

NORTH DAKOTA MEDICINE

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE & HEALTH SCIENCES

Virtual Microscopy

Seeing is Believing

Tiny Bubbles

Hippotherapy: Not Just Horsing Around

What's in a Word?

Have Scope - Will Train

Summer 2008
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ONE OF THE UNEXPECTED advantages I've experienced serving as the Chair of the Association of American Medical Colleges (AAMC) this past year has been the opportunity to look at medical education from the outside in: seeing UND's medical school through a national eye and being in a position to evaluate our direction in comparison with other schools. The experience has been well timed. Medical education is changing as quickly as health care delivery, and tomorrow's doctors will likely have a different skill set than we've seen in the past.

patients, professional community, and research interests – which is the very future of health care. We're already doing this at UND!

This issue of North Dakota Medicine speaks to several different kinds of partnerships the school has developed. Don't miss the article on **Robert Sticca, M.D.**, chair of surgery at the SMHS who is leading a pioneering research project with UND biologists and UND and NDSU's electrical engineers and to develop a thermal ablation therapy (page 9). The result of this research may one day lead to the removal of diseased areas through ultrasound technology with minimal trauma to surrounding tissue, no surgical openings to disinfect, and no wounds to suture.

An international partnership was finalized recently as well, with the school establishing a faculty and student exchange program with the University of Tromsø in northern Norway. Tromsø is the northernmost university in the world, and works with a high percentage of native Sami people and similar medicine programs associated with rural populations. The arrangement will provide additional opportunities for our Indians into Medicine (INMED) students and Sami students at UTM to participate in the exchange program.

I'd be remiss in not mentioning a most important partnership ~ that of our loyal donors to the School of Medicine and Health Sciences. This has been another record year for the school, and it has been your dedication that has provided over \$11.4 million in gifts and pledges. I'm deeply appreciative for the investment you have made in your medical school's future, and for the trust and confidence you continue to place in us. Thank you!

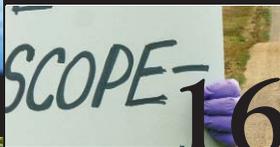
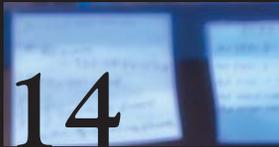
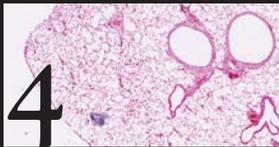


H. David Wilson, MD
Vice President for Health Affairs
and Dean



H. D. Wilson, M.D., and **Torlaf Hasvold, M.D., Ph.D.**, Dean and Professor, University of Tromsø (Norway) Faculty of Medicine sign a partnership agreement

National trends are shifting towards the type of physician we are already training at the UND School of Medicine and Health Sciences. Consider that all students that enter medical school are "good" students. They have strong science backgrounds and typically excellent linear thinkers. However, with the continued expansion of technology, tomorrow's physician will be expected to have the left-brain skills, but also must be creative problem solvers who practice "whole" medicine through developing partnerships with a variety of entities that will better serve their



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Corrections

In the Spring issue of ND MEDICINE, **Steffen Christensen's** name was spelled incorrectly.

Omission: The names of **Barry Milavetz, Ph.D.**, Associate Professor of Biochemistry, and **Lata Balakrishnan, Ph.D.**, were inadvertently left out of the story "The Goose That Laid the Healing Egg."

We regret the errors.

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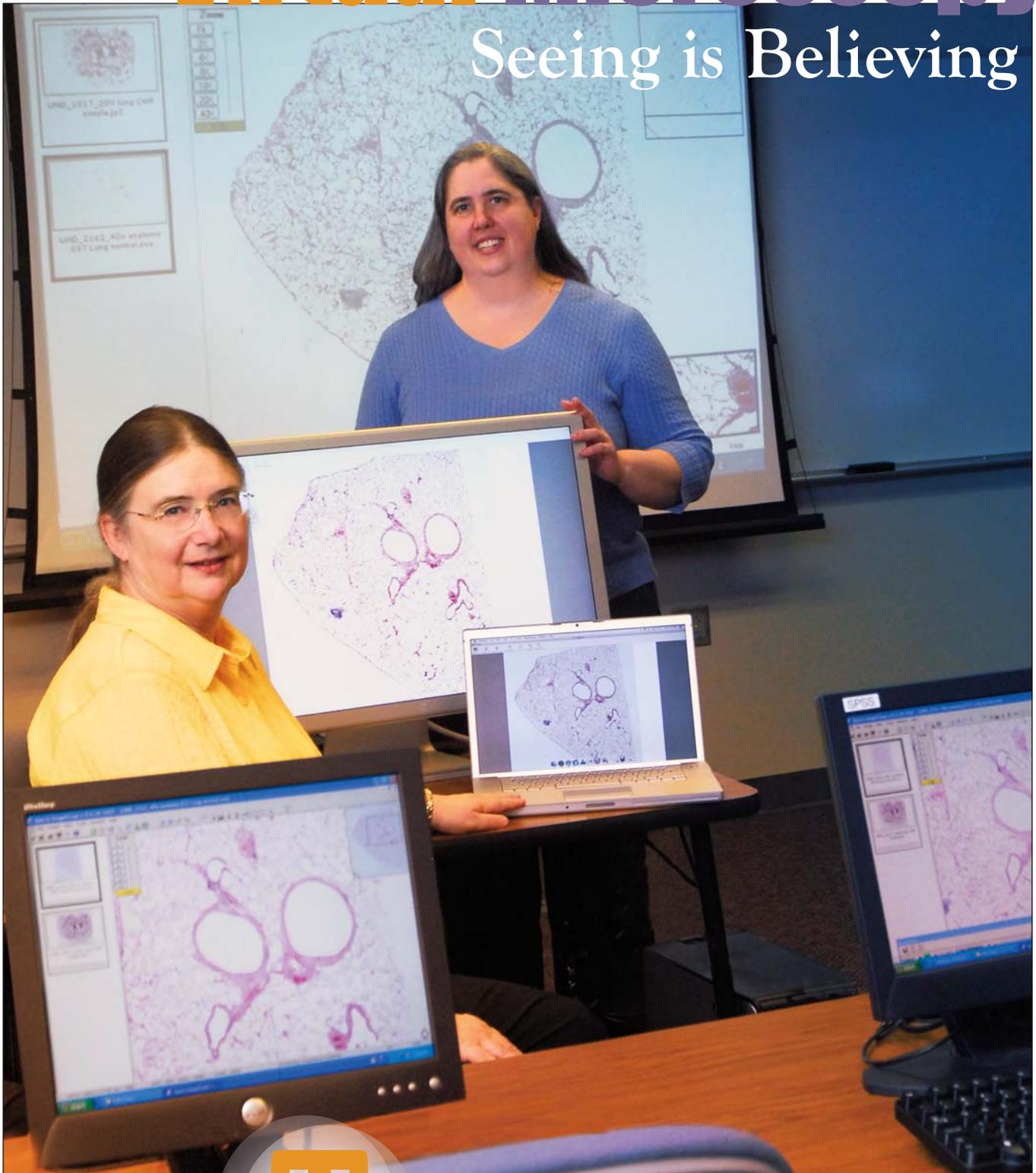
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Virtual Microscopy

Seeing is Believing



T

HE MICROSCOPIC WORLD OF cells has gone digital. For medical and other health students relying on this sort of data, this is a big deal

about small stuff. Park the microscope, welcome to virtual microscopy.

“This is a vital new teaching tool, an educational enhancement, a very big

improvement in how we present microscopic material to our students," says **Mary Ann Sens, M.D., Ph.D.**, professor and chair of the medical school's Department of Pathology. Sens also is Grand Forks (N.D.) county coroner. "The real focus of this technology in terms of how we teach is that it helps students focus on the patient-centered curriculum. It puts the focus of the learning on patient care."

Virtual microscopy has revolutionized the teaching of two core subjects in the curriculum for students in the medical and allied health professions. The first is histology, the microscopic study of body tissues; next is pathology, the study of diseased and other abnormal tissues, notes **Jane Dunlevy, Ph.D.**, associate professor and research scientist in the medical school's Department of Anatomy and Cell Biology, and a colleague of Sens.

Briefly defined, the virtual microscope presents students with pre-capture images as if they were using a "real" microscope in real time. The student viewing the image also has much greater control over where exactly to navigate on the image—they can look in detail at a portion of the image. Virtual microscopy—all computer-based—delivers what the traditional optical microscope does and then some, says Sens. Another advantage of virtual microscopy is that images can be posted on computer networks, allowing much greater freedom of access for students. They're no longer locked into fixed lab schedules.

The technology is now available on a student's computer screen and represents the convergence of many advanced technologies, Sens and Dunlevy say. In particular, it took major advances in memory technology and in image storage and retrieval systems. Even today, most digital microscope images are much too big to be sent wholesale over the Internet. Instead, algorithms portion out a given image into the specific piece of it that a student wants to look at. That also takes a lot of processing power and speed.

"We're now just getting to the point

where we can see how bacteria operate," Sens says. "With the virtual microscope, we're now at the resolving power of the best optical microscopes."

And, Dunlevy explains, that means students can look on their computer screens at the structure of tissues. This is histology, a look at cell-level samples that tell you what makes a heart a heart and a brain a brain.

"All physicians are trained in histology," she says. "It's the basic tool that lets you know how healthy tissue is supposed to look and what's the normal range for healthy."

In pathology, students basically study disease.

"You have to be well-grounded in histology to understand what's normal and what normal variance is before you can understand what's abnormal," says Sens. "Examination of a pathology sample will show you whether you're looking at an infection, a tumor, or a congenital abnormality that just showed up."

Before virtual microscopy made it into the medical school, students shared optical microscopes. Though professionally prepared slides were excellent, there simply weren't enough optical microscopes to go around, so students worked in groups around an instrument. Moreover, Sens points out, there was a limited number of faculty and graduate students to come around and show them how things worked.

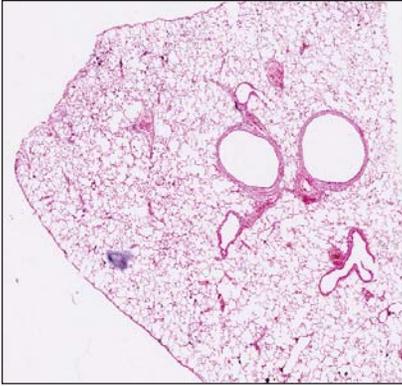
"And let's not forget that, though good, the optical microscopes they were using were student microscopes—by definition, they are not diagnostic-quality instruments," Sens says. "So they were great for getting a good overview, but students couldn't use them outside of class time. The histology and pathology labs had set hours, so a student couldn't use them to review at will."

With the virtual microscope, students now can access those vital digital slides at 3 a.m. or any other time of day.

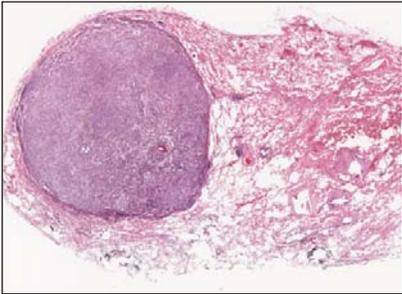
"The images are available on any computer in the building. A student can come in, turn on the computer, review the slides," Sens says.

Additionally, the technology allows

The technology now available on a student's computer screen represents **the convergence of many advanced technologies.** In particular, it took major advances in memory technology and in image storage and retrieval systems.



Normal lung: Air passes through the white spaces seen within the lung while the pink is the healthy tissue.



Diseased lung: The pink is the healthy tissue, while the large purple mass on the left side is a metastatic melanoma (cancer).

students to copy a slide, which couldn't be done at the student level on lab-based optical microscopes, she notes. "They can do all sorts of wonderful things with slides now, like incorporate them into their learning objectives for the week, or put them into the case presentations or handouts."

Another major advantage of the virtual microscope is what it does in the classroom. (See page sidebar on next page.) "We're the beneficiaries of being able to take one slide, say, a perfect example of a disease or several perfect examples of normal variation, and every single student in the classroom has equal access to those images," Sens explains.

"That's a lot different from before, when no two slides were identical and there weren't enough microscopes for each student in the class. Back then, even if the differences were subtle, no one was on exactly the same page. Now, with virtual microscopy, everyone is."

Cost is also an advantage with digital, Sens and Dunlevy note. A diagnostic quality optical microscope costs \$30,000 or more, while a student microscope costs roughly one-tenth that amount. Then there's the individual slide, at a cost of \$25 to \$50, and supplying enough slides for a whole medical school class.

