

pharmacy

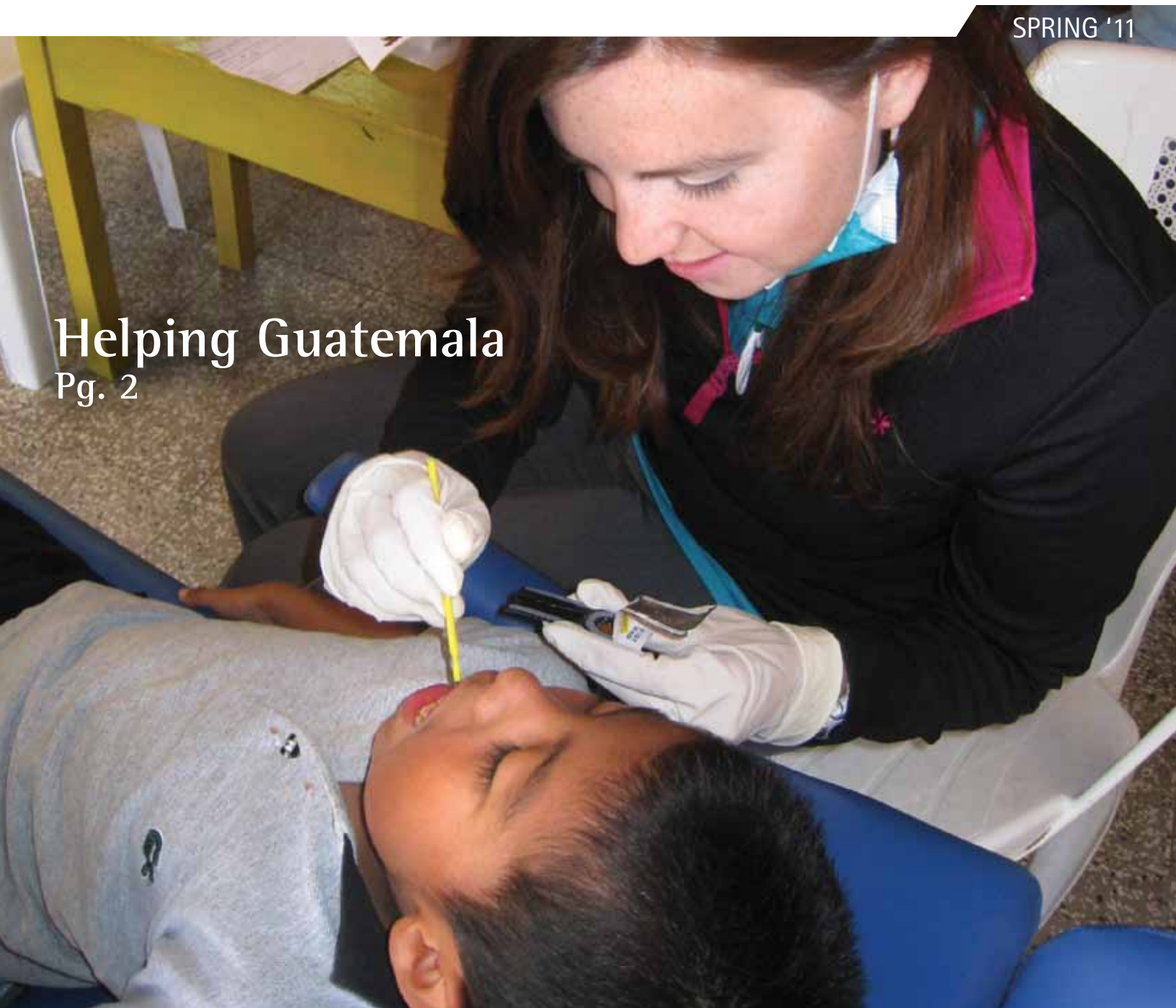
ALUMNI NEWS

THE COLLEGE OF PHARMACY, NURSING, & ALLIED SCIENCES

SPRING '11

Helping Guatemala

Pg. 2



Public health degree coming ③

Alumna bikes across America ⑥

Student interns in Indonesia ⑨

Preparing students to become competent, caring, ethical health professionals and citizens.

Pharmacy students relish experience helping Guatemalan people

Nicole Barnett knelt down and, in as simple terms as she could, explained to a boy the medicine he needed to take.

Her words elicited an unexpected response from the little patient – a huge hug.

The outpouring of pure gratitude from people of all ages will stick with Barnett and Kinsey Oakland most after being part of a medical mission team in Guatemala.

“The biggest surprise is how grateful people are for the simple things. I have never received a hug in the pharmacy aisle here (Fargo),” Barnett said.

The fourth-year pharmacy students were among 25 health-care professionals from the U.S. and Canada that included physicians, a nurse practitioner, pharmacists, nurses, dental assistants, linguists, students and general helpers. They served patients in the cities of Xela, Chuatuj and San Martin Chili Verde in southwestern Guatemala from June 27 to July 7.

The mission trip, in part, fulfilled requirements for Barnett and Oakland to complete their advanced pharmacy practice experience. It was the first time NDSU students completed a 10-day rotation in Guatemala. In previous years, students contributed to the trip by filling prescription bottles.

Becoming a member of the medical mission team involved a lengthy application process which started in November, first with an essay and then with an interview. After being accepted, Oakland and Barnett ordered and organized supplies and medications for the trip.

In March, several students, faculty and staff from the pharmacy department volunteered to count, package and label thousands of antibiotics, cough and cold products, analgesics, anti-diabetics, anti-hypertensives and many other medications for the mission team. In vitamins alone, they prepared 1,000 months of prenatal vitamins, 2,500 months of adult vitamins and 1,700 months of children’s vitamins.

On June 27, the official journey began, as Oakland, Barnett and pharmacy faculty members, Amy Werremeyer and Liz Skoy met



The NDSU pharmacy crew dispensed medication in San Martin Chile Verde and included, from left: student Kinsey Oakland, assistant professor Elizabeth Skoy, assistant professor Amy Werremeyer and student Nicole Barnett.

the other team members in Dallas before their flight to Guatemala. Together, they checked 17 bags, each packed with about 50 pounds of medications and medical supplies.

After arriving in Guatemala City, they met their drivers and departed for Xela, the city where they would stay.

The clinic layout and flow were adjusted to each medical outreach site. The general format included check-in and registration to record patient data. Then the nursing station assessed blood pressure, temperature, blood sugar and other appropriate lab analysis. All children 12 and under received a fluoride varnish

application, and a local dentist provided services for a few days. Four providers performed comprehensive medical exams that were followed by prescription dispensing and counseling by the pharmacy team. All patients completed the medical clinic with dietary consultations, review of medications and a supply of vitamins and deparasiting medications.

“It was truly a prime model for direct interdisciplinary care ... I was very honored to be a part of this team and to be part of providing this type of comprehensive care,” Barnett said.

“The confidence we gained in our ability to work and communicate with other healthcare professionals will be carried with us to our future practices,” Oakland said.

Within six days, the team saw 738 patients, performed 34 tooth extractions, dispensed 2,800 prescriptions and provided 700 fluoride treatments.

