on the School's rural-care-delivery mission, we've increased the percentage of the matriculating class that hails from rural North Dakota. This is vitally important, since being raised in a rural area is one of the best predictors of subsequently practicing in a rural area. As a consequence of both the recruitment of rural students and the expansion of class size, we already have increased the number of students in the first-year medical school class that hail from rural North Dakota by four students when comparing the Class of 2017 to that of 2011. This occurred at the same time that there actually has been more population growth in urban areas than rural areas, oil boom notwithstanding.

Importantly, several additional residency slots just were approved by the School of Medicine and Health Sciences Advisory Council—two additional rural family medicine slots, one in Hettinger and one in Williston; an additional rural surgery slot; and an additional hospitalist slot centered in Bismarck. We are pleased to note that both the Hettinger and Williston rural training tracks in family medicine recently have been approved and endorsed by the governing Accreditation Council for Graduate Medical Education, thus validating the solid educational experience available in these two western locations (the first year of the three-year rural-track family medicine residency is spent on the home campus of either the Bismarck [Hettinger] or Minot [Williston] Center for Family Medicine). A second round of residency slot competition will take place this spring, with a focus on developing residency programs that address behavioral and mental health issues, and programs that suggest novel and innovative approaches to resident

education. Applications for the remaining residency slots are due July 1, and the awards should be announced shortly thereafter. So between a new building and new and expanded programs, the School is doing its best to help address North Dakota's healthcare needs.

"It is, after all, the people's building!"



Joshua Wynne, MD, MBA, MPH
UND Vice President for Health Affairs
and Dean

Seeking a better NET result

In a discovery that may have implications for patients who suffer from chronic lung diseases, researchers in the Department of Basic Sciences at the UND School of Medicine and Health Sciences have garnered international interest for their work on the role a protein plays in regulating how neutrophils—the body's "first responders" to an infection—capture and filter out pathogenic bacteria.

The prestigious international *Journal of Infectious Diseases* (*JID*) will publish a paper by the research team led by Assistant Professor Jyotika Sharma, PhD, a microbial immunologist. Her team is composed of Atul Sharma, PhD, postdoctoral fellow; Anthony L. Steichen, third-year PhD student; Christopher N. Jondle, second-year PhD student; and Assistant Professor Bibhuti B. Mishra, PhD.

The *JID* is the premier global journal for original research on infectious diseases, describing research results from microbiology, immunology, epidemiology, and related disciplines, on the pathogenesis, diagnosis, and treatment of infectious diseases; on the microbes that cause them; and on disorders of host-immune responses. The *JID* is an official publication of the Infectious Diseases Society of America, which has more than 9,000 members.

The title of the paper by Sharma et al. is "Protective role of Mincle in bacterial pneumonia by regulation of neutrophil mediated phagocytosis and extracellular trap formation."

Studies by Sharma's team show the protective role of a host protein called Mincle in defense against bacterial pneumonia by coordinating bacterial clearance mechanisms of the body's "first-responder" immune cells called neutrophils. Specifically, they found a novel role for Mincle in controlling a unique function of neutrophils called "NET" formation, (an acronym for neutrophil extracellular traps), which may have very widespread implications in lung disease conditions beyond pneumonia.

While the NETs are known to trap and kill bacteria, they have also been shown to cause inflammation in some autoimmune diseases. Sharma and her team think that too much NET formation in diseases where neutrophils are present in very high numbers may be the root cause of inflammation in these diseases. So the information about involvement of Mincle in NET formation can offer new means to design effective treatments for these diseases.

"Mincle-mediated NET formation is currently a very exciting area of research in my lab," Sharma said.

"And I can see how important these studies can be, not only for understanding lung diseases per se but also several autoimmune diseases like arthritis and lupus where too much NET formation is already shown to be part of the problem. It is of great interest for us to see if NETs or for that matter Mincle can be used as a diagnostic biomarker or as a predictor for these diseases. This will certainly open up new avenues for the development of therapeutic strategies for several inflammatory diseases."



Dr. Sharma's lab team, from left to right, in front are Jyotika Sharma and Brandilyn Binstock, an undergraduate student. In back are Christopher Jondle, second-year PhD student; Atul Sharma, PhD, postdoctoral fellow; Anthony Steichen, third-year PhD student; and Benjamin Larsson, an undergraduate student.

Funding for Sharma and her team is provided by grants from the National Institutes of Health, the American Heart Association, and a UND Faculty Research Seed grant to Sharma.

Sharma's team has plans for future research. "We have already started looking at NET formation and the role of Mincle in this process by collaborating with clinicians at the Mayo Clinic in Rochester, Minn.," Sharma said. "We are very excited about the prospects of these studies and have submitted a grant proposal based on our findings."

New UND programs will train family medicine doctors in Hettinger and Williston

The University of North Dakota School of Medicine and Health Sciences will partner with West River Health Services in Hettinger and Mercy Medical Center in Williston in training physicians to practice rural family medicine. The first residents will begin training on July 1.

In order to practice medicine, medical school graduates must hone their clinical skills in a post-graduate training program called a residency. After completing four years of medical school, newly minted MDs must also complete a three-year residency to gain board certification in family medicine. The first year of each residency will be primarily situated at the UND Centers for Family Medicine in Bismarck and Minot; the next two years of the three-year programs will be primarily in Hettinger and Williston.

"Where a doctor completes a residency is a good predictor of where that doctor will practice," said Joshua Wynne, MD, MBA, MPH, UND vice president for health affairs and dean of the UND School of Medicine and Health Sciences. "As we expand our medical student class sizes, we are fortunate that we simultaneously are able to increase residency slots; otherwise, our students would be destined to do training out of state. But if a UND medical school graduate completes a residency in North Dakota, there is a 2 out of 3 chance that graduate will practice within the state."

"We are excited to be offering the UND residency program in Williston," said Matt Grimshaw, president of Mercy Medical Center. "This will be a significant development for our community. We hope the program will increase the capacity for primary care while providing a very good experience for the residents."

In 2011, the SMHS and its Advisory Council instituted the Healthcare Workforce Initiative (HWI), a four-pronged plan to help address North Dakota's healthcare workforce needs now and in the future by reducing disease burden, retaining more graduates for practice in North Dakota, training more practitioners, and improving the efficiency of the healthcare delivery system. The new rural family medicine training programs in Bismarck and Minot are a direct result of the HWI.

"This program is a natural for medical students with strong leadership qualities looking for intense training opportunities that can be customized to their particular needs and interests," said Jeff Hostetter, MD, program director for the Bismarck-Hettinger rural training track. "The faculty members are experienced clinicians with years of teaching experience, eager to develop a program specifically designed to graduate family physicians prepared to work in the most rural settings."

Rural communities are very motivated to expand their current commitment to medical education and to make the residents a part of the community. Both programs are accredited by the Accreditation Council for Graduate Medical Education for one resident trainee per year; both are expanding to train two residents per year in the near future.



Matt Grimshaw



Jim Long

"The Rural Training Track (RTT) is a great opportunity for WRHS and all of rural North Dakota," said Jim Long, CEO and administrator of West River Health Services. "The state needs more primary care physicians to meet the health needs of our rural communities. The RTT not only assists in the education of these medical professionals but also gives medical students a real-life experience of rural medicine. Following such an experience, the physician can then accept what one of our former (retired) physicians described to be 'The best job in the world.'

The Bismarck and Minot residency programs received strong support through an appropriation from the 2011 North Dakota State Legislature. The new residency programs will build on the longtime core programs in Minot, which was the first residency program in the state, begun in 1975, graduating a total of 160 family physicians, and in Bismarck, which initially enrolled residents in 1976 and has graduated 130 family physicians.

"I am looking forward to enrolling medical school graduates with a strong passion for full-spectrum family medicine," said Kimberly Krohn, MD, program director for the Minot-Williston program. "The residents in the program will have unlimited opportunities in high volume emergency, obstetrics, and procedural training. The leadership opportunities for the residents in the program will be tremendous."

UND eating disorder expert is awarded federal grant

Steve Wonderlich, Chester Fritz Distinguished Professor of Clinical Neuroscience at the University of North Dakota School of Medicine and Health Sciences, recently was awarded a National Institute of Mental Health (NIMH) grant to study a new treatment for binge eating disorder.

Wonderlich—with a team that includes researchers from the Fargo-based Neuropsychiatric Research Institute (NRI) and colleagues at the University of Minnesota—will be conducting closely supervised trials of the new treatment with volunteers who suffer from binge eating disorder.

The grant from the NIMH, which is part of the National Institutes of Health, is part of a longer term strategy to uncover better ways of treating this disorder. Binge eating disorder—newly introduced in the international manual of psychiatric disorders, the *Diagnostic and Statistical Manual of Mental Disorders, DSM-5*—is a psychiatric condition characterized by loss of control over eating, significant psychiatric distress, and increased risk of obesity and medical complications, Wonderlich explains.

"The project will compare a new treatment developed jointly at NRI and the University of Minnesota Medical School," said Wonderlich, who was a member of the international team that drafted the eating disorders portion of the *DSM-5*. NRI President Jim Mitchell, Chester Fritz Distinguished Professor and chair of Clinical Neuroscience, and likewise an internationally renowned eating disorders expert, also was on that *DSM-5* team.

The three-year grant will fund completion of the treatment development and also a randomized controlled trial comparing this treatment to another typical treatment for binge eating disorder.

Wonderlich, the NRI's director of clinical research, said the new treatment is a variation of another treatment for bulimia nervosa that was developed by the same research team and recently tested in a scientific study.

