

# NDSU PHARMACY GOES MOBILE

The latest technology has become a key and necessary tool in pharmacy practice across the nation. And pharmacy students should be prepared, ready to embrace technology as they begin their careers.

With that theme in mind, the NDSU College of Pharmacy, Nursing, and Allied Sciences took a progressive step one year ago – a pilot project called the iPad initiative in the pharmacy program.

"As a pharmacy clinician, I know iPads are being used by health care providers across the country. By using them in the classroom, our students will be 'practice' ready when they go into their fourth-year rotations," explained Cynthia Naughton, senior associate dean and associate professor.

Naughton points out medical schools are incorporating the use of mobile devices to enhance the learning process. Patients themselves use specific apps to track their blood pressure, weight and heart rate and send the information to their doctor or pharmacy. "It's a great tool," she said.

So, instead of toting heavy textbooks and notebooks, NDSU pharmacy students began to use iPads in class. For many students, voluminous pages of longhand notes became a thing of the past.

With one app, students can make notations in the margins of downloaded books that can be saved and used when they become professionals. Another application allows professors to receive immediate feedback from students in class, similar to the Personal Response Systems used throughout campus. During the initial year of the project, faculty used iPads to engage students, often urging them to look up issues and topics during class periods.

After some initial hesitation, the project is moving forward into its second year.

"We took things slowly. But, bit by bit, faculty became more excited about the iPad initiative and jumped on board," Naughton said.

Students like Sarah Schmidt could not agree more.

"I don't have to carry around seven heavy binders full of printed notes – I simply need my iPad," said Schmidt, who is president-elect for the NDSU chapter of APhA-ASP. "I feel so lucky to be a part of a college that is not afraid to be at the forefront, willing to try new things to improve education."

STORY CONTINUED INSIDE



# **ALUMNI NEWS**

### 'PHARMACY GOES MOBILE' FROM COVER

The iPads were required for P1 and P2 students, and were optional for P3 students during the pilot project's first year. An end-of-the-year survey taken last spring shows the idea is taking hold.

"Interestingly enough, the P3s, the group of students who were most vocally against the use of iPads initially, were the most positive," said Naughton, noting that sector had 44 percent positive comments, compared to 37 percent and 17 percent for P1 and P2 students respectively

The positive opinions expressed by students ranged from short statements, such as "I really liked it," to more detailed comments like "If the pharmacy program and its students are to be competitive professionals outside the classroom, our ability and willingness to utilize technology is absolutely essential."

Negative perceptions centered on the extra cost outlay and inability to use other platforms, such as a laptop or Android device. Students also frequently said they wished faculty incorporated the use of the iPads in the classroom more.

The next phase of the initiative is to use the devices during examinations. Starting spring semester, the college has contracted with ExamSoft, which is currently in place for assessment and testing at 72 schools of pharmacy.

According to Naughton, ExamSoft software locks down browsers, not allowing students to look up answers or message fellow students and, therefore, limits academic misconduct. Students also get faster test results and they receive important benchmarking on how they rank among classmates. They also can view their status in the six competency levels required for program completion.

In addition, the software provides important assessment materials, something emphasized by accrediting agencies.

As the initiative continues, Naughton believes it is clearly making a difference. "I think it would be a disservice to our students if we did not offer this iPad initiative," she said. "It helps make them practice ready."



# NDSU CENTER TO FOCUS ON AMERICAN INDIAN HEALTH

A new NDSU center has begun important work to address inequalities in American Indian health. The American Indian Public Health Resource Center is part of NDSU's Master of Public Health program, the only program in the country with an American Indian specialization.

The center's noteworthy goal is to improve the health and mortality rates among American Indians.

"The American Indian population in the Northern Plains has some of the worst health disparities in the nation," said Donald Warne, director of the Master of Public Health program and the new center. "Most of these health disparities are preventable, so the role of public health is essential."

According to Warne, American Indians have twice the prevalence of diabetes and nearly six times the mortality rate from the disease. In North Dakota, average age at death is 75.7 years for the general population and 54.7 years for American Indians.

Center staff members came on board Aug. 1, and quickly began work on public health initiatives in the areas of services and programming, research, education and policy.

"We hit the ground running, and it seems like the stars are aligning for us," said Melanie Nadeau, center operational director and assistant professor of practice, noting the seven-member staff and three graduate student research assistants will emphasize teamwork and synergy. "It's really exciting. We have staff from across the United States, and we all have different areas of expertise."