So far the medical school has spent about \$50,000 on its virtual microscope system, including the two-terabyte servers that handle the images and the software that supports image storage, retrieval and delivery. Since a given sample only needs to be made once for limitless digital access, the cost per view and per students goes way down. The school is in the process of upgrading to an 8-terabyte (8,000 gigabyte) server. The system also will allow the scanning of slides using new technology with a 100x lens. The school also is acquiring an innovative software program that provides a searchable virtual slide database, organizes multiple file formats including virtual slides into patient cases. It'll provide Internet access to the medical school's bank of virtual slides.

The new digital reality in the school's histology and pathology labs is that students learn the material better, Sens says.

"The students see a normal lung, then lung tissue with tuberculosis (TB), TB in a lymph node, TB in the liver—what a really great way for students to learn," Sens says. "You're talking the difference between an old car and a new BMW. It's really revolutionized how we bring this critical information to our medical students."

Students also can get a much broader spectrum of pathology and histology views than with the now-outmoded optical microscope.

"Previously, for example, students were limited in their access to special cases, such as being able to see the estrogen receptors in breast cancer cases. The receptors tell you whether the cancer cells would respond to chemotherapy. Such slides were cost prohibitive, up to \$100. And with rare diseases like rabies, with very small biopsy, you couldn't make 60 sections for the class, the sample would be gone."

Now, with digital slides, students can view a whole range of things previously outside the range of the standard school lab. With one digitally scanned slide, students can see a lesion that's diagnostically significant, Sens points out.

"This technology allows you to create a total education package in a manner that's patient-oriented and strongly reflective of our patient-centered curriculum," she says.

Dunlevy agrees.

"This generation of students learns how to use electronic resources so quickly," she says. "In fact they teach us things. I've been told that the software isn't Mac-compatible. But sure enough, there are the students in the lab with their Apple Macintoshes—they know how to figure this stuff out."

Ready for Our Close-up.....

Virtual microscopy (VM) is amazing. It can do things, such as organize image information, that the world's best light microscopes can't handle. Virtual slides are high-resolution computerized slides of diagnostic quality that are viewed even more dynamically and interactively than with a microscope.

"It's revolutionized the curriculum—and that's just for starters," says Jane Dunlevy, Ph.D., a histologist and associate professor in the medical school's Department of Anatomy and Cell Biology. "No doubt, this technology already has delivered more than it promised."

It takes awesome amounts of computer memory and computing power and speed to handle the VM system, she says. A single virtual slide image occupies more real estate on a computer hard drive than 1,000 early desktops had combined in their memory banks.

VM has replaced the classroom-based light, or optical, microscope in the school's medical and health sciences curriculum. The VM system delivers super-sharp digital images—virtual slides—of healthy or diseased human tissue. (VM has other applications, but we focus on its use in medical and health science education.)

Before VM, students learned about medical tissue samples through light microscopes that were shared. No two glass slides were identical; and there are 200 in a box, with a box for each medical student.

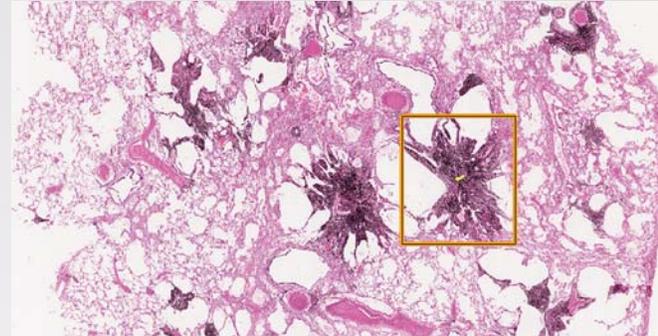
"It was tricky, for sure, and you had slide breakage as well as other maintenance issues such as fading of the tissue stain," Dunlevy says. With a virtual slide, all students in a class can witness the same material and, because no one is touching anything and nothing ages, slide images remains pristine.

"For students, the best news is threefold: VM delivers diagnostic quality images, simultaneous viewing of multiple magnifications, and the ability to add annotations—the instructor or student can draw on top of the computer image," says Dunlevy. The computer that virtual slides are viewed on is not a substitute for the microscope but rather is a vast improvement to one. A collection of virtual slides is not an electronic atlas of images. The virtual slides are viewed more interactively than could ever be done with a microscope.

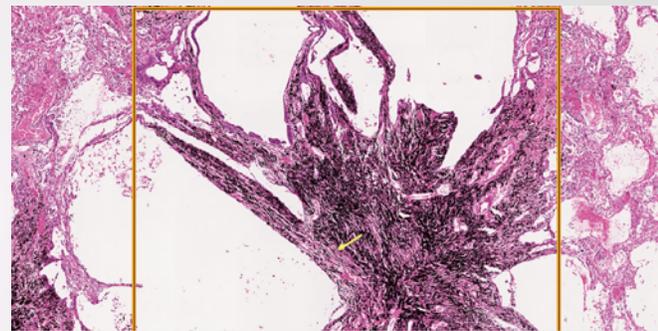
The school's VM package soon will be enhanced thanks to a student technology fee grant. Total cost for the VM system, including the upgrades, will be about \$100,000.

"Our virtual microscopy system is an investment in technology that will expand educational opportunities at UND for years to come," Dunlevy says.

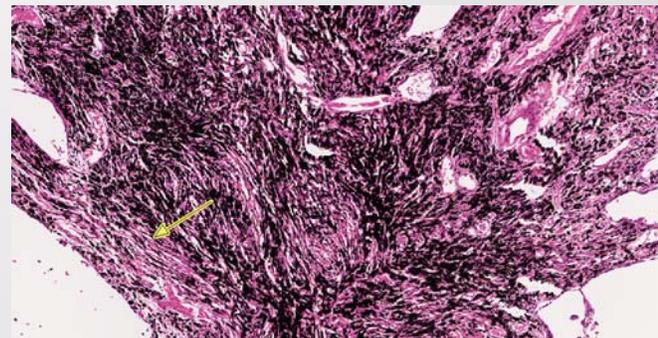
Slide of lung tissue from a coal miner.....
A portion of the diseased tissue outlined by the orange box points to one of many carbon deposits. With increasing magnification the orange box disappears and the yellow arrow can be seen.



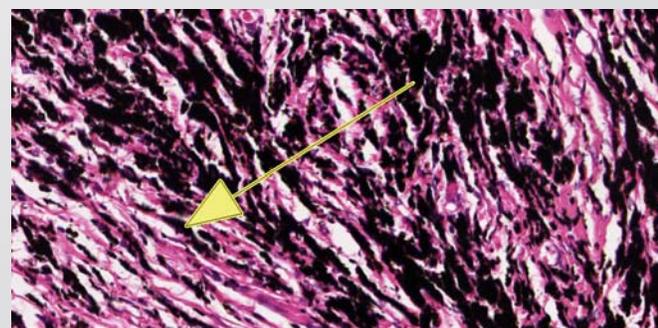
0.5x magnification



2x magnification



5x magnification



20x magnification

- Juan Pedraza

Tiny Bubbles. .



Robert Sticca, M.D., left, and Timothy Bigelow Ph.D., research exciting new non-invasive, practically bloodless surgery methods that will minimize pain and speed healing.

ROBERT STICCA, M.D., UND SCHOOL of Medicine and Health Sciences surgical chief, is among a handful of pioneers developing a new surgical technology that uses bubbles and sound waves to destroy diseased or injured tissue including malignant tumors or cancer. These surgical techniques may eliminate the need for many of the traditional panoply of surgical tools, including the venerable scalpel.

"It's an incredibly promising technology, but we've still got a long way to go before you'll see this in clinical use," says Sticca, a distinguished clinician and medical school faculty member who teaches and practices surgery and maintains several active research programs.

Sticca, also a highly regarded surgeon, is a pioneer in conducting research programs in disciplines

Bubble, bubble and a lot less trouble: putting the fizz into new surgical methods, drug delivery, and gene therapies.

outside of medicine, which, in terms of medical research, is truly groundbreaking.

"I saw this as a critical opportunity to advance surgery research in the field of surgical oncology," says Sticca, whose research partner on the bubble front is UND electrical engineer **Timothy Bigelow, Ph.D.** From his end Bigelow is collaborating on this research project with UND biologists **Diane Darland, Ph.D.**, and **Dane Crossley, Ph.D.**

In essence, Sticca and Bigelow are using a tool that's a distant cousin of the process that carbonates your basic soft drink. This technology can be used to deliver drugs directly to specific sites in the body and to remediate certain genetic deficiencies with precisely oriented gene therapy. Bigelow explains this process is similar to surgery. However, where surgeons now slice away diseased areas, this process destroys the cancer without traumatizing surrounding tissue. This ultrasound technique points to shorter and less painful patient recovery because there are no surgical openings to heal, no wounds to suture.

Bigelow, who completed his Ph.D. in the area of acoustic physics in 2004 at the University of Illinois, Champaign-Urbana, says this is a keenly exciting area of inquiry, especially because it aims to enhance human health and because it crosses a lot of academic boundaries.

"The long-term goal of our ultrasound research here at UND is to develop the scientific basis for the development of surgical tools that will be dramatically more accurate and significantly safer," says Bigelow, who is researching both the theoretical and computational underpinnings for this technology as well as the actual hardware that will deliver the therapy.

Using tiny bubbles as a surgical instrument

Sticca and Bigelow explain that the core of this ultrasound surgical technology is a lipid encapsulated microbubble on the order of a few microns in diameter. Focused ultrasound energy—sound waves at frequencies above 20 kHz, beyond the hearing limits of the human ear—can pass through several layers of skin, muscle, fat, and other soft tissues. Low-intensity ultrasound already is familiar to anyone who's had a baby—it's what health practitioners use to create real-time images of babies in the womb.

At higher intensities, surgically focused ultrasound energy heats targeted tissue enough to destroy it, sort of like how a magnifying glass can light up a piece of paper by focusing sunlight on it. That's ablation. The combination of microbubbles passing through the cancer tissue with the high-intensity ultrasound results in highly accurate tumor tissue destruction.

Sticca says that the major appeal of this technique both in terms of surgeon and patient is that it could handily be used to noninvasively perform cancer surgery. A parallel research effort is looking at how to develop this technology as a way to deliver surgical intervention on babies, both before and right after birth.

"We're building on research that's already shown that ultrasound contrast agents have shown great potential in animal experiments for enhancing drug delivery to cells, performing gene therapy, and enhancing heating and subsequent cell death when performing ultrasound thermal ablation—basically, killing cancer cells with heat," Bigelow says.

Thermal ablation, he says, is one of several very promising outcomes: ultrasound "bubble" surgery potentially

The long term goal of our ultrasound research is to establish the scientific basis for the **development of surgical tools** that will be dramatically more accurate and significantly safer.

Our ultrasound surgery research aims to find out **exactly what's happening** at the tissue level. We want to know very precisely what tissues are being damaged and why.

will eliminate cancerous tissue without collateral damage to surrounding tissue. And, Bigelow emphasizes, here's the big benefit: you can do all this cancer therapy without or with only minimal drug use. In other words, future patients with cancers that can be appropriately treated with ultrasound histotripsy and related technologies won't have to endure the often nasty side effects of chemotherapy, radiation therapy and surgery.

That's among the big promises that lie behind this area of research.

But, Sticca cautions, there are many obstacles to clear before you'll see this in your surgeon's operating room. Enter another cross-disciplinary collaborational aspect of this research: **Dane Crossley, Ph.D.**, a UND developmental vertebrate physiologist and assistant professor of biology. Crossley, who earned his Ph.D. in biology from the University of North Texas in 1999 and lectures at the School of Medicine and Health Sciences, is an expert microsurgeon whose skill set is vital to Sticca's and Bigelow's research project.

"I focus on understanding developmental physiology in vertebrates," says Crossley, who is able to tackle the singularly detailed and potentially nerve-wracking task of successfully doing surgery on the cardiovascular system of a bird embryo still in its egg.

Ultimately, with the help of

Crossley's insight into developing fetuses, the Sticca-Bigelow research team figures on working out how to use microbubbles for surgical interventions on unborn babies, such as repairing vascular damage, doing brain surgery, or delivering gene therapy, all without damaging a single cell that shouldn't be disturbed. The goal, of course, is to enhance a baby's development into a healthy person.

To get there, Bigelow has to put his engineering skills to work to figure a way around a major challenge: in its current state of development, ultrasound surgery still has problems with collateral damage. Enter **Diane Darland, Ph.D.**, and her team of student researchers. Darland, a UND assistant professor of biology who spent several years as a post-doc researcher and instructor at the prestigious Schepens Eye Research Institute at Harvard Medical School, will measure such collateral tissue damage.