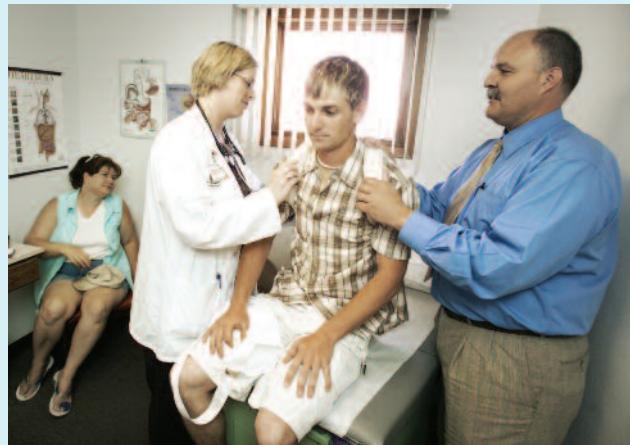
"Binge eating disorder is a condition that significantly impairs people's lives and increases their risk of significant medical complications. New treatments for binge eating disorder are clearly needed, and we are looking forward to completing the trial and hopefully establishing another effective treatment," Wonderlich said.

Researchers on the NRI/UND team are affiliated with the Sanford Health Eating Disorder and Weight Management Center.



Wonderlich

Join our Family Medicine Faculty!



The UND School of Medicine and Health Sciences is currently recruiting for family medicine physicians to be full-time faculty members. The chosen applicants will be Assistant or Associate Professors (depending upon experience) in fully accredited, university-administered, community-based family medicine residency programs in Minot or Bismarck, N.Dak.

Applicants need to be eligible for medical licensure in the state of North Dakota and must be ABFM certified or eligible. Responsibilities include teaching residents and medical students, supervision, curriculum development, patient care, and scholarly activity. Competitive salary and benefit package for the right candidates.

Send a letter of interest with CV and 2 letters of recommendation to Robert W. Beattie, M.D., Chair, Department of Family & Community Medicine, University of North Dakota School of Medicine and Health Sciences, 501 N. Columbia Road, Stop 9037, Grand Forks, ND 58202-9037, e-mail: robert.beattie@med.und.edu or fax 701-777-3849.

University of North Dakota is an Affirmative Action/Equal Employment Opportunity Employer and women and minorities are encouraged to apply. UND determines employment eligibility through the E-Verify System. This position is subject to a background check. North Dakota veterans' preference does not apply to this position.

UND Scientists try to get a jump on rabbit fever

The National Institutes of Health awarded a \$349,108 two-year grant to Assistant Professor Jyotika Sharma, PhD, a microbial immunologist in the Department of Basic Sciences at the University of North Dakota School of Medicine and Health Sciences, for her study of a respiratory infection from a bacterium, *Francisella tularensis*, that causes a rare debilitating disease called tularemia, more commonly known as rabbit fever. People exposed to the disease develop flu-like symptoms, which, if left untreated, can lead to a mortality rate of up to 40 percent. Thus far, there are no vaccines available to prevent this infection.

According to the Centers for Disease Control and Prevention, naturally occurring infections from the bacterium have been reported in every state except Hawaii. Humans can become infected by tick and deer fly bites, skin contact with infected animals, ingesting contaminated food or water, and inhaling the bacteria.

Francisella tularensis is very infectious—it takes only 10 to 50 bacteria to cause an infection. The virulence of the disease—particularly from inhalation—is a concern to the CDC because the bacteria could be weaponized and used by bioterrorists.

When harmful bacteria invade the body, the immune system recognizes the antigens or chemical flags on the surface of the bacterial cells that tell the immune system that the cell is foreign. The immune system mounts a defense by preparing antibodies to attack and repel the infection. But if the immune response is ineffective or weak, the body will succumb to the infection. If caught in time, *Francisella* can be combatted with antibiotics; however, given the widespread and deadly nature of the bacteria, vaccination before infection would be optimal.

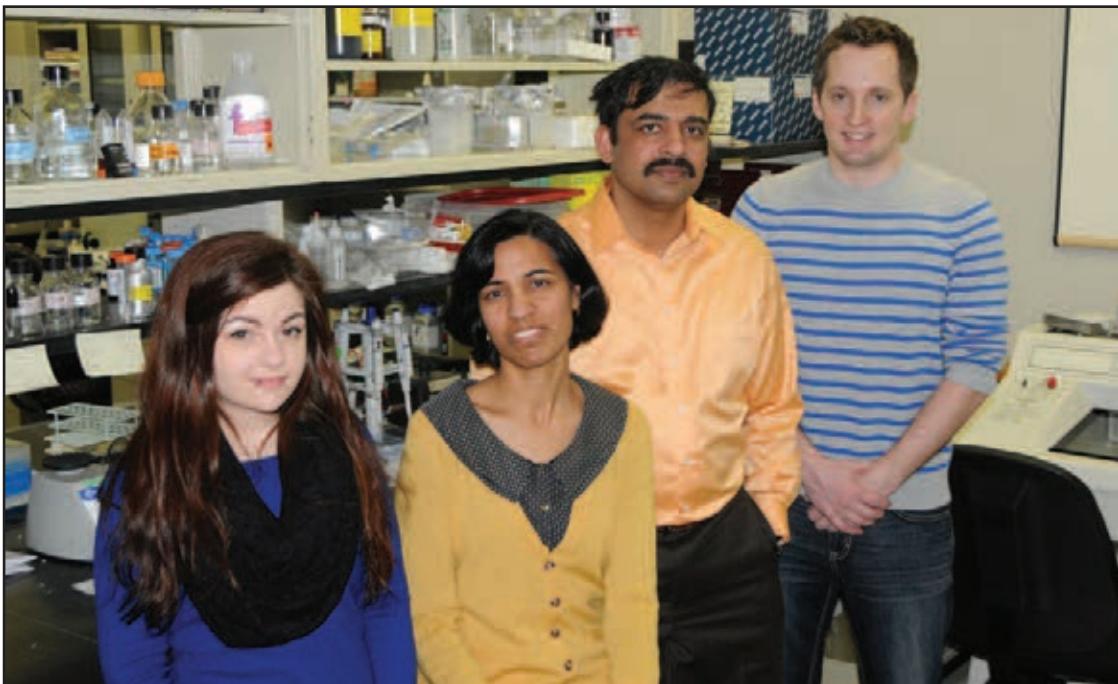
"The NIH has poured in millions of dollars so far to get a vaccine made against this infection," Sharma said. "While it has vastly improved our knowledge about how this disease is caused, we are still far from formulating an effective preventive strategy."

Assistant Professor Bibhuti B. Mishra, PhD, is a coinvestigator and collaborator with Sharma. Their team working on this project includes Anthony Steichen, a third-year Ph.D. student, and Brandilyn Binstock, an undergraduate student.

They have designed a unique way of identifying *Francisella* antigens that produce the most protective antibodies to fight off the infection. By "filtering out" the antigens that elicit a

nonprotective response from the immune system, they hope to yield the identity of antigens required for generating antibodies that will provide a protective immune response.

"Currently, when NIH funding is getting harder to obtain, particularly on *Francisella* research, the NIH has welcomed our unique approach that takes advantage of identifying differential



Left to right: Brandilyn Binstock, Jyotika Sharma, Bibhuti B. Mishra, and Anthony Steichen

immune responses," Sharma said. "We believe that this unique approach can serve as a platform for identifying novel vaccine candidates for other bacterial pathogens as well."

A part of the U.S. Department of Health and Human Services, the NIH is the nation's medical research agency. The NIH is the largest source of funding for medical research in the world. The mission of the NIH is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability.

From Lab Bench to the Bedside

Improving patient care is *the goal* of Jau-Shin Lou's research.

By Juan Pedraza

It's tough to rate one person's pain and suffering against another's—the fact is, no matter what your symptoms are, no disease is fun.

But can there be anything scarier than to feel yourself steadily losing control of your body or fading into the thickening fog of memory loss? In North Dakota, where the rising incidence of diseases such as Parkinson's disease reflects the demographic of getting older, such suffering is a reality for many.

For Dr. Jau-Shin Lou, an expert and gifted researcher of such diseases, there is no time to waste fretting about these degenerative effects—the new Dr. Roger Gilbertson Endowed

Chair of Neurology at the University of North Dakota School of Medicine and Health Sciences is deep into clinical and advanced research to find ways to fight back against these debilitating diseases.

"I focus on two areas of research—the first is more clinically oriented research studying the therapeutics for neuromuscular diseases such as amyotrophic lateral sclerosis (commonly known as Lou Gehrig's disease), myasthenia gravis, and demyelinating neuropathy," said Lou, a physician who also holds a PhD in neuroscience from the University of Minnesota and an MBA. "My second area of research is Parkinson's disease." Lou obtained his MD degree from National Taiwan



Dr. Lou examines a patient at Sanford Health in Fargo.

University, did his residency training at Baylor College of Medicine in Houston, and his fellowship at the National Institutes of Health.

The label neurodegenerative seems to imply a common scientific thread among these various diseases, syndromes, and conditions, notes Lou, widely recognized for his clinical trials in Lou Gehrig's disease and fatigue associated with Parkinson's disease.

"That's exactly what scientists are trying to find out: Is there one common mechanism or cause behind these neurodegenerative diseases?" Lou said. "The big three of these diseases are Alzheimer's disease, Parkinson's disease, and amyotrophic lateral sclerosis."

One common factor—still not well understood—among these three and other neurodegenerative diseases is that the death of individual neurons factors into the progression of the diseases.

"So we are searching for a common trigger for these cell deaths that often lead to the death of part of the brain," said Lou, who was voted to *U.S. News & World Report's* Best Doctors 2011–12 list.