For example, policy project manager Anita Brock is working on a North Dakota system so Medicaid can be billable for public health workers. Services and programming project manager Hannabah Blue has joined a Collaborative Innovative Network program, known as COIN, to engage tribes in reducing infant mortality rates. Education project manager Vanessa Tibbitts is working on a need to expand the American Indian public health workforce. A top priority for her is to engage with tribal colleges to develop public health training programs at the undergraduate level and to build bridge programs to the Master of Public Health and to the American Indian Public Health Graduate Certificate Program. Research project manager Dereck Stonefish is compiling a research agenda with the input of tribal leaders across the state.

"Our center is the first of its kind in the nation," Nadeau explained, noting a committee of representatives from each of the four North Dakota tribes and the National Indian Health Board will advise the center. "We want to work with the tribes, addressing issues that will help close the health disparities gap. If we work together as a community, we can change what is going on."

Nadeau said the center's five-year goal is to develop strong relationships with all tribes in North Dakota. The 10-year plan is to assist tribes throughout the region. Eventually, the hope is to be recognized as a national resource center. "By improving the health of American Indians, we improve the overall health status of all members of society," she said.

The center is funded through a three-year grant of more than \$1.4 million from the Leona M. and Harry B. Helmsley Charitable Trust, and the North Dakota Higher Education Challenge Fund provided a match of more than \$720,000.



# ALUMNUS RECEIVES TOP MILITARY AWARD

NDSU alumnus Army Col. Keith A. Wagner has been named the top pharmacist in the U.S. Armed Forces. Wagner, BS '92, pharmacy, recently was honored as the 2014 Military Pharmacist of the Year.

"I was humbled and honored to represent all those who serve in uniform across all three services," Wagner said. "To be selected among my peers, that's quite an honor."

Wagner holds two important positions – he's the Army pharmacy informatics consultant and clinical capability manager, along

with being pharmacy director at Dwight D. Eisenhower Army Medical Center at Fort Gordon, Georgia.

Both jobs bring weighty responsibilities. As the informatics consultant, his mission is to optimize pharmacy operations, reduce costs and ensure standards are followed at all pharmacies within the U.S. Army. He leads a portfolio of more than \$60 million.

"I oversee all the pharmacy automation

throughout the Army," Wagner explained. "You try to align all the automation as far as their capabilities within the various sites and try to figure out the best fit for each site. At the same time, you try to standardize it across the fleet."

At Fort Gordon, he supervises a pharmacy staff of 93 people, with an annual budget of \$32 million. "So, collectively I oversee budgets totaling about \$100 million. Coming out of school, I never thought I would eventually be responsible for something like that," Wagner said.

Wagner's 20-year military career and his expertise clearly prepared him for his impressive duties. He also gives his time at NDSU high marks for helping him succeed.

As a student, he was active in Kappa Psi Pharmaceutical Fraternity, which gave him important lessons of leadership and teamwork. Wagner also credits NDSU's challenging pharmacy curriculum for putting him on the right path.

"You'd start out in a class of 90 students, but after the second exam you'd be down to 15 or 20. That rigorous course work enabled me to accept the challenges that I've had during my military career," said Wagner, who grew up in Bismarck, North Dakota. "I'd also say the work ethic of coming from the Midwest really sets you ahead of your peers. The strong work ethic of North Dakota

> helps you prepare for life's challenges."

Wagner, who earned a doctorate at the University of Florida, has held several Army pharmacy leadership positions, including tours at William Beaumont Army Medical Center in in Georgia, Tripler Army Medical Center in Hawaii and Moncrief Army Community Hospital in South Carolina.

Texas, Fort McPherson

"What's fun about

being a pharmacist in the military is the ability to really show skills you've learned through school. It's the opportunity to implement a change and actually see it worked through," said Wagner, who is among only 12 Army pharmacists who have reached the rank of colonel. "I'm proud to serve those who came before me and proud to serve those who will come after me."

His military honors include the Meritorious Service Medal with four oak leaf clusters, National Defense Service Medal, Global War on Terrorism Service Medal and Army Service Ribbon. He also has received the Order of the Military Medical Merit and "A" Professional Designator.

Wagner and his wife, Kathy, have three children – Drew, Alexis and Amanda. They live in Augusta, Georgia.