Ultrasound surgery has undergone radical improvements since it was first discovered in 1926—it's used routinely in a variety of applications, but it's still relatively dangerous when you're talking babies and fetuses, Bigelow notes.

"Our ultrasound surgery research aims to find out exactly what's happening at the tissue level. We want to know very precisely what tissues are being damaged and why," before proceeding to the next stage, Sticca says. Whatever today's limits, however, this pioneering team is keen to find the answers.

"We're very excited about this research because we see how much it will benefit patients when it becomes a reality in surgery practice," Sticca says.

- Juan Pedraza



Masters of the Plains: Horse Culture Promotes Tribal Health



Spirit Lake Indian Reservation tribal court officer **Darla Thiele**, and UND psychologist **Jessica White Plume, Ph.D., MPH**, work with horses and young people in an innovative alternative therapy program.

SADDLE LEATHER AND FRESH HAY Saddle leather and fresh hay smells filter through **Ed Solwey's** barn on the Spirit Lake Indian Reservation near Devils Lake. The horses sense something's up—the kids just arrived. Soon they'll all be working out in the neighboring barn.

Doesn't sound anything like research, does it? But this charming rustic setting—and the reservation youngsters who've showed up to be with the horses—are part of a research project for **Jessica White Plume, Ph.D., '06, MPH**, post-doctoral fellow at the UND School of Medicine and Health

Sciences Center for Health Promotion and Prevention Research.

White Plume works with a tribal program—run by tribal court officer **Darla Thiele**—that refers minors into reservation-based equine-assisted learning program. Part of that program is on Solwey's ranch.

"That means the kids work with horses," White Plume explains. "This is a behavioral intervention that helps these young people learn about themselves in a very positive way. The horses they work with and care for help them learn all about accountability in a culturally



Rancher Ed Solweg, right, works with youth referred by the tribal court to a hippotherapy program he manages as a volunteer. The program helps youth “find themselves” and succeed in life.

themselves, to be accountable for their feelings and how they express them.”

Before climbing on their charges, the kids must learn about the animals—how to groom, feed, and handle them, and understand who each horse is, notes Solweg, a group facilitator of the program.

“You can’t bring attitude in here,” Solweg says. “The kids soon learn self-understanding.”

For many, a trusting relationship with a horse may be one of the first good relationships that they experience, Thiele says.

“Horses respond best to calm leadership and clear communication, so participants develop these important life skills in an interesting real life setting,” notes White Plume.

Horses are superb at teaching kids the value of anger management and patience, says Solweg. Try getting angry with a horse in the confines of a stall or when you’re trying to saddle up.

“It doesn’t work very well,” says Solweg.

The rewards and the learning happen when horse and person are communicating together, he says.

White Plume explains that for a youth

who feels derailed by the system, working around horses builds a confidence they may never have felt before. This self-assurance will help them succeed in many life areas.

“This program aims to help these kids be successful, not just here, but for the long term,” says White Plume, herself an avid horsewoman since she was a young child living with her family on Pine Ridge.

White Plume’s collaborative research on the equine-assisted youth program at Spirit Lake is funded by an \$80,000 grant from the Otto Bremer Foundation.

“When I was in graduate school at UND, working with (CHPTR director) **Nancy Vogeltanz-Holm, Ph.D.**, and **Jeff Holm, Ph.D.** I got really interested in preventive health behaviors,” she says. “It’s not just that we want to treat specific problems like heart disease or problem drinking, we want to clearly understand the behaviors that lead to these deadly health problems.”

“So for me, this is about putting together my personal background and my professional life,” White Plume says. “I bring a scientific education to this work. A big part is the evaluation—we ask ‘are we making the difference we want to make?’ I challenge myself to use standard scientific methods, but we also have to adjust our methods without interfering with the natural momentum of the program.”

“There are so many reasons that horses and kids are a good match,” she says. “These young people learn best by doing rather than with textbooks and lectures. This activity is personally and culturally meaningful, they get lots of physical activity here, and there are clear mental health benefits.”

“Through programs like this one, I see a great future for community health development,” White Plume says. “The bottom line is that the horse culture is a long-standing natural strength of our tribal communities, and powerful fuel for many current tribal health efforts.”

- Juan Pedraza

What's in a **WORD**?

Plenty when you're dealing with mental health.

MENTAL HEALTH CLINICIANS THE world over regularly check psychiatry's "big book," the **Diagnostic and Statistical Manual of Mental Disorders**, or DSM for short. Published by the American Psychiatric Association (APA), this manual is the critical reference that helps practioners—psychiatrists, psychologists, and other mental health professionals—define the illnesses or syndromes affecting their patients.

Now that book is being revised. New terms, new definitions for old terms, all based on the latest research will be included in a sweeping, multiyear overhaul. Two pioneering clinician-researchers and faculty members from the UND School of Medicine and Health Sciences are among an elite team editing the the fifth edition of this celebrated mental health manual, dubbed DSM-V.

James Mitchell, M.D., and **Stephen Wonderlich, Ph.D.**, leaders of the Fargo-based and nationally recognized Neuropsychiatric Research Institute (NRI), which is affiliated with the UND medical school, were selected for the committee by their professional peers.

"This is a both an honor and huge responsibility," says Wonderlich, a psychologist who has developed a global reputation as an expert in eating disorders.

Mitchell and Wonderlich have developed new diagnostic tools and innovative treatments for people with disorders such as anorexia nervosa. Their place on the DSM-V editorial committee underscores the value of their experience and research not only to the mental health community but also to the many medical students and residents that they teach.

Mitchell explains that the DSM is an American handbook for mental health professionals that lists different categories of mental disorders and the

criteria for diagnosing them. It is used worldwide by clinicians and researchers as well as insurance companies, pharmaceutical companies, and policy makers.

Leaders from the American Psychiatric Association, the United Nations World Health Organization, and the World Psychiatric Association determined the previous edition of the DSM needed to be revised and that additional information needed to be included. Thirteen work groups have been set up to revise the DSM. The revised DSM will reflect the diagnostic categories of psychiatric disorders described in previous editions of the manual, but also it will reflect new scientific understanding.

This revision is going to take several years, note Wonderlich and Mitchell, who hold teaching and research appointments at SMHS and are mentors, as well, to psychiatric residents in the residency program at the School of Medicine's Fargo campus.

In a real sense, this is a labor of love for Mitchell, Wonderlich, and their colleagues on the DSM-V committee. As part of the APA's concerted effort to avoid conflicts of interest and ensure transparency with the development of DSM-V, the organization set up strict guidelines for participants in the review process. The No. 1 criterion is that they all serve without pay (with the exception of the DSM-V Task Force chair). There are other tight financial guidelines, including limits on how much cash or other payments each committee member can get from pharmaceutical and other health care-related companies.

A release of the final, approved DSM-V is expected in May, 2012.

The revised DSM will reflect new scientific understanding.



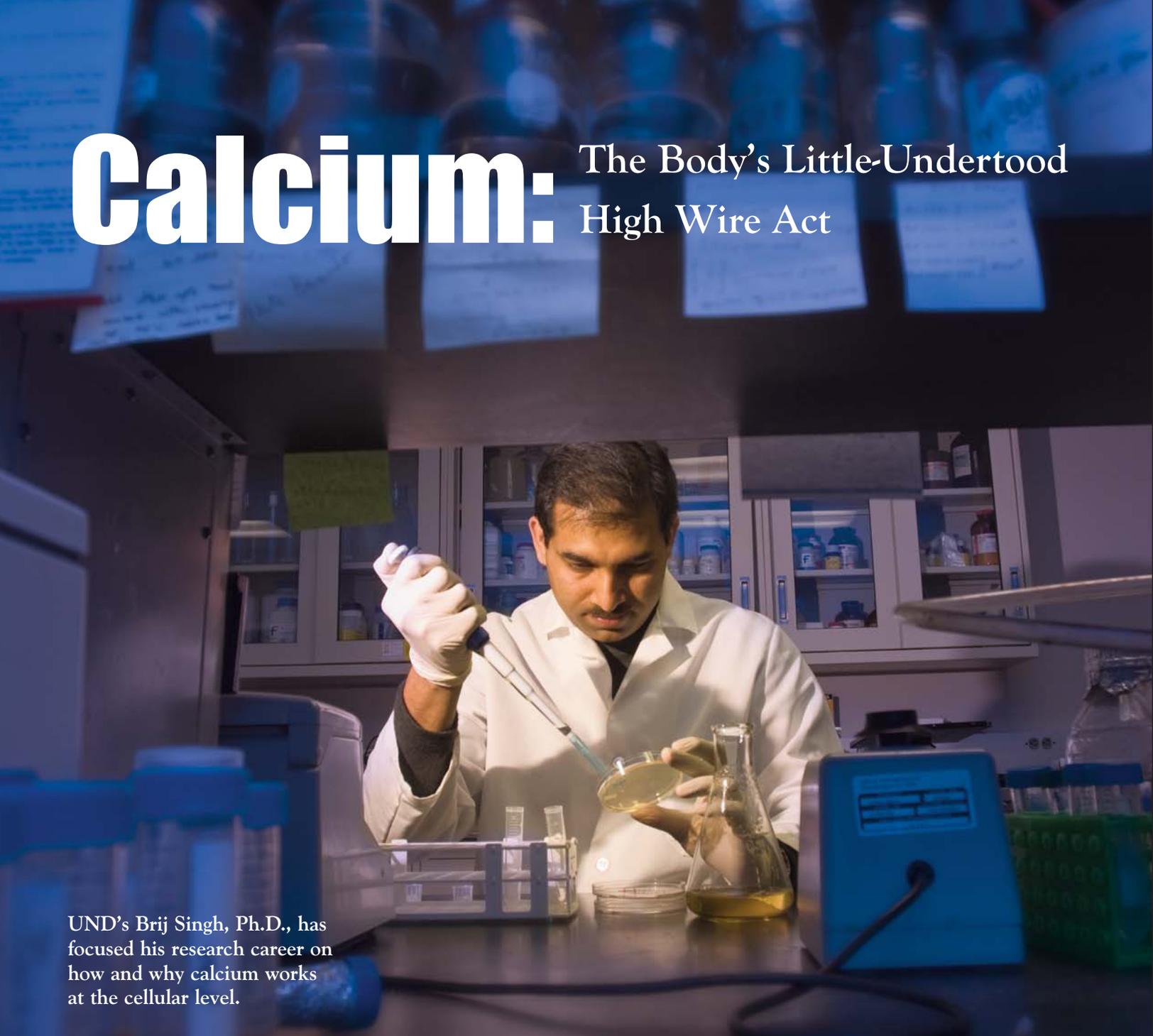
James Mitchell, M.D.



Stephen Wonderlich, Ph.D.

- Juan Pedraza

Calcium: The Body's Little-Undertood High Wire Act



UND's Brij Singh, Ph.D., has focused his research career on how and why calcium works at the cellular level.

CALCIUM IS THE MOST ABUNDANT mineral in the body, accounting for about two percent of our total weight, with a lot of it in the bones. But it's the one percent that floats around in the blood stream and crosses in and out of each and every one of our 60 trillion or so cells that keeps us going.

"Calcium is vital to life, both as the key component of our skeleton, and as one of the most important biochemical regulators in the body," says **Brij Singh, Ph.D.**, assistant professor of biochemistry and a well-known expert in calcium

mechanisms at the UND School of Medicine and Health Sciences.

"Calcium is everywhere in the body: without it, muscles would not contract, brain cells would not fire, blood would not clot and our heart would not beat," Singh says.

"Basically, calcium signaling—the process in the body by which calcium is sent where it is needed and returned to where it is stored—is a vast area of inquiry that'll keep my very busy for the rest of my career," he says.

Mostly, the calcium in our bodies

does its thing without much of a fuss. “But if the calcium channel misfires, we get into all kinds of trouble,” notes Singh, who has focused his research career on how and why calcium works at the cellular level.

“Everything you do requires calcium,” notes Singh. “Even something as simple as lifting a pencil requires a very specific calcium balance. But when the calcium transport channel gets out of balance—and we’re not sure why that happens—then the body goes into a disease state. That can be Alzheimer’s, Parkinson’s, heart disease—they’re all related to a calcium deficiency—or cancer, which can result when too much calcium is released.”

Singh’s research involves the study of calcium mechanisms in the body that can, when they don’t work properly, lead to diseases such as cancer, Parkinson’s disease and Sjorgens syndrome, a salivary gland dysfunction.

The main storehouse for calcium, Singh explains, is the skeleton, which, when the system works right, releases calcium into the bloodstream at rates precisely regulated by the brain for delivery to the cells that need it.