Some genetic factors may be playing a role.

"But most of the factors in these diseases are not genetic," Lou said. "Even if you describe some genetic link, there are many different genetic factors that can cause different mutations that lead to cell death."

As a result, most basic research into these diseases is examining genetic, environmental, dietary, behavioral, and other factors that play into their development. And the long-term challenge for researchers in the quest is this: the neurological system is so dynamic that even if one finds a particular connection—say a particular environmental toxin—that doesn't necessarily mean one has found *the* or even *a* cause.

"No, for sure, just because we find something, that doesn't mean we can declare cause and effect," Lou said. "In fact, what we find may be a product of the disease, not the cause or contributing factor."

Working at UND

"My appointment specifies that I spend one day a week at UND, mostly in an administrative and educational role," Lou said. "My major function is to develop translational research, bringing UND scientists together with clinicians who practice medicine in the region so that we can answer the same questions, working toward a common goal—to find cures for neurological diseases. We need basic science to enlighten us about possible mechanisms in these diseases. We can then translate this kind of research into human trials. At the same time, I'm focused on expanding the scope of neurological teaching for our students."

"I surely hope that we'll see more MD-PhDs," Lou said. "But the MD-PhD degree is not right for everyone. For one thing, educating an MD-PhD is very expensive. And it takes even more time than an MD degree alone. People are around 30 years old before they complete such programs."

Lou adds that research now has become very competitive.

"I was lucky in my previous position that I had continuous funding for more than 10 years—but funding now is down to one or two out of 10 applications," he said.

The aim of medical education parallels the ultimate goal in medicine

"Ultimately, what medicine is about is taking care of patients—providing the best care possible with the aim of improving their quality of life," said Lou. "So the classroom education of medical students needs to be connected with medical practice."

A good part of that education in North Dakota is tied to the volunteerism of the state's physicians.

"I deeply admire the many physicians in this state who volunteer their valuable time to teach medical students," said Lou, who will be teaching neurology to medical students later this spring at UND. "A key part of my job description as a chair is to connect with all the neurologists in the state who're donating their time to teach our medical students. That is my bigger hat. My

Ultimate, what medicine is about is **taking care of patients—providing the best care possible** with the aim of improving their quality of life.



“ I deeply admire the many physicians in this state who volunteer their valuable time to teach medical students. ”

smaller hat is to tell them what research neuroscientists at the UND SMHS and clinician-scientists at Sanford Health are interested in. I'm definitely looking forward to driving around North Dakota to meet our physicians.”

There is more than visiting going on, though.

“I'd like to see more collaboration among researchers and clinicians—that's good for the state, good for patients,” says Lou, whose department at Sanford comprises 10 physicians and six advanced practice providers, including nurse practitioners and physician assistants with neurological specialties.

Research agenda

“I'm going to focus on the ability of Parkinson's disease patients to sustain their attention, which is related to their cognitive impairment,” says Lou. It's vital research in this state, where more Parkinson's is showing—just like it is elsewhere where the population is aging. It's also important for medical education.

“Neuroscience education at UND

already is very good,” Lou said. “But we aim to recruit more clinician-scientists, not just to expand our clinical neuroscience research base but also so that they can participate in teaching more clinically relevant knowledge—more patient-centered teaching—and this will enhance the education of both the next generation of physicians and new neuroscientists. We want to increase our rotation of neurology courses from two weeks to four weeks. So when they go out to practice in rural areas—where in many cases the population is older than average—they have more knowledge of neurology, to make judgments about the conditions that they are seeing in their rural patients for which they might need to refer the patient to a neurologist.”

The business dimension

But there's another dimension to Lou's professional relationship with medicine: like an increasing number of health administrators, including UND Vice President for Health Affairs and Dean Dr. Joshua Wynne and Senior Associate Dean Dr. Gwen Halaas, he holds a master's

degree in business administration (MBA).

"I think that my MBA has played a very critical role in what I do and how I do it," said Lou. "For one, the specialized knowledge and background that I developed through the MBA helped me to view medicine differently than I did with an MD."

He says that before he got his advanced business degree, he focused on medicine almost exclusively from the patient perspective.

"I really never took costs into consideration," Lou said. "Now, I have a more holistic view of medicine. I think more about delivering care in the most efficient way. Now when an administrator comes to me and says, 'Listen, this thing is too costly,' I totally understand where they're coming from."

There's no denying the obvious here, Lou said.

"Our cost of healthcare is too high in terms of per capita spending—the highest in the world, as a matter of fact, even though one-sixth of our population is not currently covered by health insurance," said Lou. "But our healthcare, measured in life expectancy and infant mortality, isn't very good—among the industrialized nations, the United States ranks very low."

When one takes into consideration everything that's taking place in healthcare, Lou said, the MBA for a person in his position really makes sense. He notes that things are changing quickly in healthcare, mostly for the better.

"This is an exciting time for the School of Medicine and Health Sciences and an exciting time for healthcare in North Dakota," Lou said.

Lou joins a school already known for its pioneering neuroscience research. The nationally recognized Center of Biomedical Research Excellence (COBRE) neuroscience group—heeded by neuroscientist Jonathan Geiger, PhD—is searching for the underlying causes of and possible treatments for a number of neurodegenerative disorders, including Alzheimer's disease, Parkinson's disease, traumatic brain injury, and epilepsy.

Community of purpose: UND, Sanford collaborate to educate next generation of healthcare professionals

For James Volk, MD, MBA, CPE (certified physician executive)—an internist who is Sanford-Fargo's chief medical officer—landing Dr. Jau-Shin Lou was a big coup.

"He's going to revitalize our neurology department here," said Volk, who cochaired the committee that recommended Dr. Lou for his new jobs as Dr. Roger Gilbertson Endowed Chair of Neurology at UND and chair of neurology at Sanford in Fargo.

The hire is also part of Sanford's longer-term strategy of enhancing medical education at UND.

"We want to play a very participatory role in medical education—all of our physicians here are clinical faculty with the UND School of Medicine and Health Sciences," said Volk, a 1984 alum of the School. "We are a major teaching institution for the School of Medicine and Health Sciences. So it's an expectation of all of our physicians (including Dr. Lou) when we hire them that they participate in teaching medical students and the residents that they work with here."

With the new position of chair of neurology at Sanford, Lou aims—with the backing of Sanford's administration—to attract a larger percentage of UND medical students who go into neurology.

"We'd like to have more of them work with Sanford neurology and in the state," said Volk, who spends part of every year teaching residents and medical students. "We want to bring more of them who complete fellowships after their residency back to the state to provide services locally."

Ultimately, Volk said, with the expanding need for neurological expertise in the state, more neurologists will mean patients will no longer have to travel to the Twin Cities or farther to get their neurological care.

About the Dr. Roger Gilbertson Endowed Chair of Neurology

Jau-Shin Lou, MD, PhD, MBA, is the founding Dr. Roger Gilbertson Endowed Chair of Neurology at the UND School of Medicine and Health Sciences. In 2010, Sanford Health donated \$1.5 million to the University of North Dakota Foundation for this chair. Endowed chairs provide the means to ensure academic excellence in teaching and research.

The Dr. Roger Gilbertson Endowed Chair in Neurology will provide leadership in developing projects involving students in support of the School of Medicine and Health Sciences mission to discover knowledge that benefits the people of North Dakota and enhances their quality of life.

Dr. Roger Gilbertson was president and chief executive officer of MeritCare (now Sanford Health) for 17 years, from its beginning in 1993 until his retirement in 2009.

More Than Skin Deep

International grant will support UND investigators' study of severe deep-tissue infections.

By Juan Pedraza

If you know the disease pathways, you'll be better able to target the therapeutics. It's a different approach to medicine.

With a macabre descriptor and manifestations to match, necrotizing fasciitis, or flesh-eating bacteria, is at least as bad as it sounds.

And that's perfectly OK with Dr. Malak Kotb, founding chair of the Department of Basic Sciences at the University of North Dakota School of Medicine and Health Sciences and an internationally known expert in such infectious diseases. She's also known for her related expertise in biodefense.

Kotb, a biochemist and immunologist by training, recently was awarded \$1.9 million by Sweden's Karolinska Institute, a highly unusual grant from the European Union to an American researcher.

"I am really excited about this opportunity to advance translational research," said Kotb, who is the U.S.'s principal investigator on the three-year grant, part of a collaborative project to investigate the biological details of flesh-eating bacteria. "We are going to study this disease and other severe deep-tissue infections using mouse models and computational biology to analyze the data. The goal is develop both effective ways to diagnose predisease susceptibility and effective therapeutics."

Kotb aims to dig deep into the biological mechanisms of physically devastating and potentially lethal diseases such as necrotizing fasciitis—and to pinpoint the disease pathways once they grab hold.

"And we aim to do this by understanding the genetics that predispose one person to get such diseases while another person is protected," said Kotb, who before coming to UND was chair of the University of Cincinnati's Department of Molecular Genetics, Biochemistry, and Microbiology.

To get at those biological and genetic facts, Kotb's research team will use a large panel of genetically diverse mice.

"We will have a detailed genetic profile of each mouse type, and we will, therefore, have a detailed profile of the

genetic differences among these types," she said. "Thus we will understand the genetic context of each strain of mice that we will use in our model. Computational models will then allow other investigators to analyze the data to parallel our own work."

Once the researchers have that information relative to the disease they're studying, they'll know which genes are involved in the disease.