But regardless of the amount of care they provided, Oakland and Barnett maintain what they received in return was much greater. “The impact it left me with will forever stay in my memory as a great personal and professional experience that I am very thankful for,” Oakland said. “There was no uncertainty that the joy they provided to us was much greater than what we brought to the people of Guatemala.” *Linsey Davis*

Master of public health program coming in 2012

Prevention is key to lowering health care costs, yet graduate degrees in public health that focus on wellness and disease prevention have not been available in North Dakota until now. In a move to improve the quality of life and address the prevention aspect of health care in North Dakota, the state's two research universities are joining together to offer a master of public health degree.

The North Dakota Board of Education has approved the joint program between North Dakota State University and the University of North Dakota. Plans are to accept applications in spring 2012 for the official start of classes in fall 2012.

Donald Miller, chair of the Department of Pharmacy Practice, expects many applications for the first class.

"There's quite a demand," he said. "Pharmacists are in a good position to work with public health in that we're accessible and available throughout the state and in all rural areas. In some small towns, the pharmacist is the only health professional readily available."

The idea for the program started with Dr. Terry Dwelle, state health officer for the North Dakota Department of Health. He received a Bush Foundation grant to create a program in North Dakota that focused on practical public health. In the battle against major risk factors of tobacco, nutrition, physical inactivity and alcohol and substance abuse, Dwelle said there are three tools communities can use to affect change: government policy, individual counseling between clinicians and patients, and the population-based interventions found within the public health arena. Between the School of Medicine and Health Science at the University of North Dakota and the Department of Pharmacy Practice at NDSU, Dwelle said linking public health to existing health care departments was the best way to approach the problem.

"It seemed to be a natural marriage between the two universities to develop a program with various focus areas," Dwelle said. "I'm really excited about the interest and possibilities. It's a necessary set of tools that we need to add to various professionals in many disciplines in North Dakota."

The 43 credit, two-year degree is geared toward health professionals but open to any applicants. The union between the universities allows students more opportunities while reducing duplication and cost.

All students in the program will take 21 core course credits that are divided evenly between the two universities. Thereafter, students will take 22 credits in specialty tracks of public health. At NDSU, the specialty tracks are: pharmaceutical disease state management, emergency management, health promotion practice, infectious disease management, medical management and administration, gerontology and food safety. The University

of North Dakota will have five specialty tracks: rural environmental health, health management and policy, rural health and health care, cultural aspects of health and a healthy society.

"You don't have to decide right away," Miller said. "Most students will take the core courses first and figure out what track to follow."



Miller

Natasha Petry, a third-year pharmacy student, is taking some pharmacy classes she hopes will overlap into credits for the public health degree. Nine credits that are part of the PharmD program are planned to double as classes for public health.

"I've always been interested in the prevention part of health," Petry said. "I think the great thing about NDSU's public health program is it has a little different focus since we're such a rural state."

Donald Miller

"Pharmacists are in a good position to work with public health in that we're accessible and available throughout the state and in all rural areas. In some small towns, the pharmacist is the only health professional readily available."

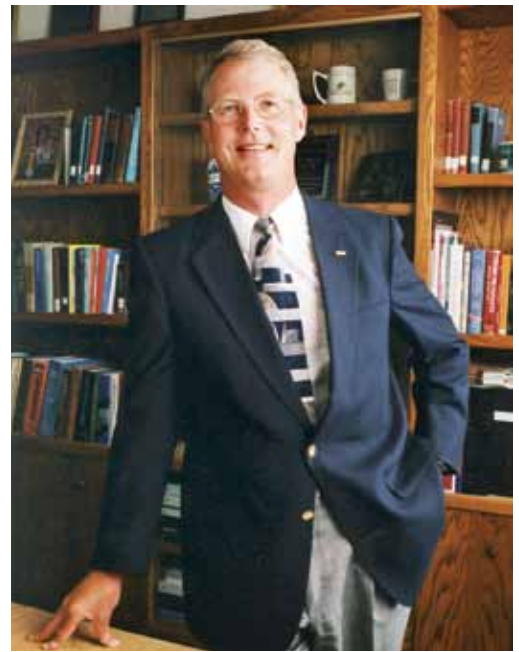
Charles D. Peterson, dean of the College of Pharmacy, Nursing, and Allied Sciences, said the cooperation between the two research universities is unique for public health programs.

"It goes against the old paradigms and perceptions of the two research universities in their ability to work together," he said. "The two presidents are very committed to breaking that mold and having the two universities working collaboratively. I think this is just the beginning of much more to come."

A requested appropriation to support the program is currently making its way through the state Legislature. That money will go toward hiring people. Tuition for the program will be \$600 per credit.

For more information or to join an e-mail list to stay informed about the degree's progress, contact Donald Miller at donald.miller@ndsu.edu. *Joel Hagen*

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Fax: (701) 231-7606
E-mail: charles.peterson@ndsu.edu



a message from the dean

Greetings to all our alumni and friends! Spring finally has arrived and we have battled another Fargo flood. The city announced a community-wide call to arms on Feb. 14 with a goal of filling 3 million sandbags. Students, faculty and staff helped the community build levees to prevent property damage. Bison to the rescue!

Our new Master of Public Health degree program was approved on Nov. 4, 2010, by the North Dakota State Board of Higher Education. NDSU and the University of North Dakota were commended by the board for the two institutions (Schools of Pharmacy and Medicine) working cooperatively and collaboratively to offer this program. We also received approval from the North Dakota Legislature for funding of this program. The program will be implemented in the fall of 2012.

On Jan. 27, the State Board of Higher Education also approved the college's request to offer a new minor in vaccinology at NDSU. This is the first of its kind in the country. It will help support, train and supply a highly skilled workforce to attract vaccine and other biopharmaceutical companies to the Red River Valley and region to support our new Center of Excellence activities in vaccine research and development. NDSU's vaccinology minor is being offered and was developed in collaboration with Minnesota State University

Moorhead and Concordia College through the Tri College University System. We are excited about these two new degree programs in our college that will offer even more opportunities for our students and faculty.

The purchase of the Parata Max – TM automated dispensing system for our Thrifty White Concept Pharmacy instructional laboratory is another exciting new addition to our college. This state-of-the-art technology was installed this spring. The purchase of this system is a result of last summer's tour across North Dakota by representatives of our college. They visited numerous pharmacists and pharmacies across the state to learn about what's currently happening in the profession in North Dakota (read the article in the Fall 2010 Newsletter). This is a great outcome to a wonderful visit for us, and has resulted in a system that will greatly benefit our students and their training for many years. It also shows the importance of the college staying connected with the profession and learning what's going on with the latest advances in pharmacists' practices that can ultimately improve the quality of our program and student learning. I can assure you more visits will be coming!

If you are ever in the area, I hope you will stop by and pay us a visit.

Alumna helps people of earthquake-ravaged Haiti

Cindy Yeager, BS '83, pharmacy, spent one week in Carrefour, Haiti, as part of a medical mission trip to provide care to people still struggling to recover from the devastating earthquake of Jan. 12, 2010.

Yeager went with a group of people from South Dakota and Chicago and led by Ron and Gloria Borgman of Spearfish, S.D., United Methodist Church. The group connected with the Methodist church in Carrefour, where they provided medical care to more than 1,000 people in four days. People would come at 5:30 a.m. to wait in line for the 7:30 a.m. opening of the clinic.

"We were just seeing people for everyday things," Yeager said. "The medical providers saw patients in the sanctuary of the church. We also had folks who were doing fluoride treatments, parasite treatments, tooth brushing and that kind of thing."

