Making a difference in the world
Pg. 7

Preparing students to become competent, caring, ethical health professionals and citizens.
NDSU pharmacy research ranks 13th nationally

NDSU’s pharmacy program is ranked 13th in the United States for the percent of doctoral faculty with National Institutes of Health funding. The American Association of Colleges of Pharmacy determines the ranking based on National Institutes of Health funding for pharmacy schools. NDSU has 42 percent of full-time equivalent doctoral pharmacy faculty receiving funding from the National Institutes of Health. The 2008 ranking is out of 112 schools of pharmacy.

The pharmacy program’s percentage of pharmaceutical sciences faculty with competitive National Institutes of Health funding exceeded many other prestigious research universities including the University of Maryland, University of Illinois at Chicago, University of Minnesota, University of Iowa and the University of Florida.

NDSU ranked 38th nationally for total National Institutes of Health grant dollars awarded per full-time equivalent faculty, just behind the University of Minnesota (34th) and the University of Iowa (55th).

“This is a great acknowledgment of the quality and competitiveness of our research within the Department of Pharmaceutical Sciences and within our college,” said Charles Peterson, dean of the College of Pharmacy, Nursing, and Allied Sciences. “We have a great group of faculty, working very hard, and producing great results. They are competing successfully with the best in the nation.”

NDSU is one of 112 schools of pharmacy nationally accredited by the Accreditation Council for Pharmacy Education.

Pharmaceutical Sciences faculty

Bin Guo
Position: assistant professor
Arrival at NDSU: 2003
Research interest: programmed cell death, also known as apoptosis, which is a cell suicide program that occurs in both normal and cancer cells
Process: Guo looks at changes in the expression of genes that find those that are associated with programmed cell death and how they are regulated. This process is very important in the regulation of normal cell processes and is directly involved in the prevention and treatment of cancer.
Most recent research discovery: Researchers from Guo’s lab published a paper in the June 2009 issue of Cancer Prevention Research, a top journal in the cancer prevention field. The paper explains that diindolylmethane (a molecule found in cabbage and broccoli) can effectively prevent colon cancer.

Benedict Law
Position: assistant professor
Arrival at NDSU: 2007
Research interest: development of clinical imaging techniques for the diagnostic detection of tumors
Process: Law looks at the design and production of medical imaging agents which target specific markers on the surface of cancer cells. He is interested in finding ways to use the markers for peptide and protein drug delivery systems directly to the sites of the tumor.
Most recent research discovery: Law and researchers in his laboratory discovered a new type of nanomedicine called nanofiber precursors. “The nanofiber is made from peptide. It has the ability to attract an enzyme (urokinase) that is over expressed at the tumor site. We expect the success of this technology will bring protease imaging closer to the clinic, and also will establish an individualized therapeutic cargo for anti-tumor delivery, based on the protease expressions.”
Best research experience: design of the peptide delivery system and optical imaging agent
Greatest influence: Professor Stephen W. Hawking
Goals: “To develop a new type of nanomedicine for individualized patient therapy.”
Favorite medicine or prescription drug: “Penicillin. The discovery of penicillin saved a lot of lives and this drug is still very useful. When I was an undergraduate, I was taught that a good pharmacist should know the structure of penicillin.”

Sanku Mallik
Position: professor
Arrival at NDSU: 1998
Research interest: design of small molecules for use as potential drug targets and the delivery and targeting of drugs to their sites of action through the use of liposomes
Process: Mallik is a synthetic organic chemist who synthesizes compounds that can inhibit enzymes found in a variety of different disease states including cancer, infectious disease and high blood pressure.
Most recent research discovery: Mallik and researchers in his laboratory are trying to release drugs from lipid-based nanoparticles (liposomes) only in the presence of enzymes involved in cancer cell metastasis. They discovered the nanoparticles will release the drugs in the presence of a highly metastatic breast cancer cells.
Best research experience: “I take it for granted that the experiments may not work out in the first attempt. When this happens, I sit with my students and we brainstorm together. When the experiment works, it is very satisfying.”
Greatest influence: Anthony J. Pearson, professor and Mallik’s doctoral supervisor at Case Western University
Goals: “To uncover the mechanisms by which melanin regulates retinoic acid signaling in corneal arteries.”
Favorite medicine or prescription drug: “Nitric Oxide, because of its importance in cardiovascular physiology and pathophysiology.”

Goals:

- To uncover the mechanisms by which melatonin regulates the hypothalamus-pituitary-gonadal axis in women.
- To uncover the mechanisms by which melatonin regulates the hypothalamus-pituitary-gonadal axis in men.
- To uncover the mechanisms by which melatonin regulates the hypothalamus-pituitary-gonadal axis in children.
- To uncover the mechanisms by which melatonin regulates the hypothalamus-pituitary-gonadal axis in elderly patients.
- To uncover the mechanisms by which melatonin regulates the hypothalamus-pituitary-gonadal axis in patients with sleep disorders.

Best research experience: “To uncover the mechanisms by which melatonin regulates the hypothalamus-pituitary-gonadal axis in patients with sleep disorders.”

Greatest influence: Anthony J. Pearson, professor of Mallik’s doctoral supervisor at Case Western University
Goals: “To uncover the mechanisms by which melatonin regulates the hypothalamus-pituitary-gonadal axis in patients with sleep disorders.”
Favorite medicine or prescription drug: “Nitric Oxide, because of its importance in cardiovascular physiology and pathophysiology.”

Hobbies away from NDSU: golf, fishing and reading
Awards: Fellow of the American Heart Association

Steven O’Rourke
Position: associate professor
Arrival at NDSU: 2005
Research interest: free radical oxidative damage within cells and the role of antioxidants in the prevention of this process
Process: Qian uses sophisticated spectrometers known as electron paramagnetic resonance and mass spectrometry to study the formation of free radicals within cells and tissues, which help determine the sites of oxidation within living systems.

Greatest influence: Anthony J. Pearson, professor of Mallik’s doctoral supervisor at Case Western University
Goals: “To uncover the mechanisms by which melatonin regulates the hypothalamus-pituitary-gonadal axis in patients with sleep disorders.”
Favorite medicine or prescription drug: “Nitric Oxide, because of its importance in cardiovascular physiology and pathophysiology.”