"In essence, you're mapping the disease pathways, and you'll know which individuals—and which genotypes—are highly susceptible to infectious agents such as flesh-eating bacteria and which are highly resistant," she said. "The goal is to discover drugs that will work for different diseases. Knowing the disease mechanism will suggest to us how best to intervene. If you know the disease pathways, you'll be better able to target the therapeutics. It's a different approach to medicine."

Kotb found her way to this research earlier in her career working with Canadian collaborators to figure out why some individuals could get infected and why others—exposed to exactly the same pathogens—were not.

"The most exciting part of this new research is that, in defining the pathways of a particular disease such as necrotizing fasciitis, we may also find similar pathways for other diseases," she said. "Thus we may be able to find existing compounds to treat these diseases."

There's an added dimension to Kotb's research quest: "We want to do follow-up in a hyperbaric chamber to learn whether intense oxygen therapy will facilitate healing from these infectious agents."

Kotb's team at UND comprises several scientists and technicians including PhDs Santhosh Mukundan, a microbiologist and infectious disease expert; and Suba Nookola, an immunologist; and PhD candidate Karthickeyan Chella Krishnan, a bioinformaticist.

"We're developing new approaches that lend themselves very well to clinical application, patient care, and case

management," Kotb said. "These are the clear targets in my research, and that is among the reasons that the Karolinska Institute awarded me the grant. The translational aspect of this research is key."

She noted that previous research in this area has focused on a limited number of individuals.

"So we use a large panel of genetically diverse mice," she says. "Each mouse strain is genetically unique and replenishable, but each one of the members of the strain is identical. So it's not a one-shot experiment."

It's a great step forward.

"Otherwise, if you were to do all your studies on one person, or one line of mice, you wouldn't discover all the details such as biomarkers and symptoms," she said. "Then when you try to translate your results to other individuals, it won't work because individual genetics affect everything. In other words, you couldn't develop an effective drug based on that one-person study; a drug that was very safe in one could be very toxic to another person."

Kotb said that between her lab and her colleagues in Sweden, they're going to define the circuitry of these dreaded diseases.

"Once we understand that circuitry, we will know which genes are working or modulating the diseases, we will know the biomarkers, and if our analysis and findings are correct, we will truly have identified and mapped the correct pathways. That will help to predict how individuals with certain genotypes will respond to certain infections or any disease, even cancers and neurological disorders."

"What we're doing is like doing a clinical trial in a highly controlled way, so you can go back and repeat your experiments exactly," Kotb said. "We're no longer shooting in the dark."

The Karolinska Institute serves as the grantor for the European Community Seventh Framework Program (FP7) for Research and Innovation, which is the main instrument for funding research for the 28 member states of the European Union. The institute is known worldwide for the Nobel Prize in Physiology or Medicine, awarded by the Nobel Assembly,



Malak Kotb's lab team. Front row, from left are Malak Kotb and Donna Laturnus, AAS, lab technician. Back row, from left, are Karthickeyan Chella Krishnan, BTech, research specialist; Suba Nookala, PhD, research assistant professor; and Santhosh Mukundan, PhD, research assistant professor.

which consists of 50 professors at the Karolinska Institute.

FP7 grants normally are restricted to scientists in Europe; however, the Karolinska Institute in Sweden and the EU's central administration became aware that Kotb's expertise would be vital in focusing research that will be conducted by several participating European partners.



UND Physician Assistant Program Class of 2015

By Denis MacLeod



Twenty-six health professionals began the clinical portion of their studies in January to earn the Master of Physician Assistant Studies degree at the University of North Dakota School of Medicine and Health Sciences.

The White Coat Ceremony was held on Friday, Jan. 17, in the Reed T. Keller Auditorium at the UND School of Medicine and Health Sciences. Joycelyn Dorscher, MD, associate dean for Student Affairs and Admissions, presented the keynote address, focusing on the role of the physician assistant in primary care. Welcome remarks were given by Gwen W. Halaas, MD, MBA, SMHS senior associate dean for Academic and Faculty Affairs.

"The presentation of the white coat is

symbolic of the new profession the students are entering," said Jeanie McHugo, PhD, program director. The coats will be worn by students through the clinical phase of their training and denote their involvement with the Physician Assistant Program at UND.

The individuals in this class come from a wide variety of professional healthcare disciplines, which through class interaction will strengthen each student's ability to return to his or her rural clinical site as a well-rounded primary care provider.

The PA Program admits health professionals who have years of experience working as nurses, respiratory therapists, radiology technologists, paramedics,

military healthcare providers, and related professions. This group averages seven years of previous professional healthcare experience upon matriculation into the program.

Enrolled students come from throughout the United States, from California to Florida, but this particular class is very regional, with more than 50 percent of the students from the tristate area of North Dakota, South Dakota, and Minnesota. Students range in age from 25 to 52 years, with an average age of 32; the class includes 10 men and 16 women.

Students spend their first four weeks in Grand Forks before returning to their home communities, where most of their training will take place under the supervision of physician-preceptors. Over the next two years, they will return to UND for several weeks at different junctures for education and training.

Physician Assistant Class of 2015

- Cristin Altendorf, Lubbock, Texas
- Jody Bauer, Bismarck, N.Dak.
- William Cody, Hayesville, N.C.
- Jessica Curcio, Waterloo, Iowa
- Lena DeLuca, Louisville, Ky.
- Taylor Fontaine, Moorhead, Minn.
- Tamara Hein, Willmar, Minn.
- Austin Heneman, Fairmont, Minn.
- Lindsay Kyte, Brookings, S.Dak.
- Jessica Lahti, Hibbing, Minn.
- Parker Martin, Oklahoma City, Okla.
- Christina McOwen, Beaufort, N.C.
- Brittany Michels, Fargo, N.Dak.
- Ethan Morris, San Jose, Calif.
- Kayla Olson, New York Mills, Minn.
- James Ramos, Sioux Falls, S.Dak.
- Morgan Reese, Bismarck, N.Dak.
- Nicholle Rothengass, Merritt Island, Fla.
- Jenna Schiefelbein, Sioux Falls, S.Dak.
- Lindsey Siemens, Bottineau, N.Dak.
- Troy Thompson, Sturgis, S.Dak.
- Michael Trimble, Hermitage, Tenn.
- Lucas VanEmelen, Millington, Tenn.
- Heather Watkins, Dothan, Ala.
- Sarah Winter, Fargo, N.Dak.
- Randy Yergenson, Lake Arrowhead, Calif.

For more information, please contact the PA program at (701) 777-2344, or visit www.med.und.edu/physicianassistant/.

PA Earns CAQ

John R. Adams, PA-C '04, is one of only 108 certified physician assistants (PA-Cs) nationally to recently earn a specialty credential called a Certificate of Added Qualifications (CAQ) from the National Commission on Certification of Physician Assistants (NCCPA). Adams, who is employed at High Plains Radiological Association in Amarillo, Texas, was awarded a CAQ in emergency medicine, a distinction earned by meeting licensure, education, and experience requirements and then passing an exam in the specialty. He is one of only 36 certified PAs in Texas, and 530 certified PAs nationally, to earn a CAQ since the program's inception in 2011.



The NCCPA is the only certifying organization for physician assistants in the United States. Established as a not-for-profit organization in 1975, NCCPA is dedicated to assuring the public that certified physician assistants meet established standards of clinical knowledge and cognitive skills upon entry into practice and throughout their careers. All U.S. states, the District of Columbia, and the U.S. territories have decided to rely on NCCPA certification as one of the criteria for licensure or regulation of physician assistants. More than 100,000 physician assistants have been certified by NCCPA since 1975, and more than 95,000 are certified today.

The following are the graduates of the School of Medicine and Health Sciences Physician Assistant Program who have earned a Certificate of Added Qualifications listed by name, graduation year, and their certification specialty:

- Joan L. Meyers, Physician Assistant Certificate 1989, Psychiatry
- Candyce Evanson, Physician Assistant Certificate 1996, Nephrology
- Martha Jo Linn, Physician Assistant Certificate 2000, Cardiovascular and Thoracic Surgery
- Karyn Thornton, Physician Assistant Certificate 2001, Emergency Medicine
- Stacey Lee Konzak, Physician Assistant Certificate 2003, Psychiatry
- Deborah Koschak, Physician Assistant Certificate 2003, Emergency Medicine
- Claude DeVear Ray, Physician Assistant Certificate 2003, Psychiatry
- Cal Anthony Domingue, Physician Assistant Certificate 2004, Cardiovascular and Thoracic Surgery
- John R. Adams, Physician Assistant Certificate 2004, Emergency Medicine
- Nicole Amsbaugh, MPAS 2007, Psychiatry
- Patrick Paulsen, MPAS 2008, Emergency Medicine

The North Dakota Brain Injury Network

The NDBIN at the Center for Rural Health is designed to address the diverse needs of individuals with traumatic brain injuries.

By Nikki Massmann



NDBIN staff, left to right: Jeremiah Neal, social work intern; Carmen Hickle, resource facilitator; Rebecca Quinn, program director; Nickie Livedalen, resource facilitator; and Allyssa Olson, resource facilitator.

The North Dakota Brain Injury Network wants you to know that brain injuries don't just happen to professional football players. National news headlines have recently brought mainstream attention to the effects of brain injuries on professional sports athletes, particularly in the National Football League. But people are dealing with the oftentimes debilitating aftermath of brain injuries here in North Dakota, from multiple concussions to severe traumatic brain injuries.

