NoDak Pharmacy

Volume 20, No. 5, October 2007

Know Your MEDICINE
Know Your PHARMACIST
Talk to your Pharmacist Today

American Pharmacist Month

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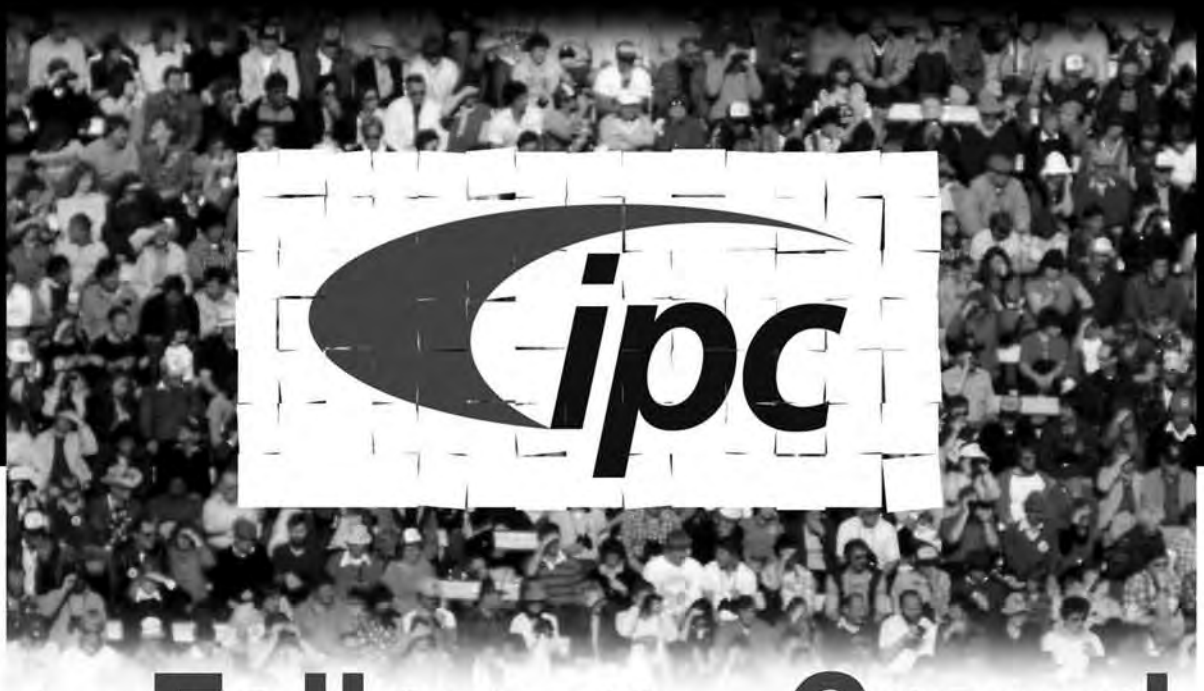

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Mark Your Calendar

November Calendar Events

November 18, 2007
NASPA Fall Symposium, Longboat Key, FL

December Calendar Events

December 2, 2007
ASHP Midyear Clinical Meeting, Las Vegas, NV

February Calendar Events

February 16, 2008
NDPhA Board of Directors Meeting, Bismarck
NDPSC Board of Directors Meeting, Bismarck

April Calendar Events

April 25-27, 2008
NDPhA Annual Convention, Bismarck

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Medication Reconciliation

Hi to all

Summer is almost over and I am wondering where it went. I hope everyone had the opportunity to complete his or her summer plans.

For those of you who heard my incoming President's speech at the convention, you may remember that part of my focus was on patient safety and in particularly Medication Reconciliation.

What does Medication Reconciliation mean? Reconciliation is the process of identifying a patient's current list of medications, doses, frequency, and routes of administration, so that caregivers can decide what must be continued and discontinued given the clinical situation, what poses a problem given a planned procedure, and what must be altered. Up front this all seems pretty straight forward.

Medication Reconciliation is an issue most hospitals in the state are struggling with. Joint Commission (JCAHO) has made Medication Reconciliation one of their patient safety goals. This goal requires hospitals that are JCAHO accredited to have a process in place to complete Medication Reconciliation on every patient admitted to their hospital. JCAHO recognizes that poor communication of medical information at transition points in hospitals (admission, transfer/discharge) is responsible for many medication errors and adverse drug events.