Hobbies away from NDSU: “Nature, quiet places, gardening and spending time with my son and my dog.”
Awards: NDSU College of Pharmacy, Nursing, and Allied Sciences 2009 Researcher of the Year and 2008 Teacher of the Year
They come to my laboratory with little background and is watching and working with doctoral graduate students.

Best research experience: “As a faculty member at NDSU, to continuously conduct research through mentoring and educating graduates and undergraduates in the lab.”

Greatest influence: “My postdoctoral adviser R.F. Mason from the National Institutes of Health/National Institute of Environmental Health Sciences, Research Triangle Park, N.C., and my graduate adviser G.R. Rettig from the Free Radical and Radiation Biology Program at the University of Iowa.”

Goals: “The goals and objectives of my research are to advance knowledge and techniques in cell and tissue lipid peroxidation to guide research in developing therapeutic strategies to prevent diseases such as cancer.”

Favorite medicine or prescription drug: “Vitamins. As antioxidants, vitamins combat free radical oxidation and prevent oxidative stress.”

Hobbies away from NDSU: fishing and table tennis

Awards: Qian received two grants from the National Institutes of Health for the projects “Endogenous Radicals, Hepatic Lipid Peroxidation and ALD” and “Refinement of LC/ESR/MS for Studying Lipid Free Radicals in Colon Cancer Growth.” He also received the Young Investigator Award from the Free Radical Biology and Medicine (Oxygen) Society.

Jagdish Singh
Position: professor and chair
Arrival at NDSU: 1994
Research interest: pharmaceutics (drug delivery systems)

Process: Singh looks for ways to improve the delivery methods of new drugs, such as insulin, and are introduced to the body.

Most recent research discovery: Singh and his laboratory coworkers’ most recent invention has resulted in two patent applications to deliver insulin and calcitonin, using smart polymers for treatment of diabetes and osteoporosis, respectively. He also discovered a way to prevent type I diabetes by delivering plasmid DNA encoding interleukin-10 using nanotechnology.

Best research experience: “My best research experience is watching and working with doctoral graduate students. They come to my laboratory with little background and leave the laboratory as experts in drug delivery research. They are highly recruited by pharmaceutical industries.”

Greatest influence: “My dad is the greatest influence who instilled in me confidence and ability to imagine.”

Goals: “My overall objective is to develop novel therapeutic systems to prevent diabetes in children by delivering gene-based nanotechnology, and to treat osteoporosis in aging women and men by delivering calcitonin using smart polymers.”

Favorite medicine or prescription drug: “My most favorite medicine would be a drug discovered and designed by me.”

Hobbies away from NDSU: exercise, international travel

Awards: NDSU College of Pharmacy, Nursing, and Allied Sciences 1998 and 2001 Researcher of the Year; NDSU College of Pharmacy, Nursing, and Allied Sciences 1998, 2000 and 2003 Teacher of the Year; 2002 Fred Waldron Research Award; 1998 and 1999 Mortar Board Preferred Professor; 2004 American Association of Pharmaceutical Scientists Fellow

Chengwen Sun
Position: assistant professor
Arrival at NDSU: 2007
Research interest: hypertension (high blood pressure)

Process: Sun identifies targets for the treatment of cardiovascular diseases. Using this information, he is working to develop pharmaceutical tools that can be used in the clinic for treatment of hypertension and cardiovascular disease.

Most recent research discovery: Sun and researchers in his laboratory found that levels of a novel protein, named apelin, in the brain cardiovascular regulatory area are increased in hypertensive animal models. This suggests that apelin may have potential effects on blood pressure control and it could be a new target for the treatment of cardiovascular diseases.

Best research experience: “The best day in my life is the day when I have a new discovery in an unknown area.”

Greatest influence: “The most influential persons in my research are my previous mentors, Mohan K. Raizada from the University of Florida and Richard J. Roman from the Medical College of Wisconsin. They are all pioneers in cardiovascular research and their specific treatments. They are interested in early detection diagnostic bio-markers for cancer as well as finding a way for early, cost-effective diagnosis of brain tumors so that appropriate and potentially life-saving treatment can be initiated before the tumors have progressed.”

Most recent research discovery: “We have some exciting discoveries in our three areas of research. We have found that platelet-derived growth factor and receptor signaling play an important role in brain tumors such as medulloblastoma. We also have identified some novel potent anticancer compounds from plants used in traditional Chinese medicine. We have demonstrated that blood with glolin mRNA removal could provide a practical platform for a cancer biomarker study using an Illumina Sentrix human 6 v2 array.”

Best research experience: “The most rewarding part of my research experience is the fact that my collaborators and I work very well together and we enjoy the synergy of working to accomplish our common goals. My passion is cancer research. I feel frustrated when results do not always come out as expected. However, I am thrilled when the results are better than expected or the results are unexpected and novel.”

Greatest influence: “My mother is my greatest influence. She was instrumental in setting the stage to my success, leading to my obtaining advanced degrees. The values she instilled in me in my early years continue to influence my life. She taught me to help others and work hard. Realizing the great potential higher education has, she encouraged me to obtain a higher education even though she did not have that benefit.”

Goals: “To find the best way to prevent and treat cancers such as brain tumors.”

Favorite medicine or prescription drug: “Amitriptyline. It works every time I take it.”

Hobbies away from NDSU: table tennis, soccer, community service.

Awards: Wu is the recipient of the Sino-British Friendship Scheme Scholarship, the Overseas Research Scholarship and the National Library of Medicine Fellowship for bioinformatics training, Sino-American Pharmaceutical Professional Association Excellence Service Award and the International Association of Biological and Medical Research Leadership Award.

I hope this issue of our alumni newsletter finds you in good spirits and in good health.

We had 82 students graduating from our pharmacy professional program this spring. The Pharmacy Graduation Hooding Ceremony was held May 15. Tony Welder, BS ’61, pharmacy, was the keynote speaker. He addressed graduates with an inspiring message, “It’s your future, create it.” Several of our faculty and staff received awards at hooding (see page 10).