Traumatic brain injuries (TBI) can present a complicated set of health issues that last long after the initial cause of the injury. Changes to thinking, behavior, and emotions are often not readily apparent or don't present themselves until later. As a result, individuals who have suffered a brain injury (and their families) find themselves attempting to navigate a

labyrinth of health and human services ranging from support groups to rehabilitation. The system through which these services are provided isn't simple, and individual support isn't always offered from organizations that are collaborating on care. Further complicating matters is the fact that each individual's needs are unique; a child with a fall and resulting seizures has very different needs than a 35-year-old car crash survivor who needs a nursing home level of care or a veteran with a

concussion and consequential emotional outbursts.

The North Dakota Brain Injury Network (NDBIN) was recently established at the Center for Rural Health through funding from the North Dakota Department of Human Services. The program is designed to address the diverse needs of individuals with traumatic brain injuries by providing one-on-one resource navigation services through designated resource facilitators. These facilitators are located throughout North Dakota: one in Grand Forks, one in Towner, and one in Bismarck. Individuals with TBI issues and their families can call these facilitators to receive assistance in locating services in their area that are specific to the individual's needs. The program's director, Rebecca Quinn, has been working with individuals with traumatic brain injuries

since 2007. She draws on her background in social work to be able to assist these individuals, which sometimes includes advocating on their behalf. Her day doesn't start at 8 a.m. and end at 5 p.m. A typical day could mean anything from simply listening to a family member's concerns to running an evening support group to driving across the state to educate the public on brain injury prevention. Her experience is the basis of the North Dakota Brain Injury Network, the foundation on which the program is being built.

The NDBIN is a natural extension of the Center for Rural Health's commitment to improving the health status and lives of rural North Dakotans. The Center is dedicated to building local organizational capacity and the NDBIN offers not only the opportunity to build educational and information pathways and to further the linkage with rural and urban health professionals but it also engages individuals and families in a more direct and personal manner.

In addition to helping individuals with TBIs, there is a great need in assisting providers so that they may best meet the needs of their patients. The NDBIN is working toward bridging gaps in information for providers by offering education on available services and ensuring their resource facilitation expertise is well-publicized in hospitals and clinics that see patients with TBIs. The program has developed a referral process for providers, social workers, and partner organizations to provide to their clients or patients. The process is simple: the patient or their family member fills out a few questions on a form and submits it to the North Dakota Brain Injury Network. The submission of the form prompts a resource facilitator to follow up with the client and gives them permission to initiate a consultation for the individual. This referral process creates a single point of contact for locating services and supports that are tailored to the individual's needs.

An important aspect of living with the effects of a brain injury is peer-to-peer support. Family members and TBI patients alike can sometimes feel like they are alone in their situation, or aren't aware of others going through some of the same struggles.

The effects of brain injuries can still carry a stigma similar to that which surrounds mental health issues. Patients sometimes try to hide their symptoms or feel ashamed that they don't have more control over their behavior. Adult TBI patients can have difficulty returning to work, and children who have suffered a TBI can have problems in school that didn't exist before their injury. Relationships for all TBI patients can be strained because of the changes that have occurred as a result of their injury. The everyday struggles of a TBI patient can include anything from headaches, difficulty concentrating, and depression to severe cognitive or physical impairment. The NDBIN works to assist those individuals by connecting them with peers, ideally within their own communities, so that they have someone to talk to who is experiencing a similar situation.

A conversation about brain injury cannot take place without mentioning prevention. The NDBIN also provides presentations and information on how brain injuries can be prevented in the first place, from wearing a helmet during sports activities to implementing policies in schools for concussion treatment before a student can return to activities. The national headlines regarding the long-term effects of multiple concussions have shed a much needed light on these issues that Quinn says have been around for quite some time. "Traumatic brain injuries and health costs associated with them aren't new," she said. "But general public awareness of the lingering effects of a brain injury is something that is more recent. The attention has helped to improve our ability to increase the public's understanding of what a TBI patient deals with day to day."

Brain injuries can affect anyone at any time. No group understands this better than the North Dakota Brain Injury Network. Their expertise and the assistance they are providing are available to all individuals who have suffered a TBI and their families. The NDBIN is helping to navigate the path for their clients and serving as a bright light in what is often a dark tunnel. The staff wants everyone to know they are not alone and have an ally in improving their lives through support from the North Dakota Brain Injury Network.

...families can call . . .
facilitators to receive
assistance in locating
**services in their area that
are specific to the
individual's needs.**

Success in Stanley

By Mark Barclay

Much has been written about the continuing oil boom in western North Dakota. Increased oil development has led to unprecedented economic times, but has also ushered in struggles with housing, services, and infrastructure. These struggles have been exacerbated in the healthcare sector. Competition for healthcare labor has always been fierce, but has grown to a new level. Because of federal regulations and tight operating budgets, healthcare wages can't keep pace with the rest of the economy, and even when qualified applicants are found, adequate housing can be difficult to find. Despite these challenges, healthcare infrastructure in western North Dakota continues to adapt, survive, and in some cases, thrive. Mountrail County Health Center (MCHC) in Stanley is one such example of a facility that is facing the region's tremendous struggles head on, and becoming better because of it.

Located about halfway between Minot

and Williston on US Highway 2, Mountrail County Health Center has seen its share of oil-related activity. According to MCHC CEO and Hospital Administrator Doris Brown, "We have seen a dramatic shift in the number of patients we serve; volume is up exponentially across the board." Even with this increased patient load, MCHC has been able to rely on its stable provider group to meet the challenges. "Our medical director, Dr. Longmuir, is fantastic. He has helped foster a team environment where our patients get the best care from our providers working collaboratively together. We are extremely grateful to have him."

For Mark Longmuir, MD '09, however, his connection to Stanley goes back much further than the three years he has practiced there. "I was born in the Stanley hospital," he said. "One of the nurses I work with now helped deliver me." With the current physician shortage across



Abbey Effertz and Mark Longmuir

the nation, Longmuir is a perfect example of how the medical education model in North Dakota is designed to work. “I started as a CNA (certified nurse assistant) in 1997, and worked in that role until doing my undergrad at UND.” Not only did Longmuir complete his undergraduate degree at UND, he also continued his training at the state’s only medical school: the UND School of Medicine and Health Sciences. Following graduation, he spent three years completing his family medicine residency in Minot before returning to Stanley to practice.

Of course, not all of the MCHC providers followed the same path as Longmuir. Physician Assistant Abbey Effertz grew up in North Dakota, but was new to the Stanley area when she started practicing at MCHC in January 2013. When looking for a position, Effertz connected with the UND Center for Rural Health and took advantage of their workforce services. Through the Center for Rural Health, Effertz was informed about numerous openings and ultimately connected to Stanley after reviewing the options. For Effertz, the small-town lifestyle coupled with a diverse patient load was the ideal fit. “It’s an incredible opportunity for me to learn,” she said. “I learn more every day.” This learning is supported by Longmuir, her supervising physician, and others. “The support I have here is really great. Dr. Longmuir is really accessible, and with our great relationship with Trinity in Minot, their specialists are always very helpful and just a phone call away.”

Despite the challenges of the oil boom, both Longmuir and Effertz agree that the ever-growing Stanley is a great fit for them. For Longmuir, the city looks significantly different than it did when he was growing up, but to him, that’s a positive thing. “Our culture has really expanded, which benefits everyone.” The influx of new business is also very welcome. “There are businesses here now, chain restaurants, that you would have never imagined 10 to 15 years ago.”

For Effertz, she enjoys the small-town life and new amenities coming to the town. “I love attending the high school sporting



Abbey Effertz

events and local events that different groups put on. Even with all the craziness, Stanley still feels like a community.”

Longmuir echoes this notion of community. “There is a misconception that it’s the Wild West out here,” he said. “With a wife and four kids, I have never been in a situation where I felt unsafe or was concerned for my family’s safety.”

With Stanley’s growing population and a stable set of providers, MCHC has been able to look to the future. This commitment to the future was demonstrated when the hospital recently revealed plans to expand their facility. For Brown, the addition is a chance to further serve the community. “With the expansion, we will be able to better serve the patients of our community, and continue to provide them the quality, patient-centered care they have become accustomed to,” she said. The expansion will add an in-house CT scanner, an expanded clinic, and a remodeled emergency department. “We aren’t going to shy away from the struggles of a growing community. With the great people we have, from support staff to nurses and providers, we believe we can impact the community in a positive way, and that is what we are working for.”

With the great people we have... we can impact the community in a positive way.

Design Development Phase of New SMHS Building

Take a quick walk through the School's new facility.

By Lonnie Laffen



South view of Main Street for new SMHS facility.

The last time I wrote, the design team of JLG Architects, Steinberg Architects, and Perkins+Will were preparing to publicly present the schematic design phase of the new UND School of Medicine and Health Sciences facility. Let me take you on a quick walk through the building.

You will enter into a sunlit "Main Street" atrium. To one side is a shared Learning Hall with fixed tables and moveable chairs for interaction and collaboration between classes. On the other side is a café with views of one of two outdoor courtyards for students and faculty to enjoy warm days. Also on the ground floor are simulators for community and student training and offices to

welcome potential graduates and their parents.

In front of you is a collaborative focal stair, where students will hang out between classes. On the second, third, and fourth floors, dynamic, interactive learning communities surround open meeting and event spaces. Each learning community will be the home base to approximately 100 students with individual private study areas, collaborative group space, and common space.

The new facility will include medicine and health sciences education, simulation and clinical skills, occupational therapy, sports medicine, research and a satellite vivarium, and existing buildings will house

shared clinical practice space, the UND vivarium, epigenetics, neuroscience, undergraduate education, and additional research labs.

The new SMHS building will increase the occupancy of the entire health affairs community by roughly 20 percent through the following:

- A 20 percent increase in teaching functions.
- A 24 percent increase in research functions.
- A 112 percent increase in clinical spaces.
- A 29 percent increase in offices in carrels.