Yeager and others provided a month's supply of medication to help patients relieve high blood pressure, diabetes, malaria and eye irritation. Each night after the clinic closed, the team would prepare medications for the next day.

In the congregation, one in eight people lost a family member or suffered a severe injury from the earthquake. At the time, many were homeless or living in tents.



Karen Tjaden was one of the group's physicians providing care to Haitian people at the clinic with alumna Cindy Yeager.

"We were there five-and-a-half months after this disaster, and this church opened up to provide for our needs in order to do that clinic, and that was amazing. It's still hard to think about. It's just unbelievable what they did under such tough circumstances," Yeager said.

The trip provided perspective and a greater appreciation for the speed and availability of basic medical care in the U.S. Yeager said she may go on another mission next year. *Joel Hagen*

Johnson elected to board of directors

Tom Johnson was elected to the American Society of Health-System Pharmacists Board of Directors.

He is director of hospital pharmacy, a critical care pharmacist at Avera McKennan Hospital in Sioux Falls, S.D., and an adjunct professor at South Dakota State University. He directs activities of the hospital pharmacy department and works in a mixed medical/surgical adult intensive care unit, where he also serves as the PGY2 critical care residency director.

Johnson also has joined the NDSU Alumni Association board. He earned his bachelor's degree in pharmaceutical sciences in 1995 and his PharmD in 1997.

"I work hard to do the very best I can do every day," Johnson said. "I have never had a specific plan or very specific career

goals, but I take a lot of pride in the work that I do and the programs that we have developed."

Johnson served the American Society of Health-System Pharmacists in the past as a delegate, policy council member and on many other committees. He also was president of the South Dakota Society of Health-System Pharmacists and served as president and treasurer of his district's section of the South Dakota Pharmacists Association.



Johnson

Alumna and husband bike across North America

On June 5, 2010, Mary Zweber, BS '75, pharmacy, dipped the rear wheel of her bicycle into the Pacific Ocean in Neah Bay, Wash., along with her husband, Roger Miller. Eight weeks later, they dipped their front wheels into the Atlantic Ocean in Bar Harbor, Maine. Averaging 75 miles a day and traveling with a group of 19 bicyclers, the couple made six stops in North Dakota – Williston, New Town, Minot, Harvey, Carrington and Mayville. Representing the Sudro Society, they visited local pharmacies at each stop to say hello to fellow NDSU pharmacy grads.

“We had glorious weather,” Zweber said. “We had a tail wind the whole way through North Dakota.”

The hardest part of the trip was the first 12 days pedaling through two mountain ranges. They stayed mostly in the northern states, but cut north of the Great Lakes through Toronto and into Quebec until heading back south into upstate New York. Zweber said there were no dull parts on the ride – each day had its magic.

As a member of the Pharmacy National Advisory Board and a member of the Board of Trustees for the NDSU Development Foundation, Zweber was happy to stop at every drug store in North Dakota along her route as an emissary from NDSU.

“We’d park our bicycles and go into the pharmacies and say hello,” she said. “We had a lot of fun doing it.”

Zweber also noted that the farther she traveled, the more pharmacists in the next town would know she was coming. The others in the biking group were surprised at how many people Zweber knew until she explained how having independent pharmacies in North Dakota keeps people more connected.

“The bicyclers from California and New York were amazed by the friendliness. The joke was to stop in North Dakota and ask for directions was a 30-minute commitment.”

Zweber also used the trip to raise \$8,000 for Metro Deaf School, a charter school for deaf children in Minneapolis and St. Paul. She is the board chair of the school. Zweber is a retired director of business development for 3M, but works part time as a retail pharmacist. She lives in Stillwater, Minn. She and Miller bike often, and are planning a two-week trip in Canada this summer.



Mary Zweber and her husband, Roger Miller, made sure to stop at many pharmacies on their way through North Dakota while biking across the continent.

“One nice thing about this trip is we didn’t have much opportunity to read a newspaper or watch TV, so didn’t get much negative news. I often thought many times, across 4,100 miles, ‘What a marvelous country we live in.’” *Joel Hagen*

Zweber’s trip in numbers

Age range of riders: 57-71, average 64

Miles traveled: 4,100

Number of flat tires: 14 for Roger, 12 for Mary

Weight loss: 32 pounds for Miller, 15 pounds for Zweber

States visited: Washington, Idaho, Montana, North Dakota, Minnesota, Wisconsin, Michigan, New York, Vermont, New Hampshire and Maine

Canadian provinces: Ontario and Quebec

Alumnus named chair of Virginia school of pharmacy

Donald F. Brophy was appointed chairman of the Department of Pharmacotherapy and Outcomes Science at Virginia Commonwealth University School of Pharmacy, Richmond.

Brophy, who served as the department's interim chairman for a year, is also a professor of pharmacy and internal medicine and director of the School of Pharmacy's Coagulation Special Studies Laboratory. He is co-director of the Transfusion-Coagulation Medicine research arm of the VCU Reanimation Engineering Shock Center. He earned his bachelor's degree in pharmaceutical sciences in 1992 and his PharmD in 1994 from NDSU. He earned a master's degree in clinical research and biostatistics at VCU School of Medicine in 2004.

Previously, Brophy served as clinical director for group practice research at McGuire VA Medical Center, clinical instructor at Purdue University School of Pharmacy and Pharmaceutical Sciences, clinical pharmacist at Indiana University Medical Center, clinical instructor at The Ohio State University College



Brophy

of Pharmacy and clinical pharmacist at The Ohio State University Medical Center. He also held postdoctoral residencies at Purdue and Ohio State.

Recent honors and awards include the Jerry Siegel Clinical Achievement Award at Ohio State, VCU School of Pharmacy Teacher of the Year, VCU School of Pharmacy Faculty Research Award, NDSU Horizon Distinguished Alumni Award and Who's Who in Pharmaceutical Sciences Education. Brophy is a fellow of the American Society of Nephrology and the American College of Clinical Pharmacy. He currently serves on the editorial boards of The Annals of Pharmacotherapy and the journal, Pharmacotherapy.

Brophy's research interests involve thrombosis and hemostasis and coagulation disorders in special populations, specifically identifying platelet dysfunction and developing novel ways to treat and monitor these disorders. His publications have appeared in top-level medical and pharmacy journals.

Alumnus honored at inaugural awards event

Mark Aurit was honored as the 2010 Next-Generation Pharmacist, a new award program sponsored by Parata Systems and Pharmacy Times. Aurit, owner of Gateway Health Mart Pharmacy in Bismarck, N.D., also was honored as Entrepreneur of the Year for the vision reflected in his own pharmacy's experience, and his dedication to advancing the pharmacy industry through mentoring and industry engagement. Aurit earned his bachelor's degree in pharmacy from NDSU in 1974.