# **ASSOCIATION HONORS AND AWARDS**

Charles Peterson, dean of pharmacy, nursing, and allied sciences, received the prestigious **BOWL OF HYGEIA** during the 129th annual convention of the North Dakota Pharmacists Association April 4-6. Mark Jepperson (right) made the presentation.



# 1



# 1 AL DOERR SERVICE AWARD

Ardell Moe. BS '51 Presented by Ramona Sorenson, PharmD '10

# 2 GENERATION RX **NDSU APHA ASP CHAPTER**

Victoria Okoye, (P3) Presented by Lance Mindt

### 3 HEALTH SYSTEM **PHARMACIST OF THE YEAR**

David Sandberg, BS '72 Presented by Tom Johnson

## 4 AWARD OF **EXCELLENCE IN MEDICATION USES**

Sanford Health, Bismarck John Savegeau, BS '90; Tom Simmer, BS '75; Maari Lov, PharmD '10

### 5 LIFETIME

James Irsfeld, BS '62 Presented by Joel Aukes, PharmD '97

### 6 EXCELLENCE IN INNOVATION

Joan Slusser, BS '78

### 7 DISTINGUISHED YOUNG PHARMACIST

Ramona Sorenson, PharmD '12 Presented by Sheila Welle, Pharmacists Mutual







North Dakota Society of

Health-System Pharmaci



# STUDENT'S CANCER RESEARCH TAKES TOP PRIZE IN INNOVATION CHALLENGE '14

Shuang Zhou's impressive aim is to find a cure for childhood cancer. The NDSU graduate student in pharmaceutical sciences is clearly making progress toward that noble goal.

Zhou led a research team called "NewCure" that won a \$5,000 first place and \$1,000 People's Choice Award at the NDSU Innovation Challenge '14, a competition that showcases NDSU students' creativity in developing progressive products and services.

"The reason I'm so interested in this kind of cancer is the high incidence. Every three minutes, there will be one child in the world diagnosed with cancer," said Zhou, who is from Chifeng, China. "It's really sad."

Zhou, who is advised by Erxi Wu, assistant professor of pharmaceutical sciences, is developing a new therapeutic agent for neuroblastoma, a form of cancer that most commonly affects children and infants, and medulloblastoma, a form of brain cancer.

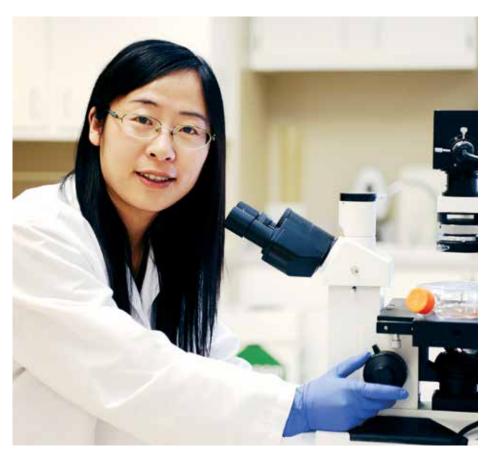
The therapy uses a common antibiotic for animals that has emerged as a promising cancer-fighting compound. Salinomycin is a "smart" drug that targets cancer stem cells.

According to Zhou, many young patients don't respond to current therapies, while others suffer lifelong side effects like heart or lung damage and hair loss.

"I really want to solve these kinds of problems, and provide a new therapy, drug or treatment that can be used in clinical settings. I want to see that one day it is used in a clinic," said Zhou, who is now developing a pre-clinical study based on the research. The team has recruited two medical doctors from China to help with that work.

Zhou is quick to point out that her innovative research resulted from Wu's mentorship and the efforts of the other members in Wu's lab.

"It takes a lot of time," she said of the research. "But, if you find something new and exciting, it's all worth it."



In addition to the NDSU awards, Zhou traveled to San Diego in April to accept a Young Investigator Award from the Society for Experimental Biology and Medicine. Her research also was presented in the Austin Journal of Pharmacology and Therapeutics.

In the meantime, Zhou continues her important work. Other universities have made phone calls and sent her emails, seeking to form research collaborations.

"Our research results are very good. We now have a clearer picture of the mechanism of the drug, how it actually interacts with its targets. We have just submitted a new manuscript which contains our findings to a leading journal," she said.