Two commencement exercises were held at the Fargodome this spring – one for graduate degrees and professional doctorates and another for undergraduate degrees.

This year’s pharmacy professional program applicant pool has 126 applicants with 85 being admitted. Of the 110 students invited for formal interviews, 106 were interviewed. Their average GPA was approximately 3.69; and the average PCAT score was approximately 69.20.

Preface is given to students with demonstrated leadership skills, work or volunteer experience in a health-related area, and North Dakota residency. An ethics exam is part of the admission assessment. Although admission to pharmacy schools remains competitive, students applying to NDSU have a much greater chance of being admitted to our pharmacy professional program than at other schools in our region. In the past two years, NDSU applicants for the program in 2008-09 are approximately 82 percent of North Dakota residents applying to pharmacy schools regionally and nationally. The pharmacy program admitted 82 percent of North Dakota residents applying to the program in 2008.

Preference is given to students with demonstrated leadership skills, work or volunteer experience in a health-related area, and North Dakota residency. An ethics exam is part of the admission assessment. Although admission to pharmacy schools remains competitive, students applying to NDSU have a much greater chance of being admitted to our pharmacy professional program than at other schools in our region. In the past two years, NDSU has admitted 67 percent of the total applicant pool, compared to an average of 20 to 25 percent for other pharmacy schools regionally and nationally. The pharmacy program admitted 62 percent of North Dakota residents applying to the program in 2008.

The students provided general health screening and pharmacist experience to chronically ill patients and to those with substance abuse problems. They were supervised by licensed pharmacists who could provide the most appropriate care.

Tuition and fees for students in the NDSU pharmacy professional program for 2008-09 are approximately $11,490 per year. The 2009 N.D. Legislature infused an additional $6.2 million into the North Dakota University System this session that will be targeted to help lower student tuition increases in the next biennium. As a result, tuition increases will be limited to 4 percent per year for North Dakota’s four-year schools with no tuition increases for two-year programs in the next biennium.

About 50 professional program students participated in Pharmacy Legislative Day in Bismarck. They learned about the legislative process, the political process and being involved politically in their future roles as pharmacists, how a bill is passed, what bills might impact the pharmacy profession, and how to address a legislator. They learned that students and pharmacists can have an impact by being actively involved politically and by helping advance the profession of pharmacy through the legislative process.

I hope you enjoy our newsletter. If you have comments, stories to share or suggestions for future issues, let us know. For more information about our college, its people and programs, visit our Web site at: www.ndsu.edu/pharmacy.
Walgreens presents diversity grant

The Walgreens Co. awarded the NDSU College of Pharmacy, Nursing, and Allied Sciences a $10,000 gift to assist its diversity efforts. Walgreens representatives Thuan Do and Chad Nellis presented the gift on Oct. 21, 2008, to President Joseph A. Chapman, Kivi Myers, vice president for equity, diversity and global outreach; and Charles Peterson, dean of the college.

"Diversity is hugely important to the institution," President Chapman said. "We will not be the university that North Dakota needs if we do not aggressively address the issue of diversity and equity. This is the first gift of its kind that we have received."

According to Peterson, Walgreens will contribute an annual gift of $10,000. He said $2,000 will be directed to the Walgreens Diversity Scholarship to support students of under-represented groups. The remainder will be used to develop, implement and support programs that will have a positive impact and aspire more diversity in the pharmacy program.

Family HealthCare Pharmacy joins collaborative project with patient safety focus

The Family HealthCare Pharmacy was chosen in August 2008 to participate in an 18-month Health Resources and Services Administration (HRSA) Patient Safety and Clinical Pharmacy Services Collaborative. This national initiative supports the development of best practices that enhance patient safety and expands the availability of clinical pharmacy services to patients.

The pharmacy is working in collaboration with the Family HealthCare Center, and the team has been recognized as a high performing team for their accomplishments in the first nine months of the collaborative. Areas of expansion include medication reconciliation services to diabetic patients with a pharmacist prior to their clinic office visit, incentive based programs which encourage patients to bring all medications to their clinic visit, anticogulation services with a pharmacist specialist, patient health literacy programs, educational presentations to the medical providers, individualized patient prescription case management and medication access services, among others.

The traveling team includes Annie Ottney (PharmD), Susan Wolf Nelson (RPh), pharmacy director, and Miguel Puisan-Catevilla (RPh), all from the Family HealthCare Pharmacy, and Maxine Henderson (RN), clinical director from the Family HealthCare Center. Nicole Wald (PharmD), Betty Lee (RPh), and Jennifer Iverson (RPh) also provide clinical pharmacy services and participate in activities of the collaborative.

The traveling team has presented topics for several national phone conferences and breakout groups at the national learning sessions and was featured as a high performing team on an HRSA national satellite broadcast and at the most recent learning session in Washington, D.C., in May 2009.

The Family HealthCare Pharmacy is a department of the College of Pharmacy, Nursing, and Allied Sciences and is located in the Family HealthCare Center in downtown Fargo.

Halbur attends Harvard leadership program

Kimberly Vesu Halbur, associate dean for Student Affairs, recently attended the Harvard University management development program in Boston.

Providing innovative and practical ideas about critical management issues for mid-level professionals, the Harvard University Management Development Program is a 12-day leadership program offered through the Harvard University higher education department. Halbur joined 104 other participants from a diverse cross-section of institutions in both the U.S. (30 states were represented) and 14 foreign countries.

"The application process is competitive. All candidates are reviewed and selected by the Harvard University Management Development Program admissions committee," said Joe Zolner, director of the Harvard Institutes for Higher Education and the MDF educational chair.

Werremeyer gives presentation on health care beliefs

Amy Werremeyer, PharmD ’05, presented at the American College of Clinical Pharmacy International Congress. The meeting was held April 24-28, 2009, in Orlando, Fla. Her presentation, "Health Care Beliefs That Influence Medication Use and Safety Among Major Religious Groups," was based on a chapter she wrote in the book, "Cultural Competence in Pharmacy Practice."

Werremeyer has been a faculty member at NDSU since 2006.