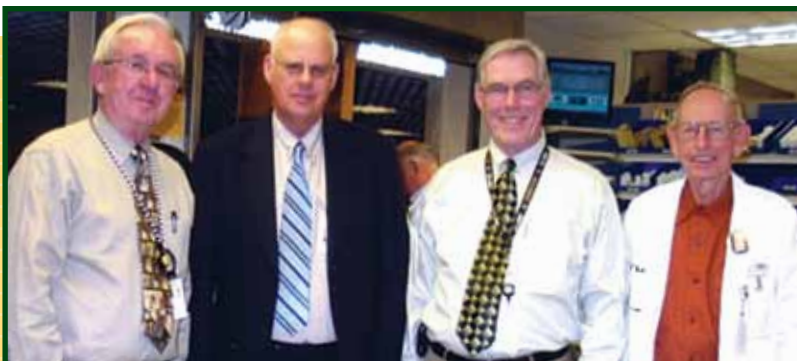
The Next-Generation Pharmacist Awards were created to honor the



Mark Aurit earned several recognitions at the Next-Generation Pharmacist Awards in 2010.

future of pharmacy and the professionals who are defining it through innovative professional practice.

Winners were profiled on Pharmacy Times' website, www.pharmacytimes.com, and were spotlighted in the October issue of Pharmacy Times. The program attracted more than 130 nominations of pharmacy's best and brightest professionals from across the country. Visit www.nextgenerationpharmacist.org for information about the Next-Generation Pharmacist program.



NDSU alumni work in San Antonio

Left to right: Linn Danielski, BS '63, MS '70; Don Milman, BS '63; Donn Iverson, BS '61, MS '77; and Wayne Gilman, BS '61 all work at Brook Army Medical Center in San Antonio.

where are they now?

Patterson assisting South Africa pharmacy program

The weekend before Christmas, Betty Patterson was in her favorite place in South Africa, Addo National Park, an hour-and-a-half drive from Grahamstown. It was a gorgeous day to sit in her car near waterholes and watch small herds of elephants and other animals wander past. She's been visiting the park, and South Africa, in the years before and since her retirement from NDSU in 2005.

Patterson, who also earned her bachelor's degree at NDSU in 1963, taught at NDSU from 1968 to 1973, and again from 1987 to 2005. Her trips to Africa started in 1991 and continue as she works to help South Africa bolster its education programs for pharmacists.

Since she was young, Patterson's dream was to work for Project HOPE, an organization that works to provide healthcare around the globe. She studied Spanish for three years and sent an application to work in a Spanish-speaking country. She was offered Swaziland instead, and went for four months. Patterson described it as life changing.

"I felt like I was an onion peeled to the core, that I left everything behind," she said. "After I got there and started working, I thought, 'This is what I want to do.'"

She then looked for rotation opportunities for NDSU students in Zimbabwe and took students there for six-week rotations for several years.

Betty Patterson

"After I got there and started working, I thought, 'This is what I want to do.'"

"It was great experience for the students if they were open to it," Patterson said. "Some students thrived. You have to be really flexible and understand that culture is different ... You have to stand back and recognize you are there to fit in rather than impose."

Political shifts left Zimbabwe unsafe. Starting in 1998, Patterson has been volunteering in South Africa for three months a year. She brought students from NDSU with her during the early years.

"There's a huge need to train people to manage patients and write protocols for appropriate medication," she said.



Patterson

In South Africa, 80 percent of the pharmacists help 20 percent of the population, which leaves 20 percent of the pharmacists to handle the rest. Patterson is working with Rhodes University to increase the number of clinical pharmacists able to work in government hospitals. The doctor of pharmacy program is the only one Patterson is aware of on the African continent. Patterson writes and revises curriculum for a three-year doctoral program for pharmacists and supervises students for a three-month rotation.

"This program is focused on rational drug use to make the best use of medication," she said. "These people are the leaders in putting protocols together to make healthcare in the Eastern Cape Province better from the hospital level to the clinic level. It's been exciting to be a part of that."

During the other nine months of the year, Patterson lives in Fargo and enjoys writing family histories (she's on her fourth), golfing, gardening and playing bridge. She still attends NDSU events and is the official scorekeeper for the women's basketball team. She plans to return to South Africa in early 2012.

Joel Hagen

Student spreads compassion in Indonesia

Tenzin Jangchup only learned the full extent of what she signed up for once she got to Indonesia. Jangchup, a P1 pharmacy student, was going to be working with PKBI-Bandung, the equivalent of Planned Parenthood of Indonesia. Her new boss laid out several options. Among those options were projects dealing with child labor, abortion and a number of equally daunting aspects of community health. When hearing all this, she had tears in her eyes.

These social issues only existed on television, Jangchup thought. Surely such things couldn't exist in the world. This beautiful country, home of Bali and gorgeous active volcanoes, this tourist magnet for Australians also was home to a secret world of brothels, drugs and prostitutes. Every country has its dark side, Jangchup said, and as the months progressed, it would become a privilege to meet the people of Indonesia and work with them.

Jangchup was in Indonesia for two months last summer as one of 10 American students through the Freeman Indonesia Non-Profit Internship Program scholarship. Each student was paired with an Indonesian counterpart and sent to work for nonprofit organizations around the country. Jangchup decided to work in HIV and AIDS education and prevention in the city of Bandung, where she helped to provide free testing in the community, including brothel houses. She said there is a high prevalence of illegal drug use and needle sharing. HIV and AIDS is a fast growing epidemic in Indonesia due to these and other factors.

She worked to educate people about using protection and being safe. She also worked to erase misconceptions about people with the disease. Jangchup most remembers a young woman about her own age. She already had one child and was pregnant with a second. Her boyfriend had infected her with HIV, and she worked as a prostitute to pay for basic needs. Jangchup would help her get to the HIV rehabilitation center appointments for medication to prevent her second child from becoming HIV positive.

Family was a lifeline for emotional support. Jangchup previously had studied abroad in India for six months, but had the support of relatives who still live there. Indonesia was new territory, and her parents were concerned.

"I think I convinced them with the idea that this is what I want to do in the future," Jangchup said. "I want to help people around the world because public health is a right, not a privilege. I think everyone should be informed."

She also drew on an inner-well of positivity and her ability to find hope in dark places. Jangchup got into a rhythm of work. But one night, after dropping off the pregnant woman at the HIV rehabilitation center and meeting all the other people with infected children, she cried. She wailed. She remembered the

advice of her father, who learned from the Dalai Lama that to live a happy life, one has to practice compassion.

"It saddens you to see the suffering," she said. "I think that an act of compassion really does overcome that sadness.

Happiness just fills your heart when you know that you're making a difference and you can see it being made right in front of you."

At one point, Jangchup and two fellow Americans, along with their Indonesian counterparts, organized an event to raise awareness about sustaining the city of Bandung socially, economically and environmentally. They showcased organizations that promote sustainability and worked to introduce local students to ways they can help. All of this was done to encourage local students to carry on their work and keep the help going.

Although Jangchup took two hours of language lessons every morning and had weekends to visit more tourist-friendly areas of Indonesia, the nonprofit work took most of her time and energy. Her dedication comes from a deep need to pay back what she has gained from non-governmental organizations (NGOs). Her grandparents were Tibetan refugees, and Jangchup herself was born in a refugee camp in India. She grew up in Brooklyn Park, Minn.

"I know it was NGOs and nonprofit organizations that gave everything to help my family survive. It was a non-profit organization that brought Tibetans over here to the U.S. It's been a big part of my life. It's definitely made me who I am now."

Jangchup plans to earn her PharmD at NDSU along with a master's degree in public health. She hopes to find a career in global public health. She wants to see different aspects of the world and keep showing compassion. Study abroad has helped open her up to new experiences.

"I think in life you have to find something you are passionate about and just go after it, and I realized this is something I am really passionate about," she said. *Joel Hagen*



Tenzin Jangchup went first during a community outreach HIV testing event to show others that the life-saving testing didn't hurt.