“It’s evident to everyone that too little calcium is fatal—cells lacking calcium simply fail to grow and develop, and they die, in other words, we die,” says Singh, a native of northern India. “What’s more challenging to understand are all the consequences and mechanisms that put too much calcium to work.”

When calcium goes haywire

Among the most devastating diseases related to calcium overload are Alzheimer’s and Parkinson’s, both chronic—and incurable—neurodegenerative diseases, observes Singh, whose research projects include studies of calcium regulation in the neural system. With Alzheimer’s, a person’s memory slowly fades because there’s a constant influx of calcium into the neurons.

In Parkinson’s, the relationship between calcium regulation and the triggers for the disease are still being

researched, but it’s evident that calcium plays a role. The symptoms include difficulty walking, talking, or manipulating objects such as a cup of coffee, Singh says. “It’s this mechanism at the neuronal level that we’re exploring here at UND.”

Other calcium-related problems include “dry eye” and the failure of the salivary glands, which causes difficulty swallowing, inefficient digestion, and other problems, says Singh, who’s pursued calcium research since his Ph.D. studies in India and Germany.

“I learned very quickly that calcium touches so many life processes that I’d never run out of research projects or ideas,” says Singh, whose wife **Archana Varma, Ph.D.**, a biochemist, was just accepted as a medical student here.

Singh says the key to his research—and that of colleagues such as SMHS Department of Pharmacology, Physiology, and Therapeutics chair **Jonathan Geiger, Ph.D.**, is to accurately understand not just the calcium pathways but all the events that occur “downstream” once the calcium ions get where they’re supposed to go.

“We’re trying to understand exactly how calcium signaling works, and to understand what its malfunctions mean in terms of the physiological problems and diseases that these malfunctions cause,” he says. Normally, Singh explains, calcium is free-floating in the blood and in healthy people, always at very low levels.

“What we know for sure today is that there’s a very tight balance in our bodies between too little and too much calcium,” he says. “We’re learning more daily about this, and we aim to learn how to manipulate this process so that we can treat disease, maybe even go for gene therapy.”

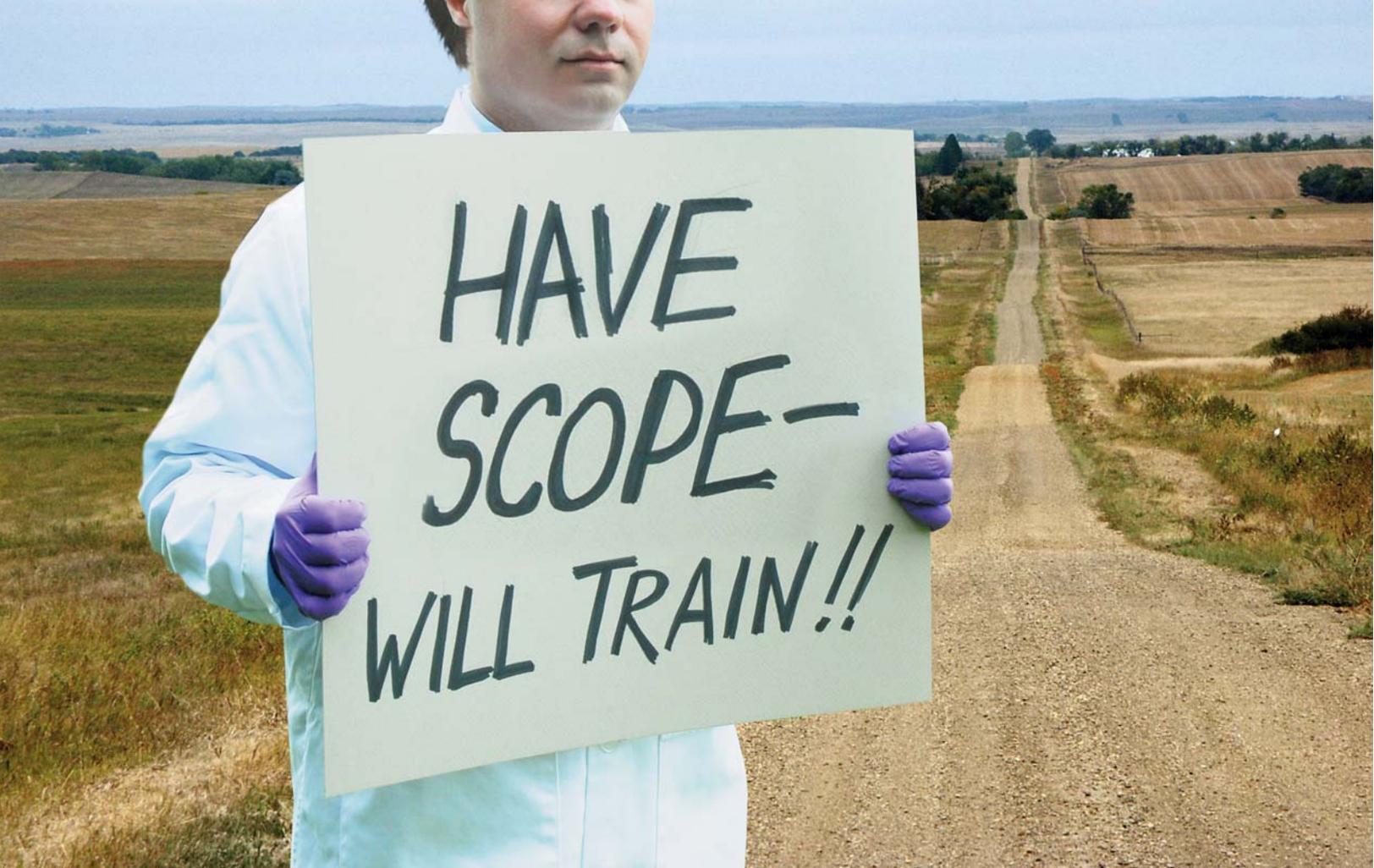
- Juan Pedraza

What we know for sure is that there’s a **very tight balance** in our bodies between too little and too much calcium.

WEB EXCLUSIVE:

For more about Brig Singh’s work with calcium, visit: www.ndmedicine.org





IT SOMETIMES SEEMS MORE FICTION than science to believe that patients in the far reaches of rural western North Dakota could be treated by doctors in their hometowns without traveling miles and miles for care.

It's a service to the state and the people.

As a small town doc, nothing's worse than seeing the taillights of your neighbor heading to the city to get a medical procedure done, when you know you could have performed that procedure in your local hospital. As rural health care facilities struggle to make ends meet, every patient who seeks care locally helps to keep the facility open. A few western North Dakota facilities decided to do something innovative to stop the patient exodus.

Enter the traveling trainers—**Stephen Stripe, M.D.** and **Wade Talley, M.D. '95**, both family medicine physicians and associate directors of the University of North Dakota Center for Family Medicine in Minot, ND.

Their "traveling endoscopy" brings

vital health care services to the rural communities, along with valuable training for physicians to provide these services locally, ensuring convenience and quality service for rural patients.

Endoscopy means looking inside and typically refers to looking inside the body for medical reasons using an instrument called an endoscope, a thin, flexible, lighted tube with a camera on the end. Drs. Stripe and Talley travel to the medical facilities in Crosby, Stanley and Tioga about once per month to either perform endoscopies, or train the local physicians how to perform endoscopies themselves.

Why Endoscopy?

Drs. Stripe and Talley focus on two important types of endoscopies: colonoscopies, which examine the colon, and esophagogastroduodenoscopies, more commonly known as EGDs, which examine the esophagus, stomach and duodenum.

In an EGD, the endoscope is inserted through the mouth, down the throat, and helps in diagnosing and

often treating ulcers, intestinal bleeding, heartburn and esophageal cancer. Colonoscopies assist physicians in discovering polyps, colitis, tumors, diverticulitis and hemorrhoids. With colorectal cancer being the third most common form of cancer in both men and women according to the American Cancer Society, colorectal cancer screenings are especially important. These screenings can result in the detection and removal of colorectal polyps before they turn into cancer.

Scope Training

Drs. Stripe and Talley train their local physicians much in the same way they train their residents at the Minot Center for Family Medicine residency program. The trainees observe several procedures first and then travel to the Center for Family Medicine in Minot to practice scenarios on a colonoscopy simulator. Next they are ready to complete the procedures on patients under supervision. Once they are comfortable, Drs. Stripe and Talley will sign off and they will be able to complete the procedures solo.

Swami Gade, M.D., M.P.H., a family medicine physician at Tioga Medical Center, is a current "student" of the endoscopy training. Tioga is a

What's the Point?

Giving rural physicians the tools and training to provide sub-specialty services locally increases the likelihood that local patients will remain in the area for their health care needs, according to **Mary Amundson, M.A.**, assistant professor in the Center for Rural Health at the University of North Dakota (UND) School of Medicine and Health Sciences in Grand Forks, ND, and expert in the fields of recruitment and retention of health care providers.

"A lot of folks don't want to take the time to drive to the city to have these procedures done, and there aren't enough gastroenterologists in North Dakota to do all these procedures anyway," said Dr. Talley. "Training local physicians to perform endoscopies is convenient for the patients; they stay in the community and keep their business local."

"It's a service to the state and the people. We want to screen North Dakota residents and decrease the instances of colon cancer. We want to help the local communities develop their own expertise in being able to do this."

- Wendy Opsahl



Stephen Stripe, M.D.



Wade Talley, M.D. '95,

Beginning at age 50, both men and women at **average risk** for developing colorectal cancer should **get a colonoscopy** screening for polyps and cancer **every ten years.**

American Cancer Society, 2008

small western North Dakota town of about 1,200 people, and it is 50 and 80 miles from the nearest cities of Williston and Minot.

"There are just two doctors in Tioga, and I think the citizens deserve equal services to what they would receive in a metropolitan area," Dr. Gade said. "I try to learn as many skills as I can to help the community."

WEB EXCLUSIVE: For more information on **colon cancer screenings**, visit www.ndmedicine.org



For more information on the **Minot Center for Family Medicine**, visit www.ndmedicine.org

“G’Day Doc!”

Australian clinical rotation broadens student’s horizons



Recent UND medical graduate **Katie Splichal** outside the Mount Isa Center for Rural and Remote Health in northeastern Australia.

DAY ONE WAS A LITTLE BIT confusing. It was a disease **Katie Splichal** hadn’t seen before, a tropical disease most physicians in North Dakota have probably never seen before. The attending physician prescribed an unfamiliar medication, Panadol, which sent Katie scurrying to her medication guide. Even though Splichal was a senior medical student on the verge of graduating, no one seemed worried about her confusion with the basic medicine (which turned out to be Tylenol). In fact, they rather expected it. That’s because she was doing an international rotation at James Cook University in Australia. It was the beginning of an unforgettable educational experience, “not a vacation,” she says.

Of course, that is exactly what some naïve medical students think they’ll do

while completing a clinical rotation abroad, casually going on a few rounds while making sightseeing plans on their BlackBerry. Others imagine themselves as “super-doc,” saving the lives of the masses in some tropical location Hollywood blockbuster-style.

This isn’t reality, however. Not for most medical students, anyway. International rotations are as diverse as the nations of the world, and offer lessons more valuable than any sightseeing trip could possibly provide.

Katie Splichal, a native of Grand Forks, and recent medical graduate of the University of North Dakota School of Medicine and Health Sciences, chose to spend her final rotation studying rural family and tropical medicine at James Cook University School of Medicine in Townsville, Queensland in northeastern Australia. She had studied in Australia

once before as an undergrad but returned five years later more mature, and with a keen sense of purpose to learn, heal and teach.

“Students do international rotations for a variety of reasons,” says **Judy DeMers**, associate dean for student affairs and admissions at the UND medical school. “Some go to learn about different health care systems, others go to brush up on their foreign language skills in anticipation of a bilingual residency. However, the majority go simply to serve and give back in rural or impoverished nations.”

Learning down under

Many people picture Australia as being like the bustling, multicultural city of Sydney, but it is actually quite a rural country that faces many of the same health-related challenges that rural America does. Australia, like the United States, is facing a severe physician shortage; in fact, the federal government has just invested \$100 million into medical student training in Queensland.

Splichal spent part of her time at Mount Isa, in the “outback,” as they say, one of the most remote areas of Australia. Here she learned about and cared for Australia’s Aboriginal people, an indigenous population similar to Native Americans in the United States.

“While the Aboriginal people face many health challenges such as heart disease, diabetes and alcoholism, they maintain an amazing sense of community,” said Splichal. “Everyone has multiple mothers, cousins, brothers—not related by genetics, but by community.”

There are 19 accredited medical schools in Australia and New Zealand, in comparison with the United States’ 129. About half of the Australian medical schools have a medical education system similar to those in the United States, where students complete four years of graduate medical training above and beyond their bachelor’s degree. The other half have an “undergraduate entry” program which is six years long, essentially compressing undergraduate and graduate work into

one program.