New employees at Family Healthcare Pharmacy

Heather Stremick, Certified Pharmacy Technician, has joined the staff of the NDSU Family Healthcare Pharmacy, located in downtown Fargo. Originally from Ondabock, N.D., she received her training at North Dakota State College of Science in Wahpeton, N.D. She is responsible for all areas of dispensing and customer service. She lives in Fargo.

Nicole Wald, PharmD ’08, is a staff pharmacist at the NDSU Family HealthCare Pharmacy. She is a graduate of the College of Pharmacy, Nursing, and Allied Sciences. Wald is responsible for prescription dispensing and a range of clinical services offered in the pharmacy. She is originally from Dickinson, N.D., and lives in West Fargo with her son.
The following college faculty members were honored for outstanding achievements at the Pharmacy Hooding Ceremony on May 15, 2009:

Promotion and tenure announcements
Three faculty members have received promotions in the College of Pharmacy, Nursing, and Allied Sciences. Both Sanku Mallik and David Scott were named full professors and given tenure; and Cynthia Naughton was named associate professor.

Alumna brings medication therapy management to Nebraska Medical Center
Intelligent, ambitious, innovative and hard-working all describe Wendy Friedig, clinical pharmacist in Nebraska Medical Center’s fast-paced emergency department (ED). The North Dakota native earned her PharmD degree from NDSU in 1999.

Friedig always intended to become a community pharmacist. However, life as a hospital pharmacist piqued her interest when she started her fourth-year rotations in pharmacy school.

Like most ED pharmacists, Friedig works varying shifts and has varying hours. She described it as seven 12-hour shifts per two weeks. While many pharmacists would balk at these hours, Friedig thrives on the schedule.

But what exactly does the medication therapy management role of an ED pharmacist include? “More than you think,” laughed Friedig. “The most time-consuming component of my job is taking a medication history for every patient admitted to the hospital through the ED.”

In a 12-hour shift, the Nebraska Medical Center ED can have between five and 30 admissions. Friedig spends a lot of time trying to ascertain what medications patients are currently taking and why. “Believe it or not, the majority of patients [not only] don’t know what medications they are currently taking, but also have no idea what the medications are for.” To obtain an accurate medication history, Friedig calls pharmacies, uses Micromedex to identify “mystery pills” brought from home, and talks with patients.

Most of the day, Friedig works with at least two attending physicians and several residents in the ED. These physicians call on and use the expertise of Friedig and her fellow ED pharmacists when treating patients. The Nebraska Medical Center has institutional guidelines, similar to protocols, available for various disease states, including pneumonia, sepsis and infections. Friedig and her ED pharmacist colleagues are commonly called on to dose and/or prepare medications for intubation and sedation, to make general therapy recommendations, and to teach patients being discharged from the ED about their medications.

In the fast-paced environment of an ED, a pharmacist’s responsibilities change quickly depending on what comes through the door. When the trauma beeper goes off, Friedig is ready. She has the necessary training to help with life-threatening situations. She is certified in the American Heart Association’s Pediatric Advanced Life Support Course and took their Advanced Cardiac Life Support training.

When codes occur in the Nebraska Medical Center ED, Friedig “takes over the [code] cart.” In these situations, Friedig must know doses of medications and must be able to draw them up quickly. She tries to anticipate what medications will be needed next and to have them ready.

Friedig has a master of business administration degree from the University of Nebraska and also is a Board Certified Pharmacotherapy Specialist. Friedig uses the knowledge learned through her certification “each and every day in the ED.”

Friedig has been highly involved in the American Pharmacists Association since pharmacy school, when she was a national officer for the APhA Academy of Student Pharmacists. She also has been active with APhA’s Academy of Pharmacy Practice and Management since 1999 and has served in several leadership positions.

When asked what is next for her, Friedig said, “Nothing is out,” as she is always “open to a new challenge and a great opportunity.”

Excerpted from an article in Pharmacy Today by Ellen Whipple Guthrie, PharmD.

Friedig recently was appointed to the NDSU National Pharmacy Advisory Board.

Sanku Malik
Pharmaceutical Sciences
Dean’s Award for Excellence in Research

Wanda Roden
Pharmacy Practice
Dean’s Award for Exemplary Service

Polly Olson
Allied Sciences
Dean’s Award for Outstanding Advising

Robert Sylvester
Pharmacy Practice
Teacher of the Year Award

Mark Dewey
Pharmacy Practice
Faculty Preceptor of the Year Award

NOT PICTURED
Jeff Sawyer
Melrose Pharmacy
Adjunct Preceptor of the Year Award

Alumna brings medication therapy management to Nebraska Medical Center
Intelligent, ambitious, innovative and hard-working all describe Wendy Friedig, clinical pharmacist in Nebraska Medical Center’s fast-paced emergency department (ED). The North Dakota native earned her PharmD degree from NDSU in 1999.

Friedig always intended to become a community pharmacist. However, life as a hospital pharmacist piqued her interest when she started her fourth-year rotations in pharmacy school.

Like most ED pharmacists, Friedig works varying shifts and has varying hours. She described it as seven 12-hour shifts per two weeks. While many pharmacists would balk at these hours, Friedig thrives on the schedule.

But what exactly does the medication therapy management role of an ED pharmacist include? “More than you think,” laughed Friedig. “The most time-consuming component of my job is taking a medication history for every patient admitted to the hospital through the ED.”

In a 12-hour shift, the Nebraska Medical Center ED can have between five and 30 admissions. Friedig spends a lot of time trying to ascertain what medications patients are currently taking and why. “Believe it or not, the majority of patients [not only] don’t know what medications they are currently taking, but also have no idea what the medications are for.” To obtain an accurate medication history, Friedig calls pharmacies, uses Micromedex to identify “mystery pills” brought from home, and talks with patients.

Most of the day, Friedig works with at least two attending physicians and several residents in the ED. These physicians call on and use the expertise of Friedig and her fellow ED pharmacists when treating patients. The Nebraska Medical Center has institutional guidelines, similar to protocols, available for various disease states, including pneumonia, sepsis and infections. Friedig and her ED pharmacist colleagues are commonly called on to dose and/or prepare medications for intubation and sedation, to make general therapy recommendations, and to teach patients being discharged from the ED about their medications.