Born elected regional delegate

In October 2010, Megan Born, a P2 pharmacy student, was elected as a regional delegate for the American Pharmacists Association Academy of Student Pharmacists. As one of eight delegates nationwide, Born represents pharmacy students from Minnesota, North Dakota, South Dakota, Iowa, Nebraska and Wyoming.

Born and the other delegates spend the academic year teleconferencing with each other to discuss which issues the organization should focus on for the national meeting. The original list of issues, compiled from regional meetings across the country, had 94 resolutions. Through discussion, the delegates narrowed that list down to 10 for the national meeting.

"I get to meet a lot of people and talk about things that are important," she said. "As a profession, pharmacy has done a complete 180 in the past 30 years, and it will be exciting to see what happens in the next 30 years."

Born has been involved in Academy of Student Pharmacists since she was a freshman.

"I'm interested in issues important to pharmacy and issues important to what I want to do," she said. "We do a lot of patient care projects, service projects dealing with informing people about diabetes, immunizations and blood pressures."

Student chapters of the American Pharmacists Association are the future of pharmacy and have an important role in deciding



Born

how the profession should be practiced, Born said. Her goals for the organization include increasing membership and care projects to help patients.

Born became interested in pharmacy because she wanted to work in health care. "I like the idea of being able to help and inform people about a topic a lot of people have questions about," she said.

She chose NDSU because of the size and reputation, and she particularly enjoys hands-on classes in the Thrifty White Concept Pharmacy Lab. She plans to graduate in 2013. *Joel Hagen*



Flu shot clinic staffed by students

Pharmacy students helped provide flu shots for the campus community on Nov. 4 in the Memorial Union.



Ambassadors mark another successful year

A lot has happened with the Pharmacy, Nursing, and Allied Sciences Ambassadors this past year.

We held our annual recruitment this spring and a great new class of ambassadors joined us. We also were busy creating new events for ambassadors. We helped a local food pantry in Moorhead and volunteered at the YWCA. Everyone enjoyed those experiences and we plan to go back soon. We finished off spring 2010 with a faculty and staff appreciation that included cake, refreshments and thank you notes written by students to honor the faculty and staff for all they do. At the end of spring semester, the Congress of Student Organizations named Pharmacy, Nursing, and Allied Sciences Ambassadors the “Student Organization of the Year” and named ambassadors’ co-adviser Dana Davis the “Student Organization Adviser of the Year.”

Like the beginning of every school year, fall semester was packed for ambassadors. We launched our new website, <http://sites.google.com/site/pnasambassadors>. Please check it out. We started the semester with Ticket to Your Success, an annual event for new students to get information about the college and to ask questions. Despite the inclement weather, our annual retreat was again a success at bringing us together as an organization and a great way for us to get to know each other better.

In October, ambassadors gave tours of Sudro Hall to the Pharmacy National Advisory Board, walked in the Homecoming parade, talked with prospective students and gave tours of Sudro Hall during Discover NDSU. We also held a Student Appreciation Day before Halloween where we served homemade cookies, brownies and cider to students to give them a boost during the dreaded midterms.



Ambassadors

Pharmacy

Tyler Bilden
 Kristine Borys
 Erienne Bright
 Alyssa Emerson
 Jeremy Grindeland
 Joseph Kaiser
 Lindsey Kaufmann
 Jane Loueng
 Sarah Schaaf

Nursing

Hannah Belk
 Jordan Coplin
 Karis Johnson
 Jaclyn Smith

Allied Sciences

Kathleen Borts
 Nathaniel Freng
 Tacy Masters
 Madison Stone

Pharmaceutical Sciences

Venkata Indurthi
 Varsha Meghnani
 Faidat Sanusi

The ambassadors are co-advised by Dana Davis, director of recruitment, and Sara Wald, director of advancement for the college.

November marked the time of our elections. From this year’s results, it looks like next year will be great. It’s also the start of The Great Healthcare Adventure, a project put together by our co-adviser Dana Davis. Ambassadors travel to a local elementary school and introduce second and third graders to healthcare and the different career paths available. It was a great success last year and is starting out very well again this year.

The fall semester was over before we knew it. Our organization is moving in the right direction with the help of our advisers, Dana Davis and Sara Wald. Hopefully next year we can serve the college further and have an even more successful year for the ambassadors.

*Jason Lind, 2010 president
 Katie Montag, 2011 president*

*2011 Ambassador officers
 Membership: Danielle Hasslinger (nursing)
 Secretary: Ashlie Seifert (nursing)
 Special events: Luke Lorenz (pharmacy)
 Public relations: Jenna Lien (pharmacy)
 Dean’s liaison committee: Mckaya Schmit (pharmacy)
 Historian: Victoria Hammond (pharmacy)
 Allied sciences liaison: Becca Ystebo
 Nursing liaison: Sammie Juhnke
 Pharmaceutical sciences liaison: Amit Modgil
 Pharmacy liaison: Heath Oetken*

Show your NDSU pride!

Your purchase supports NDSU's chapter of the Academy of Students of Pharmacy



1

NDSU Pharmacy track jacket

Color: Black
 Sizes: S-XXL unisex

Price: \$35



2

NDSU Pharmacy T-shirt

Color: Black
 Sizes: XS-XL women's; S-XL men's

Price: \$15



3

NDSU Pharmacy water bottle

Color: Green

Price: \$10

Order form

	Size	Type	Quantity	Unit price	Subtotal
① NDSU Pharmacy track jacket	_____	<u>unisex</u>	_____	\$35	\$ _____
② NDSU Pharmacy T-shirt	_____	_____	_____	\$15	\$ _____
③ NDSU Pharmacy water bottle	_____	_____	_____	\$10	\$ _____
				Shipping:	\$ 7

TOTAL ENCLOSED \$ _____

Order forms and checks, payable to NDSU ASP, should be sent to Wanda Roden, NDSU Dept 2660, PO Box 6050, Fargo, ND 58108-6050. For further information, contact Wanda Roden at 701-231-5178 or e-mail wanda.roden@ndsu.edu.

Beta Sigma increases involvement

The Beta Sigma chapter of Kappa Psi Pharmaceutical Fraternity has increased its involvement both on campus and in the community this year. To start off the semester, our members volunteered with United Blood Services as part of a campus-wide blood drive. We teamed up with another fraternity on campus, Sigma Nu, to create a “Lights, Camera, Bison!” themed float for the Homecoming parade. In October, some of our members went through a short training program to become tour guides of Sudro Hall for prospective pharmacy students.



Ashlee Randklev of Beta Sigma helped at a blood pressure screening event in West Fargo, N.D.

also received blood pressure training through the school, and have been putting these skills to use through various philanthropic events. Each month, we provide a free meal and blood pressure screening at an assisted living high rise in West Fargo. One of our alumni, Jessina (Moe) Mohl, PharmD '08, graciously donates her time to supervise these blood pressure screenings. We also have teamed up with another pharmacy organization on campus, ASP, to provide blood pressure screenings to students and faculty in the Memorial Union.

In November, we welcomed 12 new members to our organization, and we spent a Saturday afternoon volunteering at the Ronald McDonald House. We also took part in several “Greek Meal Exchanges” with other fraternities and sororities on campus, and had members participate in “Greek Leadership Day.” We hosted Conclave, Kappa Psi’s regional meeting, in Fargo this past semester. This was a great opportunity for members of our chapter to meet with other Kappa Psi members in our region, and participate in discussions aimed at improving our organization and other pharmacy related issues.