Australian medical students graduate with a Bachelor of Medicine/Bachelor of Surgery degree (BMBS), which looks like two separate degrees but are treated as one. Those who hold that degree are referred to as “Doctor,” and their training is equivalent to what we know in the United States as the M.D. degree.

Not only did Splichal do a lot of learning on her rotation, but she also gained some valuable time as an instructor. First-, second- and third-year students benefited from her presentations on developing good communication skills. She also led skills labs at Mount Isa, where students learned how to suture, apply arm casts and insert IVs, among other things.

A bright future

So, what’s next for Katie? She moved to Cleveland, OH, in June to begin a pediatrics residency at Rainbow Babies and Children’s Hospital, the primary teaching hospital of Case Western Reserve University and one of the top five children’s hospitals in the nation.

While she might not see any tropical diseases in Cleveland, the valuable lessons she learned in Australia, such as communicating with different kinds of people and training others, have definitely helped prepare her for the intense 80-hour work weeks she now spends as a pediatric resident.

And it wasn’t all work and no play, she sheepishly admits. Her parents, **Dan and Susan Splichal** (the Women’s Center of Excellence coordinator at the UND medical school) joined her in Australia after her rotation was complete for a week of snorkeling, hiking and sightseeing.

“It was an amazing experience,” she said. “It opened my eyes to the things we take for granted here, and certainly broadened my horizons as a physician. That’s really what a good clinical rotation is all about.”

- Wendy Opsahl

Mount Isa

Students travel to international rotations for a variety of reasons . . . the majority go simply to serve and give back in rural or impoverished nations.

Partners in Time:

INBRE Expands Horizons for Undergraduates Statewide

SEVEN YEARS AGO WHEN SCIENCE faculty members at Minot State University (MSU) were asked what it would take to get their students more involved in research, the answer was: less time in the classroom and more time in the lab.

Since then, two grants to the UND School of Medicine and Health Sciences from the National Institutes of Health (NIH) have enabled faculty at North Dakota's four baccalaureate institutions and five tribal colleges to spend more time getting undergraduates involved in research.

research, behavioral research and the health sciences, such as medical, dental school and pharmacy," says **Donald Sens, Ph.D.**, professor in UND's department of pathology and INBRE principal investigator.

"As soon as we placed INBRE funding at Minot State, they expanded their faculty to take advantage of the opportunity," he notes.

After six years, the results are paying off. Perhaps it's most evident at MSU where research has expanded from four to seven INBRE-funded projects, a molecular biology lab has



As soon as we placed INBRE funding at Minot State, they expanded their faculty to take advantage of the opportunity.

"The money has meant that I can spend a lot more time on my research, and student involvement has more than doubled," says **Chris Keller, Ph.D.**, associate professor and MSU biology chair.

In 2001, the medical school, in partnership with NDSU, received a three-year, \$6-million grant from the NIH National Center for Research Resources (NCRR) to establish the North Dakota Biomedical Research Infrastructure Network (BRIN). The program was renewed in 2004 with a five-year, \$16.3-million Institutional Development Award (IdeA) for the North Dakota IDEa Network of Biomedical Research Excellence (INBRE).

"One of the major goals of the INBRE program is to create a pipeline of undergraduate students from the state's primary undergraduate colleges who would go into biomedical

been added, up to 75 students have received research experience and more of the university's graduates are pursuing careers in science and healthcare professions.

In addition, researchers at MSU are collaborating with Sens and scientists at NDSU to study heavy metals in the environment.

"We have some good environmentally based programs at Minot State that interface well with our laboratory expertise, which is the effect of heavy metals on human health," Sens says. "We look at heavy metals and how they impact on the development and progression of bladder cancer, prostate cancer, breast cancer and kidney disease."

Today, thanks to the BRIN and INBRE grants, researchers at MSU and other institutions across North Dakota not only have more time to conduct research, but also better equipment..

"I've done things at Minot State that I never dreamed I would be able to do," says **Heidi Super, Ph.D**, associate professor of biology. "I have the equipment that pretty much any lab in the United States or internationally would have to do DNA expression analysis. It's been a wonderful thing."

INBRE funding enables Super, who specializes in leukemia research, to take students to the annual American Association for Cancer Research meeting. Last April in San Diego, one of her students – **Aileen Aldrich**, a junior chemistry major from Minot – finished second in the association's undergraduate poster competition.

"When you go to this meeting, you see how much each person doing their own research contributes to moving cancer research forward," says Aldrich, who plans to apply to medical school at UND. "It was definitely a good experience to be immersed in so much knowledge."

With INBRE funding, MSU also developed outreach programs for American Indian students at Fort Berthold Community College and Turtle Mountain Community College that enable them to participate in research projects, both in the lab and in the field on the reservations.

"It's been a really good, growing collaboration," says **Chris Beachy, Ph.D.**, professor of biology at MSU. "It's been productive and we're thankful for it. It's been great for the students. They love it. They want to keep coming back."

Involvement in INBRE research gives MSU students such as Steven Lewis, a chemistry major from Burlington, a new perspective on the future.

"When I came to college, it was with the idea of becoming a pharmacist," he says. "Now that I've done research, I see that there are a lot of exciting possibilities. It definitely opens your eyes to the different horizons in the chemistry field." 

- Patrick Miller



INBRE researcher **Heidi Super** (top) works in the molecular biology lab at Minot State with **Aileen Aldrich**, a junior double major in chemistry and biology.

Cancer Control in Native Americans

Judith Salmon Kaur, M.D. (B.S. Med.'77), heads a high-profile cancer program for American Indians at the world

renowned Mayo Clinic in Rochester, Minn. Dr. Kaur is widely respected among her peers as a pioneering physician and researcher in the area of American Indian health. Kaur also leads a nationwide campaign to educate Native American and other women about a life-saving vaccine against the main infection that causes cervical cancer.

Kaur heads three high-impact Mayo programs:

- Native Web, which trains nurses to provide breast and cervical cancer screening and education to Indians on reservations and in urban clinics.
- Native C.I.R.C.L.E., which provides culturally appropriate cancer education materials for lay persons, allied health, and clinicians working in Native communities.
- Spirit of E.A.G.L.E.S., which

empowers intervention studies in Native populations, provides scholarship support for students in medicine or biological sciences training, and advocates for improved cancer prevention and control in American Indian and Alaska Native populations.

With career research grants totaling close to \$20 million, Kaur, who graduated from high school when she was 17 and had a Master's degree in counseling by the time she was 21, is a key player in fight against cancer—especially cervical cancer—among American Indians. She and an American Indian colleague were the first to discover that American Indians were succumbing fast to some very nasty cancers.

Kaur, a Choctaw Indian and one of only two board-certified American Indian

oncologists, delivered a clarion call about cervical cancer to the North Dakota Women's Health Research Conference this spring at the UND Wellness Center. The human papilloma virus (HPV) vaccine is an infectious agent that's directly linked with cervical cancer.

"For women to understand the need for this vaccine, they need to understand the connection between the HPV infection and cervical cancer," says Kaur, who was instrumental in bringing the American Indian cancer crisis to federal attention.

Kaur didn't map out this stellar career when she went to college the first time and was at home with her daughter. Kaur realized that she was ready for something more—something deeply tied to her cultural roots. She went to medical school and focused on Native American health issues. After starting an oncology practice in Grand Forks, she became celebrated among tribal health leaders for her cancer work. She also began intensive cancer research that continues to this day.

About 15 years ago, Kaur went to the Mayo Clinic to launch the most widely respected group of American Indian health initiatives in the country. She is Mayo's medical director for the Native American Programs and professor of Oncology at Mayo's College of Medicine. She is the principal investigator for a molecular markers study in breast cancer in American Indian and Alaska Native women and also a mammographic and clinical risk factor analysis study.

And just in case you thought she might take a breather now and then, Kaur also is medical director for the Mayo Clinic Hospice, and she chairs the Palliative Care Task Force.

- Juan Pedraza



Judith Kaur, M.D., center, was honored with a star quilt at this spring's North Dakota Women's Health Research Conference. With her are **Jacquie Gray, PhD**, assistant professor, left, and **Twyla Baker-Demaray**, research analyst, both from the Center for Rural Health.

Teaching The Millennials - *Facing the Future*

In this guest Q&A, **Katherine Sukalski, Ph.D.**, talks about the Millennial Generation—born between 1982 and 2000—and medical education. Sukalski is associate professor in the Department of Biochemistry and Molecular Biology and director of biochemistry education. She also is principal investigator of the North Dakota Bridges to the Baccalaureate grant with North Dakota tribal colleges, and does faculty development.

Q. What do you teach and how has that informed your interest in addressing the needs of the Millennial Generation of medical students?

A. I teach intermediary metabolism and nutrition to medical students and metabolism to both undergraduate and graduate students. I often ask how we should train faculty to do the many different things they must do now that they didn't earlier in terms of delivering course content to medical students.

I belong to the International Association of Medical Science Educators, which recently organized a Webinar we participated in with **Susan Pollart, M.D.**, associate dean for faculty development at the University of Virginia School of Medicine. She talked about preparing faculty for the "next generation" of medical students.

Q. What major recent changes in medical education have you seen?

A. Our patient-centered learning has revolutionized medical education. In terms of most medical schools in the U.S., we're well ahead of the curve. That's why so many other schools send people here to find out how we do it. It's based on problem-based learning, which started at McMaster University in Ontario. We were one of the early adopters. Dean Wilson sent a team to the University of Missouri Medical School to get a firsthand look at this model and bring it to North Dakota. Then we developed it and made it our own.

Medical education is changing because our students are changing. The Millennials coming to medical school have different worldviews and they've got new notions about education. They've been shaped in a world that's vastly different than the world we were trained in.

Q. Tell us more about these changes.

A. We engage students much more pro-actively in getting them on their way to master the material. They don't like the old lecture-based system, and they don't use libraries and textbooks like we used to. The Millennials use Google

and Wikipedia. They never had to learn how to use a computer. It was there when they were born. As soon as they could sit up they were on the computer. They had computer game machines, e-mail in elementary school, cell phones, iPods, and a host of other interactive electronic devices. You and I had to learn how to use computers as adults. That's a major difference.

On the more human side, let's note another difference: when our parents sent us off to college, maybe we called when we got engaged to be married. Now parents and kids are connected via cell phones. Parents today will talk to kids in college (and here at the med school) daily if not more often.

That's because there are fewer children per parent today, and parents are investing much more time and energy in their kids.

Q. So what does this all add up to for the future of the medical school curriculum?

A. We launched our revised curriculum in 1998. That's when we put students into small groups. At that time we still urged them to use their texts and journal articles. Now, you look at their resource lists and almost everything on them says "www."

This all points to a different paradigm for acquiring and processing information and that continues to evolve. Fifteen years ago, students relied on four or five textbooks, which, even with all their failings, had a certain level of authority. Students knew that an article in *Time* was not as authoritative, say, as *Devlin's Biochemistry*.

Now it's so easy to get something off the Web. It may not be as authoritative, but it's increasingly a part of how medical education will continue to change. We teach medical students what is an authoritative resource.

A bigger change is that we know our students in small groups learn how to ask better questions, and how to research the answers quickly.



- Juan Pedraza

WEB EXCLUSIVE: For the full text of this interview, visit www.ndmedicine.org



STUDENT PROFILE

TIFFANY BLACK CLASS OF 2008
PHYSICAL THERAPY GRADUATE, DPT
HOMETOWN: Pavillion, WY
UNDERGRAD: University of Wyoming,
Exercise & Sports Science
PARENTS: Dennis & Myra Black



Meet Tiffany Black

TIFFANY BLACK IS NOT THE ORDINARY physical therapy graduate of the University of North Dakota School of Medicine and Health Sciences. Without warning, the profession became personal to Tiffany. She had to learn what it really meant to be a physical therapist, and learn it fast. On February 7, 2007, Army Sergeant First Class Travis Vendela, Tiffany's husband, was leading a group of Humvees in Iraq when his vehicle struck an improvised explosive device. As result of this bombing, Travis lost both of his legs above the knees, among other injuries.

Tiffany was faced with a situation that can't be learned in medical school.

Though it was tough, looking back she now views it as a learning opportunity indispensable to her career. From working with Travis and his rehabilitation she gets to see first-hand how his body develops and the nerve pain and alignment problems associated with it. She has also gained knowledge she wouldn't have had the chance to otherwise about diagnosis tests, prosthetic limbs and rehabilitation from the other doctors caring for him. Something Tiffany sees as important that she's learned is how and how not to treat her patients.