Interestingly, it was determined the biggest inefficiencies in the existing facilities were in the faculty and administration space, and so those areas will actually decrease by 13 percent in the new building to make way for more open collaboration space.

We are now in the design development phase, in which final design decisions and tweaks are being made with input from many user groups, including SMHS faculty, staff, researchers, UND facilities and planning personnel, and students. The planning to this point has involved over 150 meetings and more than 300 people have participated in the process!

Building materials (such as brick, glass, and flooring) are being reviewed by the Building Committee and final selections are being chosen. You will be able to view these materials at the current SMHS facility soon. The design team is reviewing everything to make sure that the building's structure, mechanical, and electrical systems all work together.

The UND School of Medicine and Health Sciences building is being delivered by a construction manager at risk (in our industry called a CM@r). In a traditional design-bid-build construction method, the architects would design the entire facility and then hire a construction team to build it. In a CM@r delivery system, the construction managers, in this case PCL

Construction Services and Community Contractors, were selected at the same time as the architect. This has not only kept the entire project team on the same page in terms of the building's constructability in order to minimize costly or time-consuming issues out in the field but has also allowed for some of the site construction to commence while the design is being completed.

The site, on the highly visible corner of North Columbia Road and Gateway Drive, was cleared in early November, and deep soil borings were finished just before Thanksgiving. Steel piles—each 165 feet long—were driven into the ground at the beginning of March. Once in place, these 350 piles will be the backbone of the SMHS building and the first pieces of the total building construction, which will begin in May.

Keep your eye out for another Community Presentation this spring, as well as the much-anticipated official groundbreaking ceremony. Stay warm!



Lonnie Laffen

The new SMHS building will increase the occupancy of the entire health affairs community . . .



Unlimited Possibilities

This educator-scholar delves into the field of medical education research.

By Christalin Casinader

“ Haris is unlike any PhD student we have had before—he is truly a unique student.”



Haris Ali presents an anatomy demonstration for high school students touring the SMHS.

Haris Ali has a thirst for learning.

His desire to learn has taken him around the world and brought him here to UND. “I have always loved learning and, along with it, teaching others. I wanted to follow a teaching track” said Ali, who first

heard of UND while completing his master’s in biomedical science in Norway.

Born and raised in Pakistan, Ali was encouraged to pursue studies in the field of medicine by his father. His interest in anatomy led him to complete his MD in

Pakistan and to later study abroad in Norway, where he graduated with his master's degree. It was here that he first heard of UND and applied for a PhD program in Anatomy and Cell Biology with a research emphasis in medical education.

"Haris is unlike any PhD student we have had before—he is truly a unique student," said Kenneth Ruit, PhD, assistant dean for Undergraduate and Graduate Education, and Ali's advisor. "He came to UND with significant experience, and his interest in medical education research was not something that had been seen among students (when choosing a research topic)." Ruit said that Ali brings a "unique approach as a graduate student who is curious to learn more about medical education and ask research questions that have really contributed to the existing data."

Ali will be presenting his research this spring at the Experimental Biology 2014 Conference in San Diego, one of the largest conferences of biomedical researchers and educators. Ali said he is excited about the presentation and is proud of the work he has been able to contribute. "It was challenging at first, but I am very happy with the results. I couldn't have done it without the support of my advisor Dr. Ruit and other faculty members like Jon Jackson, Pat Carr, Linda Olson, Woei Hung, and Clint Hosford who have been great mentors to me."

Apart from his work in medical education, Ali is an instructor of anatomy, a preceptor of clinical skills, and serves as a patient-centered-learning facilitator at the School of Medicine and Health Sciences. He also volunteers as a presenter for high school groups who tour the School. "I am fascinated with anatomy, the way so many cells can combine to form an organ and perform a single function. The human body is amazing, and there is so much to learn about how it works. Being able to teach this to students, explain what we do and why it is important gives me a great amount of satisfaction. I find their enthusiasm to be contagious, and I enjoy the tours very much."

When he is not conducting research or teaching, Ali spends time on his



hobbies, which are cooking and traveling. He compares cooking to research and reckons that is why he likes it so much. "They both require attention to detail; you have to be knowledgeable about what you're working with," he said. "Sometimes, especially at first, it doesn't always work out, but when it does, it is worth it."

As for travel, Ali likes to explore new places whenever he gets some time off. However, he quickly finds himself wanting to come to back to Grand Forks. "It is very peaceful here. I really love this community, and I am glad to be a part of it," he said. Although he grew up in a big city in Pakistan, Ali is more at home in the quiet, slower-paced lifestyle and the togetherness of small communities like Grand Forks. "You don't get North Dakota nice everywhere; the people here are so warm and welcoming."

In fact, Ali met his wife Courtney, a native of Reynolds, North Dakota, while going to school at UND. "We have a lot in common. She has been instrumental in my success and has been a great supporter of my work, along with my parents."

"I am also lucky to be surrounded by brilliant and supportive colleagues, and I know they value me as well." In the future, Ali hopes to continue his work in medical education research and says he would love to be an academic physician, preferably here at UND.

I am also lucky to be surrounded by brilliant and supportive colleagues.

Keeping Them on the Mountain

UND alumnus and Lisbon, N.Dak., native Jason Switzer worked as a trainer for U.S. Olympic snowboarders in Sochi.

By Juan Pedraza



Photo courtesy of St. Luke's Sports

UND alumnus Jason Switzer, a native of Lisbon, N.Dak., talks to a member of the United States Ski & Snowboard Association team at Whistler, British Columbia, during training events for the 2014 Winter Olympics in Sochi.

The mountains are all different; the trips radical, the payoff might be Olympic gold. The journey to the 2014 Winter Olympic Games in Sochi, Russia, for athletic trainer Jason Switzer started in Lisbon, N.Dak., and coursed through the University of

North Dakota Division of Sports Medicine. "I was kind of a jock in high school; I excelled in several sports," said Switzer, who normally works as a certified athletic trainer for St. Luke's Health System in Boise, Idaho, but who's now on leave with



Jason Switzer cares for a member of the United States Ski & Snowboard Association team during training events. Photo courtesy of St. Luke's Sports.

the U.S. Olympic Slopestyle Snowboard Team. "I knew I wanted to work in the sports field, and I had an amazing experience at UND in the sports medicine program with Steve Westereng and all the folks there."

Westereng, director, Division of Sports Medicine in the UND School of Medicine and Health Sciences, said Switzer follows in a strong tradition of excellence.

"It was neat from my position because Jason took the place of another graduate of ours who moved up the ranks in the Dallas Stars organization," Westereng said. "It is great from an educational program perspective to see when an employer hires one of your graduates and then hires another right away to fill that same position. It is easy to see why Jason would fit in as he is knowledgeable, professional, hardworking, and always has a positive attitude."

Positive is the working principle.

"I've worked with professional hockey teams, and I was the lead athletic trainer for the (East Coast Hockey League team) Idaho Steelheads," Switzer said. "It's (all

about) watching the athletes, assessing and treating injuries quickly and effectively, making a plan of treatment, and staying focused on keeping them healthy and in the game."

Getting to work in the Olympics as an athletic trainer is a long and hard journey to follow.

"You have to have an employer that supports you so you can do this kind of activity since many of the positions are not full-time jobs," Westereng said. "You have to have the right skill set, be willing to work in unfamiliar settings, possibly work with various athletes in various sports, and have the flexibility in life to be away for weeks to months leading up to the games."

For his work with the Olympic snowboarders, Switzer noted, "It's all about keeping them on the mountain. I'm there to help facilitate their success at Sochi."

It is great from an educational program perspective to see when an employer hires one of your graduates and then hires another right away to fill that same position.

'10s



Bree Dewing, Surgery Res '12, weight-loss and general surgeon at Sanford Medical Center in Bismarck, is now board-certified in surgery by the American Board of Surgery, which means that the surgeon has met the board's standards specifically in the area of general surgery and its related specialties. To receive certification, a surgeon must meet the necessary requirements and complete an extensive examination. Board certification reflects a surgeon's commitment to lifelong learning and quality patient care.

Dewing also recently performed the first robotic-assisted gastric sleeve weight-loss surgery in North Dakota.

Jay MacGregor, Surgery Res '12, is now practicing colorectal surgery at Sanford Health in Fargo.

Misty Anderson, IM Res '11, was elected Speaker of the House of the North Dakota Medical Association during its annual meeting Oct. 3–4, 2013. Anderson practices internal medicine at Sanford Health in Valley City.

'00s

Ravinda Samaraweera, MD '08, is now at Sanford Neuroscience Clinic in Fargo. He completed his residency training and fellowship training in epilepsy at the University of Cincinnati College of Medicine.

Kara Johnson, MD '06, is now at Sanford Medical Center in Fargo, practicing internal medicine. She has completed a fellowship in critical care and pulmonology.



Diane Kraft, MD '06, has joined the cardiology team at Sanford Clinic in Bismarck. Kraft, a native of Bismarck, completed a fellowship in cardiology and also her residency at the University of Iowa Hospitals and Clinics in Iowa City. She is board-certified by the American Board of Internal Medicine.

Lance Norman, MOT '06, has been named vice president of ancillary services at River View Health in Crookston, Minn., where he has worked since 2011. Lance teaches modalities as a long-term adjunct faculty member for the Department of Occupational Therapy at the SMHS.

Nathan Hall, MD '05, has joined Sanford Health in Fargo. He is an interventional cardiology specialist.