Kappa Psi also took part in several volunteer events in the community fall semester. Several members were volunteers for the first Fargo-Moorhead edition of Extreme Makeover: Home Edition. For Halloween, we volunteered at Courts Plus, helping run games at their children’s carnival. Many Kappa Psi members

We volunteered at this year’s Jingle Bell Run/Walk for Arthritis in December, and we took part in the NDSU Service Plunge on Martin Luther King Junior Day in January to help out in the community. One group of our volunteers helped out at the Nokomis childcare center where we shoveled snow and built shelving units. Overall, we provided more than 500 community service hours fall semester.

Some of our events for spring semester included: volunteering with Red Cross, volunteering with our new recruits at the Ronald McDonald House and fundraising at the Fargodome. We also hosted a dinner for Tibetan monks in March. With so many opportunities, we hope to share even more exciting news with you next year!

Sara Asmus and Ashlee Randklev

Student society sponsors showcase and competition

The student society of North Dakota Society of Health-System Pharmacists (NDSHP) at NDSU is one of 91 student societies recognized by the American Society of Health-System Pharmacists (ASHP).

This past fall we sponsored the residency program showcase and clinical skills competition. More than 50 students attended the showcase, where eight residency programs from across the region presented information about their programs. Five pairs of P3 and P4 students participated in the clinical skills competition, which involves preparing a treatment and care plan after assessing a specific case scenario. Winners of the NDSU competition, brothers Nate and Dave Leedahl, represented NDSHP in the National Clinical Skills Competition held in December at the ASHP Midyear Clinical Meeting 2010 in Anaheim, Calif.

Fifteen NDSU students, Dean Charles D. Peterson and several faculty members, including our faculty adviser, Michael Kelsch, attended the Midyear Clinical Meeting. We also have been volunteering once a month at the Healthcare Equipment Recycling Organization, hosting speakers in various health-system careers (long-term care, home infusion, hospital telepharmacy, etc.), and presenting to Eventide assisted-living residents in Moorhead about Zostavax and arthritis management.

Our organization continues to strive to promote membership in local, state and national health-system organizations, stimulate interest in pharmacy careers and encourage career development and professionalism among NDSU pharmacy students.

*Toni Shaw
P3 Student, NDSHP President*

Student group sees growth in participation

The North Dakota State University Chapter of the American Association of Pharmaceutical Scientists is a student consortium pledged to unearth, develop and fabricate pharmaceutical products through advances in science and technology. By taking part in regional, national and international colloquiums, we endeavor to make NDSU's contribution to research discernible in local and international forums. As a result of rising membership count and development of potent research in the Department of Pharmaceutical Sciences, our organization has achieved unrelenting growth in participation in scientific conferences.

We strive to uphold the principles of our student chapter:

- Communication with various organizations and the public,
- Inclusiveness of membership involving undergraduate and professional students,
- Innovation in science and technology,
- Integrity and the highest benchmarks of ethical conduct,
- Membership focus is geared toward the professional development of our members through education and swapping of scientific ideas,
- Refinement of quality in both the research conducted and scientific publications that are outcomes of research done at NDSU.



Current chapter members focus on varied research areas – mainly in drug delivery systems, cardiovascular diseases, epigenetics in cancer, imaging diagnostics, development of new monoclonal antibodies and enzyme inhibitors among others. The diversity of research is exemplified in the NDSU chapter of the American Association of Pharmaceutical Scientists. Our members look forward to continuing advancement of our chapter by pursuing new endeavors.

*Mayura Oak, NDSU student chapter chair
American Association of Pharmaceutical Scientists*

Legislative Day teaches students state health issues

Every two years, students in the College of Pharmacy, Nursing, and Allied Sciences are offered an opportunity to learn about the legislative process and take part in Legislative Day at the state capitol. On Tuesday, Feb. 8, 28 pharmacy and nursing students climbed on the bus in subzero weather to make the trek to Bismarck, N.D. While on the bus, students learned about the legislative process and proper protocol when speaking to legislators.

When they arrived, students, dressed in their white coats, were met by Michael Schwab, executive director of the North Dakota Pharmacists Association. Schwab proceeded to captivate his audience with a brief presentation of the health care and pharmacy related bills that were up for review during the 2011 Legislative session.

Although the agenda was not planned before the students arrived, they participated in four hours of activities. At 11 a.m., student pharmacists interacted with their representatives during an ice cream social, public health poster presentations and blood pressure screening opportunities. Between 11 a.m. and 1 p.m., student nurses and pharmacists conducted 85 blood pressure screens with many being conducted for legislators. At 1 p.m., all students attended the floor sessions of the House of Representatives or the Senate. At 1:30 p.m., all students were invited into the office of Attorney General Wayne Stenehjem to learn about



Students participated in an ice cream social in Bismarck, N.D., during their time with representatives.

healthcare issues facing this important public office. It was surprising to hear how many “pharmacy-related” programs and services the Attorney General’s office is working on in collaboration with the Board of Pharmacy and the ND Pharmacists Association.

“I had a great experience at Legislative Day in Bismarck. It was very interesting to be able to talk with my legislators and watch the process,” said Julie Boyer, a second year student pharmacist. *Megan Born, president of APhA-ASP*

Pharmacy mentoring program gets rave reviews

A few words of caring advice can lead to wonderful things. Just ask the participants of the new mentoring program through NDSU's Pharmacy National Advisory Board.

Board members had wanted more interaction with students and a mentoring project seemed a good opportunity to do that. So in the fall of 2009, a pilot program was started that pairs up pharmacy students with a board member who shares insights about career paths. Eight students from the Pharmacy Ambassadors group originally participated, and that number jumped to 16 this academic year when the program was opened up to other pharmacy students.

It's a program that really works. For example, look at the relationship that developed between John Wold, Advisory Board former vice chair and retired vice president of Eli Lilly and Company, and Namrata Bhatnagar, who is now a research fellow at Harvard University.



Namrata Bhatnagar, now a research fellow at Harvard University, benefited from a mentorship with John Wold of the NDSU Pharmacy National Advisory Board.

"John Wold took so much interest in my career, it felt to me as if a father was giving advice to his daughter," Bhatnagar said, noting Wold assisted with her resume and took a keen interest in her doctoral defense. At Harvard, Bhatnagar is working to determine the mechanisms related to the drug resistance in neuroblastoma, a childhood cancer.

"I got Dr. Wold's valuable advice at just the right time of my career, and here I am at Harvard medical school," Bhatnagar said. "I still update him about my work here and will treasure this mentor-mentee relationship forever."

Wold feels much the same way.

"I enjoyed the mentoring experience very much. I was able to help Namrata because of her career interests and my experience," said Wold, who graduated from NDSU in 1966. "I believe the mentorship program is particularly useful to students who are interested in pursuing careers that utilize their pharmacy education, but in ways that are slightly different than traditional community or hospital pharmacy roles."

Another great example is the mentoring by Brad Trom, CEO of retail pharmacy for Lovelace Health System in Albuquerque, N.M., with NDSU fourth-year PharmD student Mary Raven.