"For every person this is a life-changing event, and you want to have somebody there who's willing to explain it to you and help you get through it," she said. "I think being on the other side I have somewhat of an advantage towards my patients and somewhat of an understanding, which I'm very thankful for."

Plus, she's more confident now about being able to understand her patients. Travis' accident has brought home to Tiffany the difficulties and frustrations rehabilitation patients are faced with.

"I can see kind of what my patients have to endure and I think I could be a good a person to come to, who can maybe have some answers for something difficult in the community," she said.

Instead of quitting or taking time off from school like most students would have done, Tiffany pressed on. She graduated in May from the UND SMHS. She says that she couldn't have done it without the support she received from the administration and her fellow classmates.

"I am really thankful for the

She had to learn what it really meant to be a physical therapist, and learn it fast.

program and how much support I got," she said, "because I honestly don't think I would have been able to finish anywhere else."

Tiffany and Travis were married on May 24 and are eagerly looking forward to their future life together. Tiffany started an acute care job in June at the Cheyenne Regional Medical Center in Wyoming while Travis is hoping to eventually start a leadership group for troubled teens. The experience has opened up new doors for Tiffany. Initially interested in orthopedics, she is now hoping to get into neuro-rehabilitation.

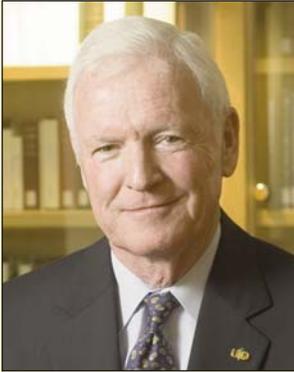
Tiffany says that she didn't always plan on going into physical therapy, but knew she wanted to be somewhere in health care. She wanted to make a difference in people's lives, and it seems with Travis that she has proven she's more than capable for the job.

- Andrea Herbst
Communications Intern, Class of 2009



WEB EXCLUSIVE: The Discovery Health Channel will air Tiffany and Travis's wedding on the show "Miracle Weddings" in February 2009. For more information visit www.ndmedicine.nodak.org

SMHS Dean H. David Wilson Garners Coveted Award



H. David Wilson, M.D., was recently named as recipient of the coveted Commonwealth Award by the University of Kentucky (UK) Medical Alumni Association for 2008. In his award letter, Bill Hoppenjans, M.D., chair of UK's Alumni Awards Committee, says that Dr. Wilson, a pediatrician and pediatric infectious disease specialist, got the prestigious award "in recognition of your

work in pediatrics...and your remarkable accomplishments throughout the nation. Your achievements have earned for you the immense respect of your peers."

"The positive judgment of your peers is always most welcome," says Wilson, who currently serves as chair of Council of Deans of the Association of American Medical Colleges, which accredits all U.S. medical schools.

A native of Illinois, Wilson graduated from Wabash College in Indiana and received his M.D., from St. Louis University in St. Louis, Mo. His specialty training is in pediatric infectious diseases, done at the University of Texas Southwestern Medical School in Dallas. Before coming to UND, he was a faculty member and administrator at the University of Kentucky College of Medicine in Lexington.

The Commonwealth Award will be formally presented to Dr. Wilson at a banquet and awards ceremony Oct. 10 in Lexington, Ky.

New Jobs at the Medical School

Joshua Wynne, M.D., MPH, MBA, has been promoted to the position of vice dean reporting to Dean H. David Wilson, M.D. Wynne, formerly executive associate dean, will continue to be actively engaged with all of the health sciences and with the central UND administration.



Charles Christianson, M.D., associate professor of

clinical and family medicine, has been named to the new position of associate dean for clinical education. Christianson also heads the school's Center of Excellence for Drug Abuse Education, one of the first four such centers nationwide established by the federal National Institute on Drug Abuse. Dr. Christianson will oversee the clinical component of the full four years of medical education, including the behavioral sciences and professionalism.

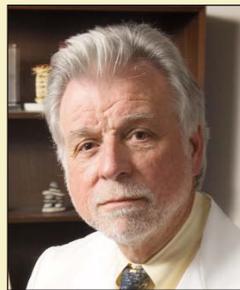


table are my skills in administration, collaboration, and obtaining extramural grant support."

"One of my first tasks will be to explore ways for the UND School of Medicine and Health Sciences to increase collaborations with other productive researchers," says Sauter, who earned his M.D., at the Louisiana State School of Medicine and his Ph.D., in molecular biology from the University of Pennsylvania.

Bismarck Dean Honored

Nicholas Neumann, M.D., professor of internal medicine and associate dean at the Southwest Campus-Bismarck, recently was honored with the prestigious Leonard Tow Humanism in Medicine Award. A Tow Award was also presented to recent UND medical graduate and West Fargo native **Todd E. Wagner**, who began a family medicine residency at Case Western Reserve University in June.



Sophomore Awards Lunch

Top Cancer Surgeon, Researcher Named New Associate Dean for Research

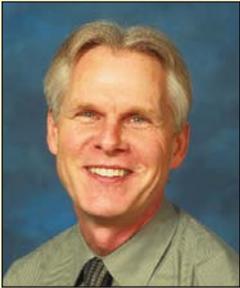
Edward Sauter, M.D., Ph.D., a cancer surgeon and researcher, has been named associate dean for research at the UND School of Medicine and Health Sciences. Sauter comes to UND from the University of Missouri-Columbia, where he was vice-chair for research in the department of surgery.

"I see a great opportunity to assist in building research excellence," says Sauter, who is an expert in the early detection of breast cancer. "Strengths that I bring to the



Tim Weiland, M.D., left, Assistant Professor of Pathology, received the Golden Apple Award and the Portrait Award at the Sophomore Awards Lunch in May. Second year students **Benjamin Wilkinson**, center, and **Kyle Hoffert**, presented the awards.

Professor Thomas Hill Appointed to Head UND SMHS Education Unit



Thomas Hill, Ph.D., professor of microbiology and immunology, has been named director of the Office of Medical Education. Hill, who recently earned the Portrait Award for his outstanding support of students during their first two years of medical education, also will continue in his current position as a faculty member in the Department of Microbiology

and Immunology. Hill joined the School of Medicine and Health Sciences in 1995.

SMHS Appoints New CIO



Nasser Hammami, M.S., has been named to the new position of chief information officer (CIO). Hammami will be in charge of overall administration and management of the information resource units and will supervise future system design, development, and maintenance of all information technology products and services. A certified technology

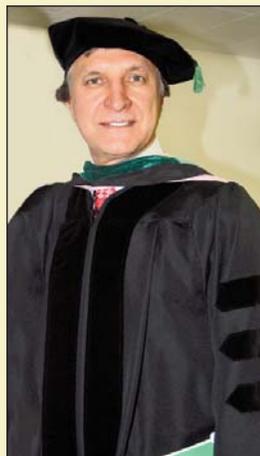
specialist and a UND graduate, Hammami earned a bachelor's degree in biological and chemical sciences in 1994, a master's degree in biochemistry in 1998, a master's degree in clinical laboratory science in 2000, and a master's degree in industrial technology in 2006. Hammami, who also is an assistant professor, joined the school in 1999 as a graduate teaching assistant in the Department of Pathology.

Commencement 2008

Fifty-nine medical students received the Doctor of Medicine (M.D.) degree during the May ceremony for medical school commencement.

The keynote address was delivered by **Rod J. Rohrich, M.D., (B. S. Med. '77)** one of the foremost plastic surgeons in the nation and a UND alumnus. Dr. Rohrich is professor and chair of the Department of Plastic Surgery at the University of Texas Southwest Medical Center in Dallas, Texas, and heads the largest plastic surgery training program in the country.

Eleven physician-faculty members were invited to participate in the ceremony and accept the Dean's Special Recognition Award for Outstanding Volunteer Faculty.



Rod Rohrich, M.D.

They are (in alphabetic order):

- **Arvind K. Bansal, M.D.**, Clinical Assistant Professor of Internal Medicine, Grand Forks
- **Bernie J. Dallum, M.D.**, Clinical Assistant Professor of Radiology, Grand Forks
- **Stanley T. Diede, M.D.**, Clinical Associate Professor of Internal Medicine, Bismarck
- **Anthony T. Johnson, M.D.**, (M.D. Class of '94) Clinical Assistant Professor of Family and Community Medicine, Bismarck
- **Mark S. Kristy, M.D.**, Clinical Assistant Professor of Radiology, Hettinger
- **Myra J. Quanrud, M.D., FAAP**, (M.D. Class of '90) Clinical Associate Professor of Pediatrics, Jamestown
- **Frank E. Shipley, M.D., FACS**, Clinical Professor of Surgery, Minot
- **Kate P. Stanley, M.D.**, Clinical Assistant Professor of Pediatrics, Fargo
- **Keith E. Swanson, M.D.**, (M.D. Class of '01) Clinical Assistant Professor of Internal Medicine, Grand Forks
- **Rodney A. Swenson, Ph.D.**, Clinical Professor of Clinical Neuroscience, Fargo
- **John M. Witt, M.D.**, ('82) Clinical Assistant Professor of Obstetrics and Gynecology, Bismarck

Researcher Nets National Advisory Role



Sharon Wilsnack, Ph.D., a globally renowned researcher on women and alcohol and a neuroscientist at the UND School of Medicine and Health Sciences (SMHS), recently accepted an invitation to serve a four-year term on a grant review study section of the National Institute of Health's (NIH's) Center for Scientific Review (CSR). NIH selects members for this

prestigious assignment based on their demonstrated competence and achievement in their scientific discipline. Wilsnack and her research partner and husband **Richard Wilsnack, Ph.D.**, established a pace-setting cross-cultural research program on women and alcohol, working with research teams in more than 40 countries. The Wilsnacks also direct a national longitudinal study of U.S. women's drinking. At 20-plus years, it is the world's longest running study of its kind and netted Wilsnack an appearance on the Oprah Winfrey show and many other media appearances. The Wilsnacks' research has been funded continuously since 1980 by the NIH's National Institute on Alcohol Abuse and Alcoholism, with funding exceeding \$12.5 million.

In her seat on the NIH review team, Wilsnack, who earned the coveted UND Chester Fritz Distinguished Professor title for her stellar research and teaching, will be part of the CSR's Behavioral Genetics and Epidemiology Study Section.

Researcher Gets \$1.5 Million from NIH to Study Links between Diet and Alzheimer's



The role diet and the environment play in causing Alzheimer's disease is the focus of new funding from the National Institutes of Health (NIH) for a biomedical research scientist at the School of Medicine and Health Sciences. **Othman Ghribi, Ph.D.**, has received a five-year RO1 grant, totaling nearly \$1.5 million, from the National Institute of Environmental

Health Sciences to study the links between high cholesterol levels and Alzheimer's disease. This is the largest individual grant awarded to a UND researcher for the study of Alzheimer's disease (AD). RO1 grants are very difficult to obtain and are awarded to relatively few researchers. Research in Ghribi's lab suggests that high cholesterol levels in the blood may be a risk factor for developing Alzheimer's disease, he says.

In related news, a UND-based study on the relationship between caffeine and Alzheimer's made the six o'clock news worldwide. The study, published in a recent issue of the *Journal of Neuroinflammation* reveals the caffeine in just one cup of coffee a day could protect the blood-brain barrier (BBB) from damage that occurred with a high-fat diet. Neuroscientist **Jonathan Geiger, Ph.D.**, one of the study's authors and the originator of this caffeine research project, says this barrier protects the central nervous system from the rest of the body's circulation, providing the brain with its own regulated microenvironment.

"Caffeine appears to block several of the disruptive effects of cholesterol that make the blood-brain barrier leaky," says Geiger. "High levels of cholesterol are a risk factor for Alzheimer's disease, perhaps by compromising the protective nature of the blood-brain barrier. For the first time we have shown that chronic ingestion of caffeine protects the BBB from cholesterol-induced leakage."

The findings confirm and extend results from other studies showing that caffeine intake protects against memory loss in aging and in Alzheimer's disease.

Faculty Member Appointed to Higher Learning Commission



Kenneth Ruit, Ph.D., associate professor in the School of Medicine and Health Sciences Department of Anatomy and Cell Biology, has been appointed to serve on the Higher Learning Commission of the North Central Association of Colleges and Schools (NCACS). Ruit will serve a five-year term as a consultant-evaluator.

Small Hospitals Receive Grants Through UND Center for Rural Health Program

Fifteen rural North Dakota communities will benefit from grants given to small hospitals through the North Dakota Medicare Rural Hospital Flexibility Program (Flex) administered through the Center for Rural Health at the University of North Dakota School of Medicine and Health Sciences.