And with the progress, comes the personal satisfaction of a job well done. "When people like your research and value and appreciate it, the feeling is so good," Zhou said.

# NDSU HOSTS PHARMACY RESEARCH SYMPOSIUM

NDSU hosted the initial "Midwest Pharm Fest 2014," a young investigator symposium on the latest advances in drug development, May 30-31 at the Fargo Holiday Inn.

The event focused on pharmaceutics and drug delivery, pharmaceutical chemistry, pharmacology, pharmacokinetics and pharmaceutical biotechnology. The keynote speaker was Antoinette Moran, division head for pediatric endocrinology and professor of pediatrics at the University of Minnesota.

Venkata Indurthi and Lindsey Lipp, doctoral graduate research assistants, were the main student organizers.

"The Midwest Pharm Fest attracted researchers in the field of pharmaceutical sciences, more specifically graduate students and post docs, to foster scientific knowledge and networking leading to future academic collaboration. It

featured distinguished speakers from around the country, including our very own NDSU alumni," said Indurthi, chair of the NDSU American Association of Pharmaceutical Scientists student chapter.

"I personally gained great experience organizing an event of this magnitude," Lipp said. "I feel it was very beneficial for young researchers as a way to expand their knowledge, gain experience presenting their own research and network with others."

The symposium was sponsored by the American Association of Pharmaceutical Scientists, NDSU Department of Pharmaceutical Sciences, NDSU Department of Pharmacy Practice, NDSU Graduate School and the Office of the Provost.

A similar event is planned for next year, with the hope to reach a more diverse group of researchers.



American Pharmacists Month.

screenings for more than 110 people at the annual StreetsAlive! event. The chapter also participated in the Oct. 10 Homecoming parade to raise awareness about

# NDSU RESEARCHER TO STUDY LINK BETWEEN ALCOHOL ISSUES AND WEIGHT-LOSS SURGERY

If you have gastric bypass surgery, will alcohol affect you differently after the procedure? That's the prime question Kristine Steffen, NDSU associate professor of pharmaceutical sciences, will try to answer as a co-principal investigator on a new multi-year study through a grant from the National Institutes of Health.

More than 200,000 gastric bypass surgeries are performed annually in the United States. According to Steffen, weight-loss surgery has many benefits, but there are some potential issues clinicians and patients need to be aware of post-surgery.

"Prior research from our group identified extreme pharmacokinetic changes in the absorption of alcohol. Within five minutes following a modest, weight-based dose of alcohol, people who have had the surgery are very intoxicated, generally above the legal limit. It's typically on the magnitude of more than two times the blood alcohol concentration that would be expected in a person who hadn't had surgery and received a similar dose of alcohol," she said.

Steffen and co-principal investigator Scott Engel, a research scientist at the Neuropsychiatric Research Institute in Fargo, have received a grant of about \$2 million from the National Institute on Alcohol Abuse and Alcoholism to conduct a five-year study to delve into the issue.

The researchers will recruit 50 study participants who are about to undergo gastric bypass surgery. After drinking a weight-based dose of alcohol, the

patients will go through two laboratory sessions before surgery – a driving simulator experience at the NDSU Center for Visual and Cognitive Neuroscience and another at NRI looking at cognitive performance and reinforcement. The experiments will be repeated one year following surgery.

Previous research indicates a small, but significant, increase in the likelihood of surgery patients developing an alcohol disorder.

"That increase in risk doesn't sound like a huge deal, but when you think about the base rates for this problem to begin with, if you add 2 or 3 percent, that's a large and meaningful increase," said Engel, an NDSU alumnus who earned his doctorate in psychology in 2003. "This study may not give us all the answers to predicting who develops problems, but it's a start."

Steffen said the research team hopes to publish its results for the scientific community, with the long-term goal of providing better information to clinicians to share with their patients who intend to undergo gastric bypass surgery or other weight loss procedures.

"We are very appreciative that NDSU and NRI provided us with the resources to carry out such important work locally," Steffen said. "We feel fortunate to have the opportunity to investigate this area."

The research is funded through grant 1Ro1AA022336-01A1.

# FACULTY SERVE AS EXPERTS FOR ARTHRITIS TODAY ARTICLE







Wendy Brown

Two NDSU faculty members recently were tapped by a national publication for their thoughts on medication therapy management, known at MTM.