'90s



Denise McDonough, MD '95, is a family physician with St. Alexius Mandan Clinic–North. McDonough completed her family medicine residency at the UND Center for Family Medicine in Bismarck. She has a special interest in pediatrics, dermatology, women's health, and global health. McDonough is board-certified in family medicine, is a member of the American Academy of Family Physicians, and has provided care in the Bismarck–Mandan community since 1998.

'70s



Stephen Guertin, BS Med '73, director of the Pediatric Intensive Care Unit (PICU) at Sparrow Hospital in Lansing, Mich., was named Children's Miracle Network Caregiver of the Year.

Guertin received the award during the charity's 30th annual Celebration held at the Walt Disney World Resort Oct. 10–12. The award recognizes a caregiver, team, or unit that has

significantly elevated the care of children and has specifically been impacted by Children's Miracle Network Hospitals' funds.

Throughout Guertin's 31 years at Sparrow Hospital, he has cared for more than 10,000 critically ill children. He has held various positions including medical director of the Sparrow Regional Children's Center and chief of staff. When Guertin arrived at Sparrow in 1982, the Children's Center did not exist. He was instrumental in its initiation and growth, and it now has a PICU offering some of the best care in the region.

"We are delighted to honor Stephen as our Caregiver of the Year during this milestone year for Children's Miracle Network Hospitals. He truly exemplifies the quality and compassion-driven care we see at so many of our hospitals," said John Lauck, Children's Miracle Network Hospitals president and CEO.

Dale Moquist, BS Med '71, retired from practicing family medicine on July 1, 2013. Moquist most recently was the geriatric coordinator at the Memorial Family Medicine Residency in Sugar Land, Texas, for nine years, where he was named Full-Time Faculty of the Year. He practiced family medicine in Grand Forks for 22 years until moving to Texas in 1998. Moquist served on the American Academy of Family Physicians Board of Directors from 1993–1996 and was the only North Dakotan to serve in that position. Moquist currently is president of the Texas Academy of Family Physicians Foundation. He and his wife Carol have three sons.

IN MEMORIAM

Albert J. Myers, BS PT '77, 66, Fargo, N.Dak., died Wed., Feb. 5, 2014, at Rosewood on Broadway, Fargo. Albert Joseph Myers was born June 30, 1947, to Thomas C. and Rita (Miller) Myers in Poughkeepsie, N.Y. He attended St. Peter's Parochial School, where he was an active member and altar boy. He also attended Our Lady of Lourdes High School, graduating in 1966. He enlisted in the U.S. Navy and attended Naval Hospital Corpsman School, Great Lakes, Ill. He was sent to Vietnam in May 1967; in the midst of battle, Al was injured while attempting to rescue injured marines. After his time in the jungle, he assisted in setting up a children's hospital in Dang Ha, Vietnam, with the Third Marine Division.

He was discharged in 1970 and utilized the GI bill to attend North Dakota State University. He then went on to UND and was accepted into the Physical Therapy Program. This field was a great passion for Al as he loved caring for and rehabilitating adults and especially children.

Al worked with F-M Ambulance and taught CPR classes for the American Heart Association. Al had several hobbies and talents—a great artist, author, and poet. His book *Mankind Man Unkind*, published in 2011, is an autobiography of his tour in Vietnam. Al is survived by his wife, June; children, Aryca (Win), Minn., Andrew (Sophie), Mich., Chad (Lynn), Mich., Jeannine (Margaret), Minn.; grandchildren, Chloe, Ana, Audrey, Alexandra, Jacob, Isabel, Austin and Lula Than; siblings, Thomas, Ohio, Doug, N.Y., Barbara, N.Y., Tammy, Ore., and Elizabeth, N.Y.; and many nieces, nephews, and cousins.

Dr. Richard D. Rottshafer, BS Med '73, 68, of Merrifield, Minn., died at his home on Friday, January 10, 2014. Richard was born on November 26, 1945, in Grand Rapids, Mich., to Richard and Jennette (Batts) Rottshafer. He graduated from high school in Grand Rapids, Minn., and Calvin College also in Grand Rapids, Mich. Richard received his master's in microbiology from the University of North Dakota. He spent his first two years of medical school at the University of North Dakota and then moved to Southern Illinois University in Springfield. He did two years of his residency at Ramsey in St. Paul, Minn., and then two years at Miller Hospital. Richard worked for the St. Joseph's Medical Center in Brainerd, Minn., for 20 years. Richard was also the coroner for Crow Wing, Aitkin, Cass, and Wadena Counties. He married Deborah Sagsveen on December 22, 1971, in Landford, N.Dak. Richard enjoyed being outdoors, bowling, and working on his yard. He also liked to garden, fish, and to go camping. Richard enjoyed spending time in his greenhouse. Richard is survived by his wife, Deborah; children, Jeffrey, Laura (Mark) Ehlen, and Joshua; and sister, Mary Beth Van Singel. He was preceded in death by his parents.

Dr. M. Duane Sommerness, BS Med '43, 95, died Dec. 3, 2013, in Peoria, Ariz. Born in Columbus, N.Dak., on Sept. 5, 1918, Dr. Sommerness was the son of Martin D. Sommerness and Louise Hansch Sommerness. He earned his first bachelor's degree from Luther College in Decorah, Iowa, and a second bachelor's degree from the University of North Dakota Medical School. He subsequently earned his MD degree from Temple University in Philadelphia. Following service in the United States Army Air Force, he completed a residency in psychiatry at the famed Menninger Foundation in Topeka, Kans. There he married Trudy Titus. Upon leaving the Menninger Foundation in 1950, he served as chair of the Department of Psychiatry at the University of North Dakota Medical School and, at the same time, as clinical director of the state hospital in Fergus Falls, Minn. In 1956, he became medical superintendent of the Traverse City State Hospital, a position in which he served until his resignation in 1972. During his time at the Traverse City State Hospital, he oversaw the construction of the completely privately funded All-Faiths Chapel as well as the Arnell Engstrom School for mentally ill children. During his tenure, he increased the number of physicians on the hospital staff from seven to 34. The concomitant increase in personalized patient care reduced the number of patients from 3,000 to 1,300. Dr. Sommerness served as an associate clinical professor in the College of Human Medicine at Michigan State University, as well as a board member of the Northwest Michigan Symphony, the Northwestern Michigan Fair, the Salvation Army, the Scenic Trails Council of the Boy Scouts of America, and the North Central Michigan Comprehensive Health Planning Council. He was also an active member of Rotary International and the Benevolent and Protective Order of Elks. He was preceded in death by his parents; his sisters, Yvonne and Esther; and his wife, Trudy. He is survived by his wife, Margaret, of Sun City, Ariz., and his son, Martin, of Flagstaff, Ariz.

A New Chapter

For Marilyn Martin, it all started at the age of 18.

By Emily Aasand



Marilyn Martin

For Marilyn Martin, it all started at the age of 18, working for the University of North Dakota's Correspondence Department in the Continuing Education Division.

Little did she know that she was on track to dedicate 47 years to UND.

The journey

Martin was born in Grafton, N.Dak., and lived there for six years before her family relocated to Grand Forks. She attended school in Grand Forks until the tenth grade, when her family moved back to Grafton. She graduated from Grafton

High School before attending North Dakota State College of Science (NDSCS).

Martin attended NDSCS for one year to obtain a certificate in their secretarial program before moving back to Grand Forks to work. She later earned her Bachelor of Science in Information Management from UND by taking advantage of the opportunity to take one course a semester as an employee.

"Whether I ever said it or not, I think it was always my intention to come back to Grand Forks," Martin said. "Two of my friends and I went to Wahpeton together then we all got jobs in the area, moved back to Grand Forks, and got an apartment together."

Martin worked on UND's main campus for four years before quitting to start a family.

"I was ready to start a family and figured that I'd want to stay home," Martin said. "I soon realized that being home wasn't for me, so that's when I decided to apply for the position at the medical school."

Martin began her 43-year journey at the medical school as the admissions and records officer at the School of Medicine and Health Sciences on December 1, 1970.

As the admissions and records officer, Martin worked with students applying to gain entry to the school, reported grades, verified enrollment, and also completed the medical students' registrations for their courses.

"I loved working with all the applicants and the current medical students," Martin said.

Her love for her job is what kept her at the university for 40-odd years.

"It's hard to describe," Martin said, when asked about what she liked best about her job. "I loved working with the applicants and the medical students. Working with the staff and various departments to find information about students' registrations, double-checking grades on evaluations, I liked all of it. I had my fingers dipped into a lot of things while working there."

Four decades of change

With putting in over 40 years at UND, Martin has experienced incredible expansions with the medical school.

"The biggest thing to have happened was the school going from a two-year medical school to a four year one," Martin said.

There are always new things coming along and new programs being developed that Martin has played an integral role in. Her position allowed her to have some involvement in various curriculum aspects at the School.

Retirement life

After working in this environment for as long as she has, Martin admits it's going to be an interesting change.

"I'm very much a people person," Martin said. "I'm definitely going to miss the interaction I had with the students, various offices, and of course my colleagues."

The retirement life, however, is something she could get used to.

"I don't have a lot planned as of right now," Martin said. "My cousins are talking about going on a tour of Poland in July, so it's something I'm considering taking part in. It'd be a great opportunity to go somewhere and to see something different."

Being able to spend time with her children and grandchildren is something she's looking forward to enjoying as well.

"Both of my children and my three grandchildren live in East Grand Forks, so now I'll be able to go to all of their sporting events and band concerts," Martin said.

"It's nice to be able to go to their activities. Spending time with them and with family is important to me, and I'm glad I'm going to have more time to do just that."

I'm definitely going to miss the interaction I had with the students, various offices, and of course my colleagues.