"I hope it was beneficial for both of us – it was for me. Mary often asked me thought-provoking questions, which allowed me

to share my experiences," said Trom, a 1972 NDSU graduate. "At one point, the insight and perspective that Mary had was very relevant to my business. I shared her thoughts verbatim with managers in my organization."

Raven, who plans to work as a community pharmacist for Target following graduation, describes the mentoring program as an incredible resource for students.

"Being able to have Brad as a mentor has been one of the best things I did in pharmacy school to prepare to be a pharmacist," Raven said. "Brad has developed me into a better leader, which will help me to be a good pharmacy manager. He has also encouraged me to seek additional training or schooling like a Master of Business Administration degree to open more opportunities for me in the future."

With the obvious early success of the program, look for even more great developments in the years to come.

"I strongly recommend students participate in this program with full enthusiasm," Bhatnagar said. "They will learn so much from their mentor's experience, and it will help them make some important and wise decisions in their career."

Research in blood vessels has large potential effects

Since his days as a pharmacy student, Stephen O'Rourke has been interested in the cardiovascular system and the drugs that affect it. The potential effects of research in hypertension and coronary artery disease are huge. More than 81 million American adults, about one in three, suffer from cardiovascular disease.

"There's a big need right now even with all the drugs for hypertension," O'Rourke said. "There are still people whose blood pressure is not controlled or it requires three to four drugs to control it."

O'Rourke, associate professor of pharmaceutical sciences, performs research that may lead to more effective and better tolerated drugs. Much of his research focuses on how blood vessel function is regulated.



Stephen O'Rourke studies drug effects on the function of potassium channels in blood vessels. Such research has potential effects on blood pressure regulation.

Blood vessels are largely made up of endothelial cells, the inside wall of the vessel, and smooth muscle cells, which relax or contract to increase or decrease blood flow. There are many aspects of this process that O'Rourke is interested in, but in general they relate to how endothelial cells and smooth muscle cells communicate with each other. Different chemical mediators such as nitric oxide and potassium affect the regulation of blood flow – and drugs affecting these messages may help dilate coronary arteries and relieve hypertension.

O'Rourke also looks at other causes of vascular dysfunction such as undernutrition during pregnancy or long-term nitroglycerin use, which can lead to changes in the function of potassium channels in blood vessels.

O'Rourke grew up in Portage, Wis., and earned his bachelor's, master's and doctoral degrees at the University of Wisconsin in Madison. He also did a postdoctoral fellowship at the Mayo

Clinic in Rochester, Minn. While he had offers to work in the pharmaceutical industry, he wanted to balance his research with teaching.

Stephen O'Rourke

"There's a big need right now even with all the drugs for hypertension."

"I just didn't want to focus all my energy on research alone," he said. "I like working with students and thought a pharmacy school would be a good fit."

O'Rourke's research program has been continuously funded by the National Institutes of Health, American Heart Association, and the pharmaceutical industry since joining NDSU.

Albano gets close look at overseas public health systems

In January 2009, Christian Albano, assistant professor of pharmacy practice, took part in a medical mission to Thailand. He went with his wife, a physician who is a member of the Thai Physician Association of America.

During their five days in Thailand, the medical team performed 350 cataract surgeries, 72 plastic and reconstructive surgeries for cleft lip, cleft palate and hand deformities, two general surgeries, two OB/GYN surgeries, and treated 540 outpatient care cases. Albano was there as part of his

research for a Master of Public Health degree from the University of Minnesota. He used the opportunity to evaluate public health infrastructure in Thailand and the Philippines, where he was born. Albano noted many differences between the two countries.

“Thailand has a very good public health infrastructure compared to the Philippines,” he said. “I was amazed at how well the health promotion and prevention aspects are at their city and province levels.”



Ophthalmologists conducted post-operative examinations during a Thai Physician Association of America medical mission trip to Surin, Thailand.

One of the main reasons for Thailand’s good state of health is that Prince Mahidol (1892-1929), considered the father of public health and modern medicine in Thailand, was a public health official trained at Harvard.

Albano visited Mariano Marcos State University in the Philippines to make connections with the College of Health. There may be opportunities for collaboration on public health programs and research between NDSU and Mariano Marcos State University. Filipinos suffer from similar chronic diseases (obesity and diabetes) and public health

threats (tobacco) as the people in the United States, Albano said.

“Both [Thailand and the Philippines] are amazing,” he said. “They have such a rich culture and history. I would like to go back pretty soon. My next goal is to help with a Filipino medical mission and help improve their public health infrastructure.”

Joel Hagen



Christian Albano, assistant professor of pharmacy practice, also visited Mariano Marcos State University in the Philippines to make connections. Albano went on the trip as part of his research toward a Master of Public Health degree.

NDSU provost announces retirement from administrative post

NDSU's long-serving provost and vice president for academic affairs, Craig Schnell, announced his intention to retire from his administrative responsibilities sometime in the summer of 2011. Schnell will transition to a faculty position in the College of Pharmacy, Nursing, and Allied Sciences.

"Dr. Schnell's two-and-a-half decades of service to NDSU reflect his deeply felt commitment to our university and merit our sincere recognition and appreciation," said President Dean L. Bresciani.

Schnell will remain in his administrative role until the position is filled.

Schnell came to NDSU in August 1985 as dean of graduate studies and research. In 1997, he was named vice president for academic affairs. Schnell was named provost/vice president for academic affairs in 2002.

Prior to working at NDSU, Schnell served as chair of the Department of Pharmacodynamics and Toxicology in the College of Pharmacy at the University of Nebraska Medical Center in Omaha. He was also the chief of toxicology at the U.S. Army's Fort Baker from 1969 to 1971.

Schnell earned his Bachelor of Science degree in pharmacy at South Dakota State University in 1965 and his master's and doctorate in pharmacology/toxicology from Purdue University in 1969.



Schnell

Mallik receives National Science Foundation grant

Sanku Mallik, professor of pharmaceutical sciences, and Kausik Sarkar, University of Delaware, received a three-year, \$587,000 grant from the National Science Foundation for developing liposomes that can be used for enzyme inhibition and simultaneous imaging.

Mallik will prepare liposomes that are echogenic, containing gases that would reflect ultrasound and show up in ultrasound images. Ultrasound uses a pulsing high frequency sound beyond the upper limit of human hearing to peer into the body and provide images. Subsequently, the liposomes will simultaneously encapsulate enzyme inhibitors and air.

According to Mallik, this will enable accurate ultrasound diagnosis of the disease while, at the same time, the reaction with the enzymes would release the contained drug to only the target tissue.



Mallik

Vetter presents research in Poland

Stefan Vetter, research assistant professor of pharmaceutical sciences, gave a presentation at the 11th Symposium of the European Calcium Society on Calcium-Binding Proteins in Normal and Transformed Cells in Warsaw, Poland. The title of his presentation was "Binding of S100B to the V-domain of RAGE."

Vetter's research focuses on the activation of the receptor for advanced glycation endproducts (RAGE), which is believed to be critically involved in diabetic complications, neurodegenerative disorders, and several cancers by supporting tissue inflammation. RAGE can be activated by several structurally unrelated

ligands. Vetter's research is working to understanding the ligand binding properties of RAGE using biophysical and biochemical methods. He also is interested in discovering and developing small molecules and peptides that can modulate RAGE activation.