Don Miller, professor and chair of pharmacy practice, and Wendy Brown, associate

professor of pharmacy practice, were featured in an article for Arthritis Today. The article, "How Pharmacists Can Help You Safely Juggle Multiple Meds" by Stephanie Watson and Kelli Miller, gives helpful information about the dangers of drug interactions and the role a pharmacist plays in medication management.

Don Miller, who is a member of the Arthritis Today editorial advisory board, suggested the story. "I try to be aware of issues that may interest the magazine's readers. I mentioned to the editor that pharmacists could help with something called MTM. Like most people, she had never heard of

it before and thought it was a wonderful idea for the magazine to cover," Miller explained. "The Arthritis Foundation magazine reaches hundreds of thousands of people through their magazine and website. So, just like ESPN GameDay, it gets NDSU's name out to lots of people. The magazine is a great way to reach people with information."

Brown said most patients appreciate their pharmacist providing medication counseling. "We want patients to recognize the medication management expertise unique to the pharmacist," she said. "In North Dakota and across the country, the word is getting out where a patient will sit, most commonly face-to-face, with a pharmacist to review and optimize all the medications they are taking. These in-depth interventions by the pharmacist have been shown to improve disease, increase proper use of medications and decrease health care costs. This article is one more way to educate patients about the usefulness of their pharmacist as an easily approachable medication expert."

The Arthritis Today article can be viewed at www.arthritistoday.org/about-arthritis/types-of-arthritis/osteoarthritis/treatment-plan/polypharmacy-and-oa.php.

# FACULTY MEMBER HONORED FOR COMMUNITY SERVICE

Tara Schmitz, assistant professor of pharmacy practice, is quick to lend a hand. In fact, it seems her life's mission is service to others.

Her efforts are clearly appreciated by the people who live and work around Oakes, North Dakota. The Oakes Area Chamber of Commerce recognized Schmitz with its 2013 Distinguished Service Award.

Schmitz is involved in a lengthy list of community activities in the Oakes area. She's a member of the chamber's board of directors, involved with such things as the Children's Christmas Store, Health Fair and Irrigations Days parade. She's active in Relay for Life and participates in many projects for the local school and her church. Schmitz also is a member of the Oakes Golf Club finance committee. On top of all that, she brings monthly treats to the local nursing home.

"I do the projects to give back to the community that helped me become the person I am today," Schmitz said, noting Oakes is where she grew up and now resides. "I am very proud to be from Oakes and to be able to raise my children in this community."

The owner of Tara's Thrifty White Pharmacy in Oakes, Schmitz was instrumental in helping establish a telepharmacy for Oakes Community Hospital. She also monitors medications for nursing home facilities in that region.

Tara Schmitz receives the Distinguished Service Award from Shawn Ulmer, Oakes Chamber of Commerce president (left), and Gary Schnell, president of Oakes Enhancement Inc. At the award presentation, it was noted that patient care is Schmitz's top priority, whether it be dispensing pharmaceuticals, counseling patients, working on drug plans or setting up medical care programs.

"Helping the citizens and community of Oakes gives me a great feeling of satisfaction," explained Schmitz, who earned her bachelor's degree and PharmD at NDSU. "There is nothing more rewarding than to help someone in need or serving others to better their health and well-being. I guess growing up in a family-owned restaurant setting instilled in me the 'service ethic.' It makes me feel good."

Schmitz and her husband, Bill, have five children – Alyx, Nicole, David, Brianna and Nathan.



# FACULTY MEMBER HONORED BY SOUTH DAKOTA STATE UNIVERSITY



Craig Schnell, professor of pharmaceutical sciences and longtime NDSU administrator, was recognized as the South Dakota State University College of Pharmacy's 2014 Distinguished Alumnus. Schnell, a 1965 SDSU graduate, was honored at the college's Scholarship and Distinguished Alumni Luncheon Oct. 11.

Craig Schnell

Schnell, a native of Sturgis, South Dakota, joined NDSU in 1985 as dean for Graduate Studies and

Research Administration. In 1995, he was named interim vice president in the Office of Academic Affairs and the interim designation was removed

in 1997. In 2002, the title of provost was added. Schnell returned to teaching in fall 2012.

Schnell's other honors include the 1975 Outstanding Teacher at the School of Pharmacy at Purdue University, 1983-88 Burroughs-Wellcome Scholar in Toxicology at the University of Nebraska and Purdue University School of Pharmacy 1998 Distinguished Alumnus. The SDSU Alumni Association named him a Distinguished Alumnus in 2004.