In the fast-paced environment of an ED, a pharmacist’s responsibilities change quickly depending on what comes through the door. When the trauma beeper goes off, Friedig is ready. She has the necessary training to help with life-threatening situations. She is certified in the American Heart Association’s Pediatric Advanced Life Support Course and took their Advanced Cardiac Life Support training.

When codes occur in the Nebraska Medical Center ED, Friedig “takes over the [code] cart.” In these situations, Friedig must know doses of medications and must be able to draw them up quickly. She tries to anticipate what medications will be needed next and to have them ready.

Friedig has a master of business administration degree from the University of Nebraska and also is a Board Certified Pharmacotherapy Specialist. Friedig uses the knowledge learned through her certification “each and every day in the ED.”

Friedig has been highly involved in the American Pharmacists Association since pharmacy school, when she was a national officer for the APhA Academy of Student Pharmacists. She also has been active with APhA’s Academy of Pharmacy Practice and Management since 1999 and has served in several leadership positions.

When asked what is next for her, Friedig said, “Nothing is out,” as she is always “open to a new challenge and a great opportunity.”

Excerpted from an article in Pharmacy Today by Ellen Whipple Guthrie, PharmD.

Friedig recently was appointed to the NDSU National Pharmacy Advisory Board.
Alumna selected for prestigious fellowship

Recky (Moos) Keel is on the front lines of studies to combat disease and limit antibiotic resistance. Keel, PharmD ’08, has been selected for a two-year fellowship beginning July 1 at the Center for Anti-Infective Research and Development at Hartford Hospital in Hartford, Conn.

She is studying how mice and rats with specific infections respond to various levels of antibiotics. Using both in-vitro and in-vivo research, she is using pharmacokinetic-pharmacodynamic modeling and studying different isolates from across the country. She is researching optimal antibiotic dosing to help reduce development of resistance and to overcome existing resistance. There is the potential for human trials, as well.

“I hope to be able to gain experience on how to conduct basic research with the goal of advancing the standards of practice and preventing antibiotic resistance,” Keel said. “I want to be able to fully understand the reasoning behind the methodology of a study and how to interpret the results along with understanding the strengths and limitations of the study. Although I will have limited patient contact, I hope to gain knowledge that will help me optimize antimicrobials and make decisions in the best interest of the patient.”

Earlier this year, Keel completed her general pharmacy practice residency at the University Medical Center of Southern Nevada in Las Vegas. During the fellowship, much of her time is spent setting up, taking lab draws and analyzing data. After the research is completed, statistical analysis will be performed and a manuscript written for submission to a journal.

“Infectious disease had been an interest of mine since my first microbiology laboratory course at NDSU,” Keel said. “I continued to focus and cultivate this interest by obtaining a microbiology minor. Although I was not involved with research at NDSU, there was always a strong research community surrounding our education. Many of the pharmacy professors at NDSU stressed the importance of evidence-based practice, which has helped me make sound clinical decisions.”

Keel is uncertain what direction her career may take, but her fellowship should open a few doors.

“Ultimately I believe I would like to be a clinical infectious disease pharmacist at a tertiary academic hospital,” she said. “I do have ambitions to become a faculty member at a college of pharmacy and look forward to precepting students. Although my career goals are dynamic, I hope this fellowship will allow me to identify and focus on a particular subset of pharmacy practice.”

Keel is married to Jonathan Keel, PharmD ’09, who works for Rite Aid. They live in West Hartford, Conn.

Fargo pharmacist receives national award

Olive Frenzel loves it when people walk into The Medicine Shoppe in Fargo and know him by name. To him, that embodies what a pharmacy is all about – a bond between patient and pharmacist.

“We want a trusting relationship, where our customers are not afraid to come in to ask a question or give us a call with concerns,” he explained.

Frenzel is one of 10 pharmacists acknowledged with the 2009 Pharmacy Today One to One Patient Counseling Recognition Award at the American Pharmacists Association annual meeting in San Antonio.

“It is a big honor for me,” said Frenzel, PharmD ’03. “Personalized care is something we pride ourselves in at The Medicine Shoppe. One-on-one time with people is really important.”

Frenzel was honored for his patient counseling skills at a conference in April.

Frenzel is a preceptor for final-year NDSU pharmacy students. Experienced director Wanda Roden, and NDSU pharmacy students, including Craig Kraft, Matthew Kessler, Dena Spacht and Nehal Patel, nominated him for the honor.

“To be nominated by students who rotated through here is a great honor. That makes this a very special award,” said Frenzel.

His dedication to readily accessible patient care was formed when he was an NDSU student. He believes in providing patients with information needed to fully understand their medications and to use them safely.

“Everyone, whether a new prescription or a refill, deserves the opportunity to ask any questions or express any concerns they have about their medication,” Frenzel said.

PharmD grads are loyal Bison fans

Olye E. Anderson, BS ’50, worked for many years as a pharmacist at Golden Valley Health Center. He served in the U.S. Army in Europe during WWII. He enjoyed hunting and fishing. He lived in Rogers, Minn.

David A. Lewis, BS ’53, served in the Army Air Corps as an aircraft mechanic in Georgia during WWII. After the war, he worked at maintaining family farms in Deer Creek and Albert Lea, Minn., as well as working at the First National Bank of Henning, Minn. He moved to Texas to practice pharmacy in Fort Worth and Odessa, Texas. He eventually moved to Midland, Texas, and lived at Maner Park Retirement Complex.

John Lommel, BS ’56, worked in North St. Paul, Minn., and Breckenridge, Minn., until purchasing Herman Drug in Herman, Minn. He enjoyed hunting, trapping, fishing and bird watching. He was a lifetime member of the Minnesota Pharmaceutical Association. He retired in 2001 and lived in Herman.

Ralph Miller, BS ’60, worked as a pharmacist in Missoula, Mont., and at Williams Drug in Butte, Mont., prior to moving to Rugby, N.D. There he worked at the Hersey Drug Store until 1969, where he opened his own pharmacy, which he operated until retiring in 2000. He lived in Rugby.

Lyle E. Anderson, BS ’50, worked for many years as a pharmacist at Golden Valley Health Center. He served in the U.S. Army in Europe during WWII. He enjoyed hunting and fishing. He lived in Rogers, Minn.