Vetter

obituaries

Lowell D. Barnum, 79, BS '59, pharmacy, was a pharmacist in Glencoe, Minn., and later in Detroit Lakes, Minn., where he was manager of the Prescription Shop until his retirement in 1996. He lived in Detroit Lakes.

Kathryn (Odney) Benshoof, 91, BS '41, pharmacy, worked at several pharmacies in the Seattle area and was an active leader in the Totem Girl Scout Council. She lived in Redmond, Wash.

Joseph B. Blair, 44, BS '92, pharmacy, lived in Ada, Minn.

David Brenk, 49, BS '84, pharmacy, lived in Detroit Lakes, Minn.

Julian W. Gunderson, 80, BS '59, pharmacy, was a pharmacist who held several positions, including vice president, during a 25-year career with Thrifty Drug Stores. An Air Force veteran from the Korean War, he lived in Carver, Minn.

Jay Heidbreder, 52, BS '81, pharmacy, was part-owner of the Clinic Pharmacy in Devils Lake, N.D., and later worked as a traveling pharmacist in the Minneapolis area. He lived in Savage, Minn.

Curtis A. Johnson, 63, BS '70, pharmacy, was a member of the pharmacy faculty at the University of Kentucky and later at the University of Wisconsin – Madison. He was associate director of the School of Pharmacy's Office of Global Health from 2004-10. He was editor of the Journal of the Pharmacy Society of Wisconsin and owned CKD Insights LLC. He lived in Verona, Wis.

Emily (Vukelic) Larson, 82, BS '50, pharmacy, worked at the Quain and Ramstad Clinic in Bismarck, N.D., and the North Dakota State Hospital in Jamestown. She lived in Bismarck.

Marcus K. Lunde, 87, BS '77, pharmacy, lived in Cooperstown, N.D.

Craig Pfau, 59, BS '77, pharmacy, worked for Osco Drug in Chicago before moving to Phoenix as a regional manager. In 1996, he purchased two pharmacies. After selling his stores, he retired to Scottsdale, Ariz.

Charles Phillips, 74, BS '57, pharmacy, was co-owner of Anderson Drug of Cambridge, Minn., until his retirement in 2000. He was a member of the Cambridge Isanti school board for six years and president of the Cambridge Area Chamber of Commerce. He lived in Cambridge.

Tania (Enger) Poyzer, 37, PharmD '99, pharmacy, was a pharmacist at Thrifty White Drug in Marshall, Minn., before returning to Fargo in 2004.

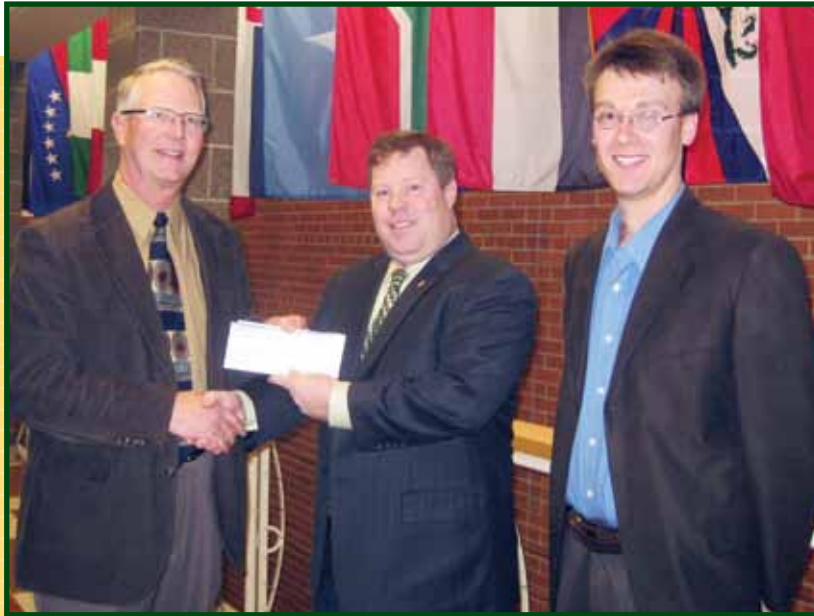
Bruce W. Ritter, 61, BS '75, pharmacy, worked as a pharmacist, prior to starting his business, Elisa Technologies, which he owned and operated for the past 18 years. He lived in Melrose, Fla.

James Ryan, 77, BS '54, pharmacy, owned drug stores in Lead and Deadwood, S.D., and later worked for Veteran's Hospitals in Cleveland and Phoenix. He lived in Phoenix.

Richard W. Shannon, 71, BS '60, pharmacy, owned Fisher's Pharmacy in Kennewick, Wash. He lived in Kennewick.

David Lee Swanson, 68, BS '65, pharmacy, owned Professional Pharmacy and Prescription Center Pharmacy of Fairbanks, Alaska. He was a member of the executive committee for Fairbanks Memorial Hospital Foundation and a trustee at Mt. McKinley Bank. He lived in Fairbanks.

Laurence J. Taylor, 90, BS '47, pharmacy, owned and operated Globe Drug in Grand Rapids, Minn. A World War II veteran, he was active in the VFW, American Legion and the Minnesota Pharmaceutical Association. He lived in Grand Rapids.



Donation targeted to diversity

Walgreen's donated \$10,000 for the Walgreen's Diversity Fund for the Pharmacy Program. The money supports diversity efforts in the program along with a scholarship for a student who encourages diversity.

Thank you to the following alumni and friends for their gifts to Sudro Society from July 1, 2009-June 30, 2010. These gifts listed by class years allow us to carry on the tradition of excellence in sustaining the highest-quality teaching, research and outreach programs in pharmacy.

Every effort has been made to ensure accuracy, but errors or omissions may have occurred. Please bring any such errors to our attention. For more information about gifts that directly benefit the college, contact Sara Wald, director of advancement, by phone at 701-231-6461 or e-mail: sara.wald@ndsu.edu.

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a message from the advancement office



Wald

This is our annual newsletter where we recognize our generous donors. Your help this past fiscal year provided 149 pharmacy students with an average scholarship of more than \$1,300, equipment for students on rotations and assistance for students to attend professional conferences. If you would like a

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- Compounding supplies
- Student registration for a professional meeting

\$100

- Books to aid pre-professional students with preparation into program
- Media fill challenge kit for a student to ensure they have exemplary aseptic technique prior to advanced pharmacy practice rotations
- Reference books
- Journal subscription

\$250

- New over-the-counter products to ensure up-to-date selections for students to evaluate during mock product recommendation
- New physical assessment equipment such as stethoscopes and sphygmomanometers
- A scanner for archiving student work, assessments and learning materials
- Annual subscription to Survey Monkey for research

\$500

- References such as Trissel's, Remington's, or IV 2012
- Student travel assistance when presenting research at a conference

\$1,000

- Medication therapy management project materials such as point of care testing supplies including Cholestech cassettes and glucose strips
- Student scholarship

\$1,500

- Faculty travel to professional meetings

\$2,500

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- Sends one faculty member to the Baxa Star Center Hands to attend training for practical compliance to USP Chapter <797> Guidelines

\$5,000

- 14 iPads for students to house references and clinical apps
- Configure and maintain laboratory computer server
- Install an internal phone/fax/pager system in the laboratory
- Lecture Capture software to let students review a lecture if they were ill

\$50,000

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- A mobile Telepharmacy unit
- A McKesson Parata
- B-Line Medical's simulation video capture
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pharmacy alumni news

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