This year the North Dakota Flex program distributed approximately \$230,000 in grant funds to 15 small hospitals across the state to fund studies and evaluations of the facilities, establish new programs, purchase new equipment and provide training to staff and volunteers.

Facilities that received grants include:

- Ashley Medical Center
- Bowman-Southwest Healthcare Services
- Cooperstown Medical Center
- Garrison Memorial Hospital
- Grafton-Unity Medical Center
- Harvey-St. Aloisius Medical Center
- Hazen-Sakakawea Medical Center
- McVile-Nelson County Health System
- Northwood Deaconess Health Center
- Park River-First Care Health Center
- Rolla-Presentation Medical Center
- Tioga Medical Center
- Turtle Lake-Community Memorial Hospital
- Valley City-Mercy Hospital
- Williston-Mercy Medical Center



UNDSMHS Makes AAFP Top Ten

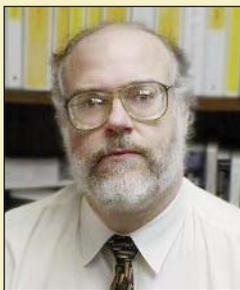
The UND School of Medicine and Health Sciences is one of the best medical schools in the country for producing family medicine physicians, according to rankings released by the American Academy of Family Physicians (AAFP).

Kimberly Krohn, M.D. '96, program director at the UND Center for Family Medicine in Minot, **Elizabeth Burns, M.D.**, professor of family and community medicine, and **Robert Beattie, M.D. '80**, professor and chair of family and community medicine, accepted the award from **Dan Ostergaard, M.D.**, AAFP's Vice President for Professional Activities.

SMHS Faculty Member LaVonne Fox Earns First ATHENA Young Professional Award

LaVonne Fox, Ph.D., OTR/L, assistant professor and graduate director in the Department of Occupational Therapy, recently accepted the first ATHENA Young Professional Award at a reception organized by the Chamber of Grand Forks and East Grand Forks. The ATHENA Award honors individuals who strive toward the highest levels of personal and professional accomplishment, who excel in their chosen field, devote time and energy to their community in a meaningful way, and forge paths of leadership for other women to follow.

Scientist Discovers Diet-Drug Link



James Roerig, Pharm.D., BCPP, associate professor in the department of clinical neuroscience, has discovered a link between a narcolepsy drug and weight loss in subjects receiving the atypical antipsychotic olanzapine. Healthy volunteers given modafinil along with olanzapine in a three-week

randomized trial showed only half the weight gain of those treated with olanzapine and a placebo. Roerig reported his results at the recent American Psychiatric Association Annual meeting in Washington DC. Weight gain is a major adverse effect of olanzapine, clozapine (Clozaril), and other atypical antipsychotics. Modafinil, approved for narcolepsy, obstructive sleep apnea, and sleep problems related to shift work, has attracted attention as a possible preventive. An earlier study found that moderate doses of modafinil by itself reduced food intake. Roerig and colleagues recruited 50 healthy volunteers for the current study. Roerig said that despite the study's small numbers and short duration, it showed a significant difference in weight-gain effects. "We were able to show that our primary outcome hypothesis was supported," Roerig said

Cooperstown One of Two Sites in N.D. To Host Forum on Rural Health Care

The Cooperstown Medical Center hosted a community forum April 3 on the future of rural health care, facilitated by the Center for Rural Health. The forum focused on the future of rural health care and featured a keynote presentation by **Brad Gibbens**, associate director for community development and policy at the UND Center for Rural Health in Grand Forks.

"This was an excellent opportunity for us to learn about rural health care from one of the state's top experts," said **Greg Stomp**, Cooperstown Medical Center administrator. "Citizens were able to voice their concerns as well as offer ideas for solutions to make rural health care

in Cooperstown and North Dakota better. Rural health care is important not only for improving health status, but also as part of the rural economic system. Rural health organizations are typically in the top two employers in a community. However, the viability of such organizations is more and more threatened.



Kupchella Wellness Award

Laurie Betting, DPT, '04, MPT, '99, UND assistant vice president for wellness and director of the University's Wellness Center (above right), received this year's Kupchella Wellness Award from **Elizabeth Burns, M.D.**, former professor of Family and Community Medicine. **Melissa Olson**, director of the North Dakota Department of Health's Healthy North Dakota Collaborative, also received the award.

Coalition of Rural Health Officials Speak "With One Voice" on Health Care Issues

Announced at this year's Dakota Conference on Rural and Public Health in Fargo, the new North Dakota Rural Health Association (NDRHA) aims to assemble diverse interests and provide a unified voice to promote and enhance the quality of rural health through leadership, advocacy, coalition building, education and communication.

"Health care is a hot issue, especially this year with the presidential elections," said **Pete Antonson**, NDRHA president and administrator of the Northwood Deaconess Health Center. "We're ready to roll up our sleeves and work collaboratively to improve the health status of North Dakotans."

NDRHA, a chapter of the National Rural Health Organization, will be governed by a board of directors and organized by committees of member representatives in seven key areas: advocacy, membership, community relations, annual conference, executive, nominating and finance. NRHA is a national nonprofit organization, with more than 18,000 members.

NEWS BRIEFS

SMHS Sponsors Sixth Annual American Indian Health Research Conference

The sixth annual American Indian Health Research Conference was held in April on the UND campus. Organized by the Center for Rural Health, the event featured nationally known speakers in the area of American Indian health research, oral and poster presentations featuring American Indian populations by students and researchers, and discussions of new ways to develop



American Indian research opportunities. The conference featured keynote speaker **Judith Kaur, M.D., (B.S. Med. '77)** (see Alumni Profile, page 22). The conference also honored **Alan Allery, M.D.**, who died unexpectedly last year.

Mary Wakefield, Ph.D., associate dean for Rural Health and director, introduces Senator **Richard Marcellais, Belcourt, ND**, who presented a tribute to the late **Alan Allery** at the 2008 American Indian Health Research Conference.

Allery was an adjunct clinical assistant professor at the Center for Rural Health, the principal investigator and director of the National Resource Center on Native American Aging, and the director of Student Health Services at UND. He worked with American Indian people for 30 years. The American Indian Health Research Conference was sponsored by the following UND Programs: Center for Rural Health, IDeA Network for Biomedical Research Excellence (INBRE) program, Indian Association, and the School of Medicine and Health Sciences.

Anatomist Professor to Serve on Terminologia Anatomica Rewrite Team

Jon Jackson, Ph.D., assistant professor in the University of



North Dakota (UND) School of Medicine & Health Sciences Department of Anatomy and Cell Biology, has been appointed by the Board of the American Association of Anatomists (AAA) to serve on its Anatomic Terminology Committee. Jackson will serve a three-year term on the committee, which reviews and revises all of the terminology

used in the major disciplines of anatomic science.

ALUMNI NOTES

— '00s —

Angel Overvold, D.O., FP Res '05, has joined the medical staff at Innovis Health in Fargo. She is a board certified Family Physician specializing in pediatrics and preventive medicine.

John Eickman, M.D. '04, Winston-Salem, N.C., recently passed the American Board of Neurological Surgery written board exam and earned the distinction of scoring above the 99th percentile for the nation.

Lisa Braun, P.A.-C., '02, Wahpeton, has joined MeritCare as a physician assistant.

Jonathan Harrison, OTR/L, CWCE, CEES, CPAM '00, is President of Northwest Work Options, an outpatient Occupational Therapy clinic located in Yakima, Wash. Harrison was recently appointed to the State Occupational Therapy Practice Board. He lives in Yakima with his wife, Ethney (UND '00) and four children.

— '00s —

R.J. Moen, M.D. '00, an emergency room physician, recently started work at Medcenter One in Bismarck. Originally from Grand Forks, he completed his undergraduate education at Concordia College, Moorhead, MN. He is currently completing his residency in neurological surgery at Wake Forest University Baptist Medical Center. His wife, **Kara (Looyesen) Eickman, M.D. '04** has just completed her residency in neurology at Wake Forest University and was selected as Chief Resident for the past academic year.

— '90s —

Mark Sczepanski, M.D. '96, an ophthalmologist at the North Dakota Eye Clinic in Grand Forks, has been named a 2007 Laser Vision Top 100 surgeons. It is the second time Sczepanski has received the award, which recognizes distinguished leaders in refractive surgery.

ALUMNI NOTES

'90s

Monica Mayer, M.D. '95, a family practice physician in New Town, has been named the CEO of the New Town Health Center. She is an enrolled member of the Three Affiliated Tribes. Aileen Jackson, tribal health director, said the Three Affiliated Tribes are the first tribe in the Aberdeen Area of federal Indian Health Service (IHS) to complete the 638 contracting process to take over health care from IHS.



Gary A. Matthys, M.D. '94, an orthopedic surgeon, recently opened a private practice in Fargo. Matthys specializes in minimally invasive orthopedic surgery.

Charles "Chuck" Breen, M.D. '90 has been chosen as North Dakota's top family physician. The North Dakota Family Physician of the Year award was presented to Breen by a committee of the North Dakota Academy of Family Physicians. Breen has been in family medicine for over 18 years and is a third-generation physician in Hillsboro. The award is given annually to a physician in North Dakota who shows pride in practicing family medicine.



'80s

Mark C. Ingebretson, M.D. '81, was the recipient of the 2008 Dr. Byron D. Danielson Physician of the Year award. The Fargo Department of Veterans Affairs Medical Center recognized Ingebretson for his clinical excellence, compassion and commitment in serving veterans.

Fred Mitzel, M.D. '81, was honored for service to scouting. Dr. Mitzel is a scoutmaster of the Valley City Boy Scout Troop 560. He received the Flickertail district Award of Merit, the highest award given at the district level in scouting. Besides scouting, Mitzel has been team physician for high school sports and state tournament physician for wrestling and football from 1991 to present. He also served with the 311th Medical Evacuation Hospital in Operation Desert Storm.

'80s

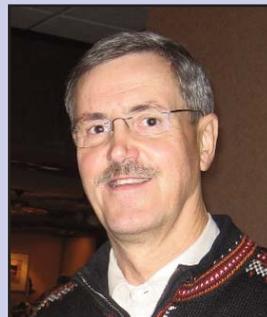
Jean Nygaard, FNP, '81, of St. Luke's Hospital in Crosby was recognized for excellence in management of diabetes patients. Nygaard was the recipient of the North Dakota Diabetes Care Provider Achievement Award, presented by the North Dakota Department of Health and Blue Cross Blue Shield of North Dakota.

Steven Hinrichs, M.D. '80 was named chair of the University of Nebraska Medical Center pathology and microbiology department. A native of Redfield, S.D., Dr. Hinrichs earned his undergraduate and medical degrees from the University of North Dakota. He completed his residency training at the University of California, Davis. Dr. Hinrichs was instrumental in establishing the first Web-based Personal Health Record program ever developed by an academic organization for its students.

'70s

Brad Selland, M.D. (B.S. Med. '72), has joined the medical staff at Innovis Health in Fargo. He is a diplomate of the American Board of Neurological Surgery and specialized in surgery of the spine, brain tumors and hydrocephalus.

Steve Hamar, M.D. (B.S. Med. '72), of St. Alexius Medical Center, Bismarck, has received the first Benedictine Spirit Award. The award recognizes a physician who exemplifies a compassionate spirit of medicine as well as a vision for St. Alexius Medical Center.



'60s

Eric Larson, M.D. (B.S. Med. '68), of Altru Clinic, Cavalier, ND, received the Outstanding Rural Health Provider Award. For 49 years, Dr. Larson has practiced medicine in the northeastern district of North Dakota. He received the award March 27, 2008 at the annual Dakota Conference on Rural and Public Health.