David A. Lewis, BS ’53, served in the Army Air Corps as an aircraft mechanic in Georgia during WWII. After the war, he worked at maintaining family farms in Deer Creek and Albert Lea, Minn., as well as working at the First National Bank of Henning, Minn. He moved to Texas to practice pharmacy in Fort Worth and Odessa, Texas. He eventually moved to Midland, Texas, and lived at Maner Park Retirement Complex.

John Lommel, BS ’56, worked in North St. Paul, Minn., and Breckenridge, Minn., until purchasing Herman Drug in Herman, Minn. He enjoyed hunting, trapping, fishing and bird watching. He was a lifetime member of the Minnesota Pharmaceutical Association. He retired in 2001 and lived in Herman.

Ralph Miller, BS ’60, worked as a pharmacist in Missoula, Mont., and at Williams Drug in Butte, Mont., prior to moving to Rugby, N.D. There he worked at the Hersey Drug Store until 1969, where he opened his own pharmacy, which he operated until retiring in 2000. He lived in Rugby.

Alumna selected for prestigious fellowship

Recky (Moos) Keel is on the front lines of studies to combat disease and limit antibiotic resistance. Keel, PharmD ’08, has been selected for a two-year fellowship beginning July 1 at the Center for Anti-Infective Research and Development at Hartford Hospital in Hartford, Conn.

She is studying how mice and rats with specific infections respond to various levels of antibiotics. Using both in-vitro and in-vivo research, she is using pharmacokinetic-pharmacodynamic modeling and studying different isolates from across the country. She is researching optimal antibiotic dosing to help reduce development of resistance and to overcome existing resistance. There is the potential for human trials, as well.

“I hope to be able to gain experience on how to conduct basic research with the goal of advancing the standards of practice and preventing antibiotic resistance,” Keel said. “I want to be able to fully understand the reasoning behind the methodology of a study and how to interpret the results along with understanding the strengths and limitations of the study. Although I will have limited patient contact, I hope to gain knowledge that will help me optimize antimicrobials and make decisions in the best interest of the patient.”

Earlier this year, Keel completed her general pharmacy practice residency at the University Medical Center of Southern Nevada in Las Vegas. During the fellowship, much of her time is spent setting up, taking lab draws and analyzing data. After the research is completed, statistical analysis will be performed and a manuscript written for submission to a journal.

“Infectious disease had been an interest of mine since my first microbiology laboratory course at NDSU,” Keel said. “I continued to focus and cultivate this interest by obtaining a microbiology minor. Although I was not involved with research at NDSU, there was always a strong research community surrounding our education. Many of the pharmacy professors at NDSU stressed the importance of evidence-based practice, which has helped me make sound clinical decisions.”

Keel is uncertain what direction her career may take, but her fellowship should open a few doors.

“Ultimately I believe I would like to be a clinical infectious disease pharmacist at a tertiary academic hospital,” she said. “I do have ambitions to become a faculty member at a college of pharmacy and look forward to precepting students. Although my career goals are dynamic, I hope this fellowship will allow me to identify and focus on a particular subset of pharmacy practice.”

Keel is married to Jonathan Keel, PharmD ’09, who works for Rite Aid. They live in West Hartford, Conn.
College names new ambassadors

Seventeen new members of the Pharmacy, Nursing, and Allied Sciences Ambassadors class of 2009 were welcomed representing professional to graduate students from each department in the college.

The students will join current ambassadors who promote the college through events including the White Coat Ceremony, Nurse Pinning Ceremony, Ticket to Your Success event, the 50-year reunion, Homecoming activities, Discover NDSU, Expand Your Horizons and Career Day.

New ambassadors from pharmacy include Kailee Donner, Lexi Hoefs, Amanda Jorgenson, Jason Lind, Rupa Patel, Natasha Petry, Hayley Preble and McKayla Schmit. New ambassadors from pharmacological sciences include Namrata Bhattachar and Praveen Shukla. New ambassadors from nursing include Amanda Broke, Anne Dunham, Brett Halvorson, Danielle Hauslinger and Ashlie Sefert. New ambassadors from allied sciences include Lindsey Bruner and Tania Peters.

Student pharmaceutical scientists have successful year

The NDSU student chapter of American Association of Pharmaceutical Scientists (AAPS) made significant progress this year. A challenging graduation rate of 26 percent of our pharmaceutical scientists include Namrata Bhatnagar, Hoefs, Amanda Jorgenson, Jason Lind, Rupa Patel, Natasha Petry, Hayley Preble and McKayla Schmit. New ambassadors from pharmacological sciences include Namrata Bhattachar and Praveen Shukla. New ambassadors from nursing include Amanda Broke, Anne Dunham, Brett Halvorson, Danielle Hauslinger and Ashlie Sefert. New ambassadors from allied sciences include Lindsey Bruner and Tania Peters.

The ambassadors are co-advised by Dana Davis, director of recruitment, and Sara Wald, director of advancement for the College of Pharmacy, Nursing, and Allied Sciences.

Ph.D., former student chapter chair, gave an invited podium presentation at the 35th annual meeting and exposition of the Controlled Release Society in New York City. NDSU also was represented with 10 poster presentations at the 2008 AAPS annual meeting in Atlanta.

Students from our chapter made an impact in June 2009 at the American Peptide Symposium at Indiana University, National Biotechnology Conference in Seattle, and the 41st annual Pharmaceutics Graduate Students Research Meeting at Purdue University in West Lafayette, Ind. Upcoming national conferences include the AAPS annual meeting in Los Angeles (November 2009) and International Pharmaceutical Federation, Pharmaceutical Sciences World Congress in New Orleans (November 2010).

Elections for new officers were held in August, and Rhishikesh Mandke, chair elect, will assume the position of NDSU student chapter chair. He and his newly elected officers will continue to promote the representation of NDSU at various national conferences.

Michael G. Soett, chair NDSU Student Chapter of AAPS

College of Pharmacy, Nursing, and Allied Sciences.