As a pharmacy researcher, Schnell wrote more than 100 published research articles on toxicology and he received more than \$4 million in grants.

# FUTURE PHARMACISTS

- 1 Malcolm David Butler 8.21.13 Grandparents: James, '75, and Kathleen Rostedt
- 2 Elyse Lorine Gion 1.11.13
  Parents: Jillian (Wax), '09,
  and Clark Gion
- **3** Emerson Myers 7.18.13 Grandparents: **Carol (Johnson), '80**, and Mark Knorr
- 4 Elaina Grace McGraw 10.5.13
  Parents: Megan (Axtman), '07,
  and Grant McGraw
- 5 Natalie Schwieger 6.17.13
  Parents: Jena (Vandendriessche), '12,
  and Dayton Schwieger
- **6** Tayvia Wilson 7.5.13 Parents: **Jeff, '04**, and Annie Wilson
- 7 Max (left) and Mason Risbrudt 11.16.13 Parents: **Darcy (Schroeder), '07**, and Ryan Risbrudt
- 8 Brynn Hemmer 1.7.14
  Parents: Ross, '06, and Rachelle
  Hemmer, '06

# Have a new baby in your family?

We want to hear from you. New parents and grandparents, please send an email about your baby or grandchild to Sara Wald at sara.wald@ndsu.edu to receive an "NDSU Future Pharmacist" baby shirt. Shirts are only available in size 12 months. In exchange, we ask that you send a photo of your new "Future Pharmacist" to include in the next issue of the Pharmacy Alumni Newsletter.



















NDSU National Community Pharmacists Association students who attended the NCPA national convention met with alumnus Tony Welder, BS '61, in Austin, Texas. Pictured (left to right): Courtney Jude, Jessica McKinney, Caitlin Peterson, Taylor Semler, Welder, Mason Magle, Megan Michaelson and Jacklyn Watland.

# **CLASS NOTES**

Alexander Berg, BS '05, PhD '08, PharmD '10, received the 2014 McKeen Cattell Award from the American College of Clinical Pharmacology for his publication in the Journal of Clinical Pharmacology. The honor recognizes an outstanding research paper published in the journal. The article was titled "Population Pharmacokinetic Model for Cancer Chemoprevention With Sulindac in Healthy Subjects." Berg is a senior clinical research scientist for the clinical pharmacology group of Upsher-Smith Laboratories Inc.

**Praveen Shukla, PhD '12,** is a cardiac and cellular electrophysiology postdoctoral fellow at the Stanford University School of Medicine in California. He writes that his graduate research has resulted in six peer-reviewed articles and 16 conference presentations.

Visit **ndsu.edu/classnotes** to catch up on recent news of your NDSU classmates.

# IN MEMORY

**Gary Armstrong** - BS '67 (11-22-13)

**Leonard Astrup** - BS '49 (7-22-14)

Michael Berg - BS '65 (7-11-14)

**Paul Bjerken** - BS '63 (3-23-14)

**Robert Boudreau** - BS '57 (5-2-14)

Jonathan Brantner - BS '90 (3-31-14)

Roger L. Elmore - BS '58 (1-23-14)

**Ronald G. Gillund** - BS '67 (6-13-14)

Michael Holland - BS '56 (12-19-13)

Hillis Hugelen - BS '52 (11-3-13)

Gerald Johnson - BS '50 (3-5-14)

Walter Lash - BS '64 (1-27-14)

Harvey Lillestol - BS '56 (10-31-14)

**Debbra Mattson** - BS '77 (1-18-14)

**Joe Meier** - BS '80 (8-1-14)

Frederick Meldahl - BS '68 (4-4-14)

**Roger Mickelson** - BS '65 (4-16-13)

**Delbert Nelson** - BS '58 (3-4-14)

Kent Olson - BS '58 (10-7-14)

Loran Paczkowski - BS '59 (6-24-14)

Robert Penne - BS '63 (5-20-14)



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# PHARMACY MID-WINTER SEMINAR 2015

AND

# NDSU PHARMACY STUDENT POSTER PRESENTATION

Saturday, Jan. 24, 2015 Memorial Union Plains room

FIND DETAILS AND REGISTRATION AT

ndsu.edu/dce/news/post/16595