Legacy of a Grateful Patient

By Alyssa Konickson

Wesley Hoffman was a farmer, outdoorsman, and woodworker. But after he suffered a brain stem stroke in his 50s, he became paralyzed on his left side and was admitted to MeritCare (now Sanford Health) in Fargo. Wesley was told he would never walk out of the hospital. His therapists, physical therapy and occupational therapy alumni of UND, helped him defy the odds, and six weeks later, Wesley walked out the door and went home.

Several years later, on October 2, 2013, Wesley passed away. Shortly thereafter, the School of Medicine and Health Sciences learned that he was so impressed with his care from UND alumni years ago that he designated \$100,000 in his will to the OT and PT departments at the UND School of Medicine and Health Sciences.

Thanks to Wesley Hoffman's gift, occupational therapy and physical therapy students will receive scholarship support and remember his legacy for years to come.

What is a bequest?

A bequest is a gift made by including language in your will. You can specify a gift to be made to family, friends, or charities. A bequest is perhaps the easiest and most tangible way to make a lasting effect at the University of North Dakota School of Medicine and Health Sciences.

It may be an effective way to make a gift and at the same time lessen the burden of taxes on your family and estate.

Can I change my designation?

Yes. A bequest can be revoked or changed. You can remove or modify your designation to leave a portion of your estate to the UND Foundation and other beneficiaries at any time.

How do I make a bequest?

With the help of an advisor, you can make multiple bequests to various individuals or organizations. You can specify a bequest in a few ways:

- Gift of a specific dollar amount or percentage of your estate.
- Gift of a specific asset (e.g., real estate).
- Gift of the residue of your estate.
- Contingent bequests allow you to leave a portion of your estate if your named beneficiary does not survive you.

Can I specify how I want my bequest gift to be used?

Absolutely. We encourage you to notify the UND Foundation of your plans so we can work with you to document your intent and ensure your gift is used for the area or purpose you desire. You may also fund a charitable arrangement for surviving loved ones through a bequest. Gift designations may include the following:

- Establishing a named endowment to fund a student scholarship or endowed faculty position at the SMHS.
- Funding priority projects within the SMHS.
- Supporting programs or departments within the SMHS.

Is a bequest through my will the only way to leave a legacy or estate gift?

No. Certain types of property pass outside your will or trust. These assets require you to name a beneficiary by completing a beneficiary designation form. To make a bequest of these assets, you should contact the company or entity from which you purchased the asset. Examples include an IRA or insurance policy.

For additional information on how to best structure your bequest or gift to benefit the School of Medicine and Health Sciences, please contact:

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Thank you to our thoughtful donors who recently gave gifts or made pledges.

Bethel Bank of Grand Forks, N.Dak., has established the Kriegel and Gorter Family Endowment, which will provide scholarships for second- or third-year occupational therapy students. Three of her family members earned OT degrees at UND.

Dr. Philip, BS Med '62, and Sandy Barney of Tucson, Ariz., have established the Dr. Philip and Sandy Barney Medical Scholarship Endowment, which will provide scholarships for medical students with preference given to first-year students from Montana. Dr. Barney worked as a pathologist at Community Medical Center in Missoula, Mont., before retiring in 2003. He earned his medical degree from the University of Pennsylvania in 1964.

Dr. G. Franklin, BS Med '64, and Rosemary Welsh of Cincinnati, Ohio, have established the G. Franklin Welsh, MD, Endowment, which will provide annual awards to medical students who demonstrate academic excellence through completion of a research project that focuses on anatomical sciences or development of an innovative resource for teaching anatomy. Dr. Welsh, a native of Bismarck, N.Dak., is a retired Air Force colonel and plastic surgeon at Aesthetic Plastic Surgery Center in Cincinnati. He earned his medical degree from Harvard University in 1966.

Mary, MS Med Tech '96, and Michael Coleman of Grand Forks, N.Dak., have established the Mary Coleman MLS Scholarship Endowment, which will provide scholarships to full-time senior students majoring in medical laboratory science. Mary, a native of Warren, Minn., is an assistant professor for the Medical Laboratory Science Program at UND.



A bequest from the estate of Wesley Hoffman of Ellendale, N.Dak., has established the Wesley Hoffman Occupational Therapy Endowment and the Wesley Hoffman Physical Therapy Endowment. While Wesley did not graduate from UND, he felt he received exceptional care from UND OT and PT alumni while hospitalized in Fargo. Both endowments will provide scholarships for current OT and PT students (see page 32).

Judy DeMers, BS Nursing '66, has established the Judy L. DeMers Scholarship Endowment, which will provide scholarships to medical students in good academic standing with preference given to students who are single parents. Among many distinctions in her career, DeMers most recently served as the School's associate dean for student affairs and admissions until she retired in 2010.



Kimberly Krohn, MD '96, and her husband John Fishpaw of Minot, N.Dak., have established the Minot Center for Family Medicine Endowment for Excellence, which will provide funding for the highest priority needs of the Center for Family Medicine Clinic in Minot. Krohn is director of the UND Family Medicine Residency Program there.



Robert, BS Med '62, and Kay Hedger of Oak Park, Ill., continue to support the Dr. Walter Wasdahl and Dr. Robert and Kay Hedger Endowment, which provides scholarships to medical students who demonstrate financial need. Dr. Hedger is assistant professor of clinical medicine at Associates in Nephrology in Chicago, and director of the Foundation for Nephrologic Science Inc. and National Medical Care Inc.

Photo Synthesis

The new SMHS building will bring to light the future of healthcare education.

By Denis MacLeod

"Form ever follows function," is the architectural principle coined by the famous American architect Louis Sullivan. Using a corollary of Sullivan's principle, the architects for the new SMHS building are designing it so form facilitates function.

The design team from JLG Architects and JLG's design partners from Perkins+Will and Steinberg Architects are designing the new building so students, researchers, and scholars can better connect, interact, and collaborate to foster learning and research to improve the healthcare and health of North Dakotans and all Americans.

At the SMHS, eight learning communities with 100 students each will be paired around a shared student lounge and practice exam room; students will have their own group study rooms, tutoring rooms, open work environments, and individual study stations and lockers. Each learning community will gather students from disciplines across the medical and health science spectrum—medical

students, graduate students, occupational therapy, physical therapy, and more—in order to encourage collaboration between departments and promote interprofessionality. The new facility is forgoing the rows and rows of stacks of books and journals for a limited print library. A new digital library will foster the growth in using technology as an educational tool in healthcare.

The architects have designed, positioned, and oriented the building so they can optically plumb the interior by drawing the flow of sunlight that washes over the building and pool it in "light wells"—daylight atriums that, no matter the season, will bathe with natural light the students and researchers who study and work deep within the building. Additional interior elements that will highlight and synthesize collaboration are classrooms and laboratories with a transparent wall or walls to optimize natural lighting as well as to make the rooms visible to people on the floors above or below.



A rendering of the southeast profile of the new SMHS building as seen from North Columbia Road.

On Founders Day, Feb. 27, Dean Wynne was pleased to join the University community in honoring the following faculty and staff at the 131st UND Founders Day Banquet.

Congratulations to Associate Professor Anne Haskins, PhD, OTR/L, pictured at right, who received the UND Foundation/Thomas J. Clifford Faculty Award for Graduate or Professional Teaching Excellence from President Robert Kelley.

Recognition for 25 Years of Service

- Mary Amundson, Assistant Professor of Family and Community Medicine
- Eugene DeLorme, Director, Indians Into Medicine
- Connie Diede, Administrative Assistant, Department of Internal Medicine
- Dianne Hamre, Medical Cataloger, Harley E. French Library of the Health Sciences
- Debra Hanson, Associate Professor of Occupational Therapy
- Marilyn Klug, Associate Professor of Rural Health
- Debra Kroese, Administrative Officer, Department of Basic Sciences
- Vikki McCleary, Associate Professor, Physician Assistant Program
- Rhonda McDaniel, Administrative Assistant, Physician Assistant Program
- Cindy Stromme, Administrative Assistant, Student Affairs and Admissions



Retired and Retiring Faculty and Staff

- Gail Bass, Associate Professor of Occupational Therapy
- Sandra Elshaug, Financial Aid Administrator, Student Affairs and Admissions
- Patricia Hooper, Administrative Secretary, Indians Into Medicine
- Jacque Jones, Administrative Clerk, Department of Occupational Therapy
- Arlinda Kristjanson, Associate Professor of Clinical Neuroscience
- Terri Lang, Project Coordinator, Center for Rural Health
- Marilyn Martin, Admissions and Records Officer, Student Affairs and Admissions
- Marlene Zimmerman, Office Assistant/Account Technician, Bismarck Center for Family Medicine

Students gathered to sign thank-you cards on Thursday, Feb. 27, near the Library of the Health Sciences at the SMHS in Grand Forks. The students were grateful for the donations alumni have made to the School.

The temperature was minus 10 outside; however, the students immediately warmed to the idea of thanking the generous donors who have helped to make students' dreams of a career in medicine, the health sciences, and biomedical research a reality.

The event was a part of Spirit Week on campus to celebrate those who've helped make UND great!





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Upcoming Alumni Receptions



Occupational Therapy

April 4, 2014, Baltimore
www.med.und.edu/events/ot-2014.cfm



Athletic Training

June 26, 2014, Indianapolis
www.med.und.edu/events/at-2014.cfm



UND Homecoming
Oct. 6-11, 2014, Grand Forks
www.med.und.edu/events/homecoming-2014

Invites are sent via e-mail or mail. To ensure you receive this information and that our records are up-to-date, please submit your contact info at www.med.UND.edu/events/contact.cfm.

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