NDSU improves commencement ceremonies

With enrollment climbing and number of graduate programs increasing, NDSU administration changed one of NDSU’s most tradition-laden functions – commencement. This year, for the first time, spring commencement was split into two ceremonies; one for graduate and professional students, and another for undergraduate students.

“Overall when we looked at the length of our spring program … and the increase of students eligible to participate … we were at a point to start looking for alternatives to the spring format,” said Rhonda Kitch, associate registrar.

The main objectives were to decrease the length of the program and increase student participation. Both were accomplished.

“Last spring the ceremony was two hours and 45 minutes,” Kitch said. “This spring the graduate and professional ceremony was shortened to roughly two hours.

Kitch believes the split ceremony is directly related to this spring’s increased participation rate. The number of graduate and professional participants went from 206 to 265, while the number of eligible students changed very little. “I can’t help but think that some of that was due to the fact that they didn’t have to sit through a long ceremony.”

Another perk of split ceremonies is more customization. “There are more opportunities to highlight the honors and achievements of each group,” she said. In the future, the graduate and professional ceremony may include a student speaker and award recognition.

“From survey feedback, the (graduate) students really felt like their programs and their achievements were highlighted a lot more,” Kitch said. “It was another reinforcement that this was the right decision to make.”

Given the success, spring commencement will continue to be two ceremonies in the future. December commencement will remain one ceremony.

NDSU Pharmacy Program by the numbers

- Approximately 83 percent of North Dakota residents who applied to the program were accepted in 2009. This number is up from more than 77 percent accepted in 2007.
- 30-35 percent of pharmacy graduates stay in North Dakota to practice in their profession.
- $90,000 to $100,000 is the average salary of NDSU pharmacy graduates, based on an annual survey of graduates.
- $11,535 per year is paid by NDSU pharmacy students in the professional program for tuition and fees, compared to $16,000-20,000 per year at other institutions in our region. This is based on 2008-09 rates.

Pharmacy students attend 2009 Legislative Day

The 2009 Pharmacy Legislative Day gave NDSU students in the pharmacy professional program a chance to meet with N.D. Gov. John Hoeven outside the governor’s office in the state capital building, Bismarck, as well as to learn how the legislative process in North Dakota impacts the profession.
The future of pharmacy: Congratulations 2009 4th year graduates

Isaac Aasen
Mayville, N.D.
Heather F. Entzel
Killdeer, N.D.
Kristin L. Gussiaas
Carrington, N.D.
Amy N. Johnson
Jamestown, N.D.
Trent G. Anderson
Hewitt, Minn.
Alanna T. Bowman
Watkins, Minn.
Brandon J. Haas
Madison, Minn..
Nicolas D. Kadrmas
Bismarck, N.D.
Jenna L. (Pepelnjak) Anderson
Pelican Rapids, Minn.
Shelby J. Carlson
Inver Grove Heights, Minn.
Nicole M. (Sommers) Fries
Willmar, Minn.
Brendan L. Hacker
Hancock, Minn.
Erica L. Kallenbach
Maddock, N.D.
Kara M. Axvig
Rugby, N.D.
Kayla M. (Kertz) Clauson
Edinburg, N.D.
Philip M. Silve
Scoanton, N.D.
Hannah E. Dyk
Bowman, N.D.
Brian K. Engelman
Saak Rapids, Minn.
Heather F. Entzel
Kilkeoor, N.D.
Nicole M. (Summers) Fries
Willmar, Minn.
Lucas B. Glarum
Mooreton, N.D.
Michael G. Glassing
Fargo, N.D.
Anne C. Gorder
Galtluth, N.D.
Chelsea L. Gostauts
Fargo, N.D.
Kristin L. Gussiaas
Carrington, N.D.
Brandon J. Haas
Madison, Minn.
Brendan L. Hacker
Hancock, Minn.
Ashley M. Haufner
New Richmond, Wis.
Lee H. Hansen
Frazdon, Minn.
Sara K. Hermans
Milburn, S.D.
Marci A. Jacobsen
Saguar, Minn.
Amy N. Jeferyan
Jannickson, N.D.
Nicola D. Kaarmnas
Bumaich, N.D.
Erika L. Kahemach
Mudloch, N.D.
Matthew L. Kapener
Riso, Minn.
Jonathan A. Knol
Las Vegas, Nev.
Matt K. Kelly
Fridley, Minn.
Jim A. Kertz
Edinbugh, N.D.
Lisa M. Kettler
Mehos, Minn.
Kyllian S. Kirshna
Rochester, Minn.
Kimberly S. Knau
Hatton, N.D.
Robocca A. Knoer
Vcele, N.D.
McCull K. Kivar
New England, N.D.
Chelsea R. (Kirisic) Lawlor
L Krank, N.D.
Lance D. LaClair
Fargo, N.D.
Kristen L. (Ryker) LeClair
Mahnman, Minn.
Emily J. Lenz
Minot, N.D.
Carmen A. Loff
Deleva Lake, N.D.
Jeffrey W. Ma
San Leandro, Calif.

Karla M. (Kertz) Clauson
Edinburg, N.D.
Patrick J. Netland
Moorhead, Minn.
Sandeep Patel
Gandhinagar, India
McCall K. Kivar
New England, N.D.
Chelsea R. (Kirisic) Lawlor
L Krank, N.D.
Lance D. LaClair
Fargo, N.D.
Kristen L. (Ryker) LeClair
Mahnman, Minn.
Emily J. Lenz
Minot, N.D.
Carmen A. Loff
Deleva Lake, N.D.
Jeffrey W. Ma
San Leandro, Calif.

Sara K. Hermans
Milburn, S.D.
Anthony C. Mandie
Edinburg, N.D.
Sarah R. (Stanton) Reinhart
Northwood, N.D.
Nicholas D. Rogers
Grand Forks, N.D.
Andrew L. Ross
Crookston, Minn.
Michaliso A. (Nasaka) Ross
Wase, Minn.
Michelle A. (Krause) Phipps
Wadena, Minn.

Helenkumar Moriya
Bardil, India
Andalas Mahmood
Fargo, N.D.
Tanya M. (Nyere)
Mayfield
Sunay, N.D.
Jennifer (Coteta) Metz
Northwood, N.D.
Aarons M. Miller
Rochester, Minn.
Arich A. Mehl
Minot, N.D.
Lynda Jo Monroe
Fargo, N.D.