ND OPPORTUNITIES

The following is a listing of communities in North Dakota with current openings for *all* specialties. For more information about these opportunities contact the site directly, or **Mary Amundson, M.A.**, at the Center for Rural Health, University of North Dakota School of Medicine and Health Sciences, 701-777-4018, or by email at mamundson@medicine.nodak.edu

Ashley

Ashley Medical Center
Kathy Hoeft, CEO
701-288-3433
khoeft@primecare.org
Family medicine, internal medicine

Belcourt

Aberdeen Area Indian Health Service
Kim Lawrence
605-226-7532
kim.lawrence@ihs.gov
Family medicine, general surgery, pediatrics, emergency medicine, nurse practitioner, physician assistant, registered nurse, x-ray technician

Beulah

Coal Country Community Health Centers
Dawn Berg, CEO
(701) 873-7788 ext. 110
dawnberg@westriv.com
Family nurse practitioner or physician assistant, family medicine physician

Bottineau

St. Andrew's Health Center
Jodi Atkinson, CEO
701-228-9300
jodia@standrewshealth.com
Family medicine, internal medicine

Bowman

Southwest Healthcare Services
Darrold Bertsch, Administrator
701-523-3214
dbertsch@swhealthcare.net
Family medicine, registered nurses, physical therapist

Cooperstown

Cooperstown Medical Center
701-797-2221
Greg Stomp, Administrator
gstomp@coopermc.com
Family medicine, registered nurse, licensed practical nurse, physical therapy, medical laboratory technician

Devils Lake

Altru Clinic-Lake Region
Kerri Hjelmstad, Physician Recruiter or Elonda Nord, Branch Manager
701-662-2157
khjelmstad@altru.org or enord@altru.org
Family medicine, internal medicine, general surgery

Elgin

Jacobson Memorial Hospital & Care Center
Jim Opdahl, Interim Administrator
701-584-2792
jopdahl@westriv.com
Registered nurse, licensed practical nurse

Fargo

Family HealthCare Center
Patricia Patrón, Executive Director
701-239-2283
ppatron@famhealthcare.org or bweik@famhealthcare.org
Family medicine

Fort Totten

Aberdeen Area Indian Health Service
Kim Lawrence
605-226-7532
kim.lawrence@ihs.gov

Fort Totten, continued

Nurse practitioner, registered nurse, family medicine & clinical director

Harvey

St. Aloisius Medical Center
Rocky Zastoupil, President/CEO
701-324-4651
rockyz@stalouisius.com
Family medicine or internal medicine, registered nurses

Hazen

Sakakawea Medical Center
Jim Marshall, CEO
701-748-7240
jmarshall@sakmedcenter.org
Family medicine with obstetrics, general surgeon

Hettinger

West River Regional Medical Center
Jim Long or Michelle McCorm
701-567-6183 (Jim) 701-567-6013 (Michelle)
jiml@wrhs.com or michellem@wrhs.com.
Family medicine, internal medicine, general surgery

Fort Yates

Aberdeen Area Indian Health Service
Kim Lawrence
605-226-7532
kim.lawrence@ihs.gov
Family medicine, emergency medicine, internal medicine, nurse practitioner, physician assistant

Kenmare

Kenmare Community Hospital
Shawn Smothers, Administrator
cell phone 701-721-4156
shawn.smothers@trinityhealth.org
Registered nurse, licensed practical nurse, family nurse practitioner

Lisbon

Family Medical Clinic, PC
Lynn Otterson, Clinic Manager
701-683-4711
lotter@drtel.net
Family medicine, internal medicine

McVile

Nelson County Health System
Cathy Swenson, CEO
701-322-4328
cswenson@gondtc.com
Family medicine, registered nurses, clinical laboratory science technicians, x-ray technologists

Minot

UND Center for Family Medicine
Brian Berg, Business Manager
701-858-6765
brianb@medicine.nodak.edu
Family medicine

Oakes

Southeast Medical Center
Theresa Kelly, administrator
701-742-4113
terri@semed.com
Internal medicine, family medicine, nurse practitioner or physician assistant

Park River

First Care Health Center
Louise Dryburgh, Administrator
701-284-7500 or 701-284-4538
stald@polarcomm.com
Family medicine

Richardton

Richardton Health Center
Jim Opdahl, Interim Administrator
701- 974-3304
fhg@bis.midco.net.
Nurse practitioner, registered nurses, licensed practical nurses

Rolla

Rolla Clinic
June Banse, Manager
701-477-3111
rolclin@utma.com
Family medicine

Stanley

Mountrail County Medical Center
Mitch Leupp, Administrator
701-628-2424
admin@stanleyhealth.org
Family medicine, internal medicine

Tioga

Tioga Medical Center
Randall Pederson, Administrator
701-664-3305
randyp@tiogahealth.org
Internal medicine/Family Medicine, registered nurse

Valley City

MeritCare Health System
Jean Keller, Physician Recruiter or Linda Lane, Administrator
Phone: 701-280-4853
jean.keller@meritcare.com or Linda.lane@meritcare.com
Family medicine, internal medicine



WEB EXCLUSIVE: For more health field opportunities, visit: www.ndmedicine.org

CONGRATULATIONS to Jamestown's MeritCare clinic on the recruitment of **Dr. Sarah Schatz**, a 2005 UNDSMHS graduate; to Wishek Hospital Clinic Association on their recruitment of **Dr. Rogelio Cruz**; to Crosby Clinic on recruiting **Dr. Evans**; and to Hettinger's West River Health System on recruiting **Dr. Vanessa Berg**.

Vorry Brand (B.S. Med. Tech '57) of Atlanta died on March 26 at age 72 of complications from lung cancer. Vorry was born in Grand Forks, ND, and graduated from the University of North Dakota with a medical technology degree.

Robert Sette, M.D. (B.S. Med. '58) of Bismarck passed away February 28 while vacationing with his wife, Gayle, in Petra, Jordan. He grew up and attended schools in Bismarck, graduating from Bismarck High School and the University of North Dakota in Grand Forks. In 1960 he graduated from the University of Nebraska School of Medicine and was a fellow of the American College of Radiology.

Gary Fauskin M.D. (B.S. Med. '58), FAAP of San Diego, CA, died March 3. He earned his bachelor of science in medicine degree from the University of North Dakota. He earned his medical degree from the University of Texas Southwestern Medical Center. He was an active pediatrician from 1963 to 2006. He worked for Mountain Health Services and Southern Indian Health until his retirement in 2006.

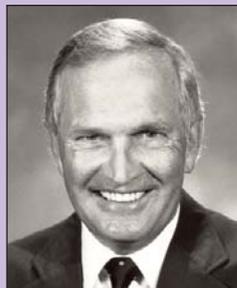
Eaden F. Keith, Sr., Ph.D. '56, 86, of Memphis, TN, died at his home February 19. Following his participation in D-Day in World War II, "Doc" earned his master's degree in biochemistry and pharmacology and his Ph.D. in toxicology. He taught at the University of North Dakota.

Elden Mohr, M.D. (B.S. Med. '54), of Moorhead, MN passed away February 15. He was born on March 12, 1929, in Valley City. Mohr was a former resident of Vancouver, WA, and worked many years at the Veteran's Hospital there. He was active in the Rose Society and served as its president. Mohr was instrumental in the foundation of the Heritage Rose Gardens at Old Fort Vancouver.

Gale R. Richardson, M.D. (B.S. Med. '43), of Bonita Springs, FL, passed away February 20.

H. Mowat "Moe" Waldren Jr., M.D. (B.S. Med. '55) passed away March 17, at the age of 80 years. Moe was a leading OB/GYN in the greater Milwaukee community.

Donald Francis Barcome, M.D., 80, Grand Forks, passed away May 18. He was born in Oconto Falls, WI, March 13, 1928.



He began school in Green Bay and at St. John's Prep in Collegetown, MN. Dr. Barcome graduated with honors from St. Norbert's College in DePeere, WI in 1949 and received his Doctorate in Medicine from the University of Wisconsin in Madison in 1954. He continued his training in

physical medicine and rehabilitation at Baylor College of Medicine in Houston, TX. Following his internship at St. John's Hospital in Marshfield, WI, he enlisted in the U.S. Navy where he was stationed at San Diego, CA as a Medical Officer at Balboa Navy Hospital. While on shore leave he met Navy physical therapist Shirley Shepard. They married April 26, 1957 and together began a general practice in Gillett, WI near the Barcome family home at Star Lake. Noting that over 70 percent of the patients he was seeing had chronic diseases with problems secondary to long term illness, Dr. Barcome and his wife decided to continue Dr. Barcome's education in Physical Medicine and Rehabilitation at Baylor College of Medicine in Houston, TX. He was medical director of the UND Rehabilitation Hospital in Grand Forks and led the building of a new Medical Center Rehabilitation Hospital which opened in 1974. This became one of the finest and most-highly acclaimed rehab institutions in the United States.

Rugao Liu, Ph.D., a neuroscientist and molecular biologist in the UND School of Medicine and Health Sciences Department of Anatomy and Cell Biology, died April 13, at a hospital in Qingdao, China, after a brief, valiant battle with pancreatic cancer. He was 45. He launched his scientific career in the People's Republic of China, where he earned degrees in marine zoology and biochemistry. Dr. Liu



got his Ph.D. in molecular biology and free radical chemistry at the University of Iowa School of Medicine in 1996. Rugao Liu is survived by his wife, Chun "Nancy" Luo, their two year-old daughter Michelle, and his son David by a previous marriage.

Dr. Liu's friends and colleagues in the department of Anatomy and Cell Biology have established a trust fund for his daughter Michelle. If you would like to contribute, please send checks made out to "Michelle Liu Trust Fund" to Ed Carlson, University of North Dakota School of Medicine and Health Sciences, 501 North Columbia Rd., Stop 9037, Grand Forks, ND 58202-9037.

DOCTORS Where do ~~babies~~ come from?

IN NORTH DAKOTA, MOST OF THEM COME FROM US!

Did you know that about half of the physicians in North Dakota were trained at the School of Medicine and Health Sciences? And it doesn't end there. That number averages about two-thirds for Occupational Therapist, Physical Therapists, and Physician Assistants!

Think of the economic impact the school has on the state!

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Blanche E. Abdallah

School of Medicine & Health Sciences
501 North Columbia Road Stop 9037
Grand Forks, ND 58202-9037
701.777.2002
babdallah@medicine.nodak.edu

Second year medical student Kyle Hoffert and wife Brianne, with twin daughters Chloe (left) and Allie, 22 months. Kyle, of Grand Forks, is the son of Alice and Rodger Hoffert. Brianne, from Virginia, MN, is the daughter of Vicky and David Frederick.



Visit us online at www.med.und.edu/alumni today to see how **YOU** can help!

UNIVERSITY OF NORTH DAKOTA
FOUNDATION



Remember these faces? In 2004, these white-coated freshman (left), whose mothers are all UNDSMHS alumni, graced the cover of *The REVIEW*. They are pictured below with their mothers, after Commencement in May. From left, LaVaun ('87) and Michelle McCann, Jan Bury ('90) and Jill Steinle, and Brenda ('95) and Jessica Miller. Congratulations to ALL graduates!



Former dean **Tom Johnson, M.D.**, left, and his wife **Jane**, right, were honored with a campus tree planting and dedication in their names in May. Johnson, dean of the medical school from 1977 to 1988, and Jane, director of the North Dakota State Laboratories Department and director of the state's Public Health Laboratory in the 1980s, contributed to the UND Foundation and asked that a tree be planted in their honor. They are pictured here with **Judy DeMers**, Associate Dean of Student Affairs and Admissions.



Jason Haus, second year medical student, demonstrated some of the properties of dry ice with 5th and 6th grade students on Science Day in May. This year's Science Day had the largest participation yet, with 266 students from as far away as Starkweather, ND.

University of North Dakota
SCHOOL OF MEDICINE & HEALTH SCIENCES
M.D. Class of 2008



Front Row (Seated, L to R): Assistant Dean Jon Allen; Associate Dean Mary Wakefield; Assistant Dean Nicholas Neumann; Associate Dean Randy Eken; Associate Dean Julie Blehm; Executive Associate Dean Joshua Wynne; Dean H. David Wilson; Associate Dean Judy DeMers; Assistant Dean Martin Rothberg; Assistant Dean William Newman; Assistant Dean Steffen Christensen

Second Row (L to R): Allison Clapp; Claire Longhurst; Jamael Delgado; Holly Geyer; Katherine Splichal; Christine Keup; Ryan Clauson; Jill Steinle; Megan Welsh; Stacy Roers; Laura Duty; Nicole Gullickson; Mary Nybakken; Ravinda Samaraweera; Margaret Cook-Shimanek; Corrine Kvamme; Ethan Nguyen

Third Row (L to R): Theresa Hegge; Shannon Peters; Jane Ostlie; Richelle Knudson; Matthew Zimny; Todd Wagner; Ryan Hoovestol; Nancy Longfors; Christopher Lindgren; Kyle Barker; Joshua Ranum; Lindsay Magura; Joy Froelich; Jennifer Beals; Robin Knutson Bueling; Winter Wilson

Fourth Row (L to R): Chad St. Germain; April Batcheller; Ryan Hegge; Derek Brickner; Rylan Brantl; Justin Reisenauer; Jessica Miller; Tyler Price; Irminne Gelderloos; Michelle McCann; Joshua Knudson; Nevin Bolander; John Cawley

Back Row (L to R): Katherine Knoll; Andrew Shaffer; Eric Wiest; Preston Hatlestad; Eric Fenstad; Brian Dahl; Gerald Eckardt; Brian Hope; Matthew Voigt; Sean Stoy; Chad Pedersen; Bryan Beals; Christopher Anderson



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