Andrew L. Ross
Crookston, Minn.
Congrats 2009 4th year graduates
Spring semester 2009 was not typical for NDSU students. Just like in 1997, the Red River surged and NDSU students were again asked to help hold back the water. As you would expect, our students responded with vigor and fully immersed themselves in the fight. They worked day and night filling sandbags at the Fargodome and Sand Bag Central, and helping build dikes across the city. Proud hearts and able bodies made high school and college students leaders in the fight, not followers. The need was great and the response was even greater.

As hard as they worked, students were aided by untold personal experience illustrates: I was filling sandbags at the Fargodome with some college staff members and, when our shift ended, we were greeted with homemade treats. I asked the other volunteers who provided them and they explained that an older woman who was unable to shovel sand or toss bags brought boxes and boxes of homemade goodies, along with the promise that she would continue to bring treats until the flood threat was past. The lemon bars she made were some of the best I have ever tasted.

Those few weeks fighting the flood really got me thinking about the impact we can make in each other’s lives. Even though this woman could not physically fill or lift a sandbag, she did her part in the fight. This is an example of the human spirit at its best. As long as we are all committed to doing our part, great things can happen.

As a college, our part is to educate students to the highest standards and provide them with opportunities they cannot get at other colleges. We hope you will help us maintain this standard of excellence by joining the Sudro Society. Gifts less than $1,000 annually are recognized as Friends of Sudro Society. Gifts more than $1,000 annually are recognized as members of the Sudro Society.

“Let’s make this the best educational environment for our students so that they have opportunities to succeed and live their dream,” Peterson explained. “These funds give us the ability to address emerging urgent needs for the college on a yearly basis. The focus is our students; that’s why we are here.”

Members are listed in the Pharmacy Alumni News, and receive a Sudro Society pin, insider letters from the dean, invitations to special events and networking opportunities with colleagues. Members are pleased knowing that their contributions are going directly to student enrichment programs and equipment that would otherwise be unavailable without this funding,” said Brad Trom, BS ’72, who is the CEO of retail pharmacy for Lovelace Health System in Albuquerque, N.M. “We’re certainly pleased with the initial launch, but we do want to involve all alumni in giving back to NDSU – at any level – since NDSU has given so much to us.”

Peterson points out college personnel also are participating in Sudro Society, and 78 percent of the college’s faculty and staff made contributions during the most recent annual NDSU faculty/staff campaign.

“That shows our faculty and staff are committed to the cause,” Peterson said. “They are engaged, and they also want this to succeed. Our own people give regularly and enthusiastically. That is significant.”

Peterson said, “I just want to say ‘Thank you, thank you, thank you’ to everyone who participates. Every dollar is important, and the gifts are truly making a difference in the lives of our students.”

For more information about Sudro Society, call (701) 231-6461 or visit www.ndsu.edu/Pharmacy. — Steve Bergeson

Medication donation is a boon for concept pharmacy

The newly established Sudro Society is off to a resounding start. The annual giving club to assist the NDSU pharmacy program has raised more than $100,000.

“It’s been very exciting and the Sudro Society has exceeded my expectations,” said Charles Peterson, dean of the college. “We’ve seen an increasing number of individuals interested in helping out the college. It has been a fabulous program.”

The Sudro Society recognizes individuals who make annual unrestricted contributions totaling $1,000 or more to benefit the college. The tax-deductible gifts allow the college the flexibility in its strategic planning to implement new programs and instructional concepts to continue the tradition of excellence. Gifts less than $1,000 annually are recognized as Friends of Sudro Society.

“We want to make this the best educational environment for our students so that they can have opportunities to succeed and live their dream,” Peterson explained. “These funds give us the ability to address emerging urgent needs for the college on a yearly basis. The focus is our students; that’s why we are here.”

Members are listed in the Pharmacy Alumni News, and receive a Sudro Society pin, insider letters from the dean, invitations to special events and networking opportunities with colleagues.

“Our goal is to engage as many alumni as we can. Sudro Society allows us to do that,” said Sara Wald, the college’s director of advancement. “The gifts have helped us provide research awards, provide students with expense funds at conferences, helped us get the student ambassadors program going and assisted us as we recruit faculty.”

The program also provides crucial support for instructional technology advancements, professional support and alumni activities such as events and the college newsletter.

The chair of the Pharmacy National Advisory Board Advancement Subcommittee said the group is pleased with the initial success of Sudro Society. “We find that contributors are pleased knowing that their contributions are going directly to student enrichment programs and equipment that would be unavailable without this funding,” said Brad Trom, BS ’72, who is the CEO of retail pharmacy for Lovelace Health System in Albuquerque, N.M. “We’re certainly pleased with the initial launch, but we do want to involve all alumni in giving back to NDSU – at any level – since NDSU has given so much to us.”

Peterson points out college personnel also are participating in Sudro Society, and 78 percent of the college’s faculty and staff made contributions during the most recent annual NDSU faculty/staff campaign.

“Thank you to everyone who participates. Every dollar is important, and the gifts are truly making a difference in the lives of our students.”

For more information about Sudro Society, call (701) 231-6461 or visit www.ndsu.edu/Pharmacy. — Steve Bergeson
calendar of events

SEPTEMBER
17 Pharmacy Alumni Social, 5:30 p.m., Holiday Inn
Pharmacy Alumni Dinner, 6 p.m., Holiday Inn

50 Year Golden Reunion: The classes of 1949, 1954 and will be honored. The reunion is an opportunity to come back to campus, rekindle old friendships and witness the many changes at NDSU. Join us to celebrate the university and your contribution to NDSU.

OCTOBER
2 Pharmacy, Nursing, and Allied Sciences Annual Continuing Education Seminar, 8 a.m.-5 p.m., Fargodome, upper level, room 202. Open to all healthcare professionals. Cost is $100. RSVP to Carol Jore at 701-231-7589 or carol.jore@ndsu.edu

FEBRUARY
27 P3 Poster Presentation, Memorial Union, NDSU Campus CE credit will be available.