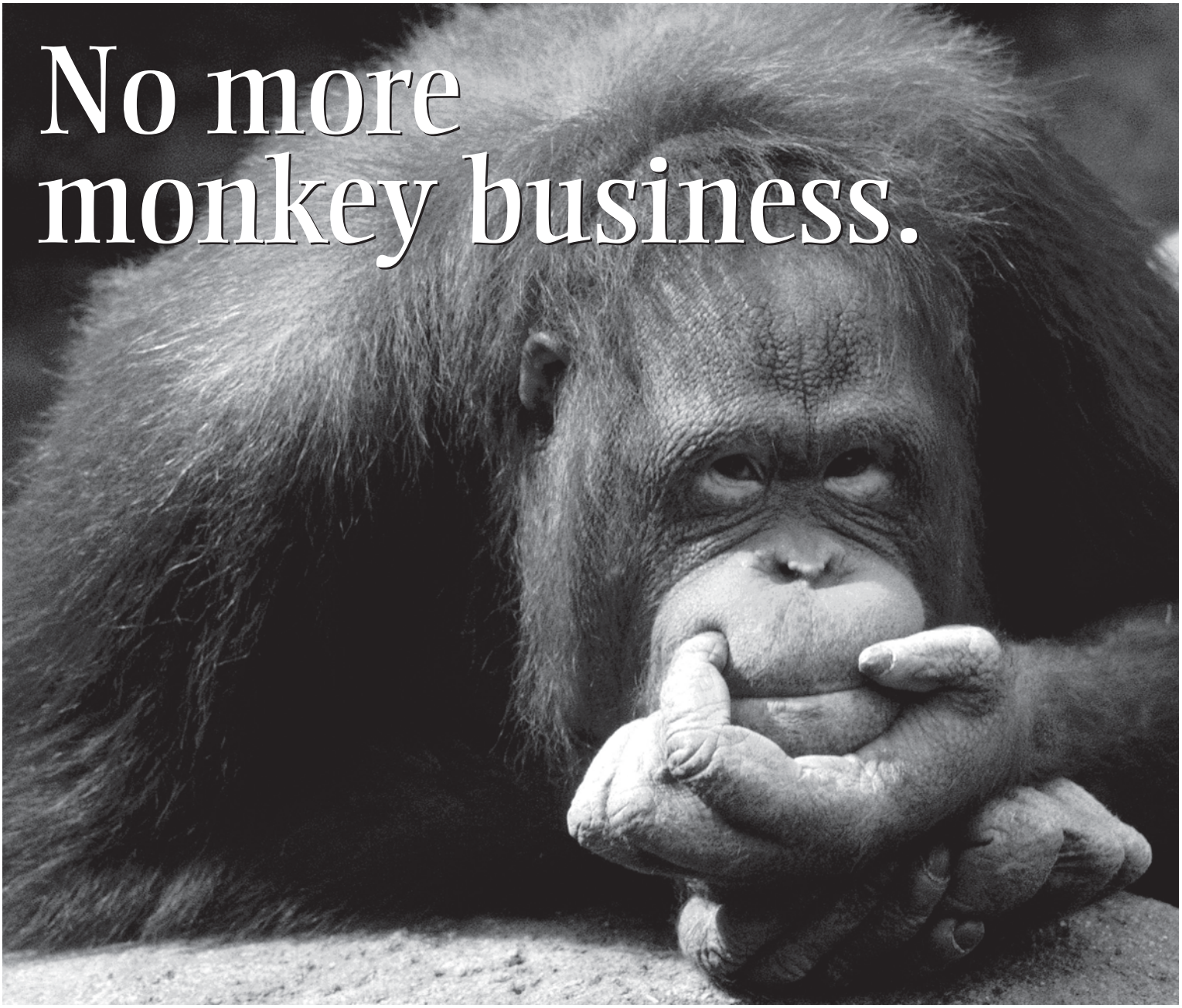
Hospitals working on a Medication Reconciliation process know it is a very complex issue and can only be improved when the patient is made aware of the importance of complete medication lists. Who better to do this than Community and Hospital Pharmacists.

Medication Reconciliation at this time is primarily a hospital issue. I believe it is every pharmacist's concern. Community pharmacists see their patients often and have the opportunity to provide their patient's a current medication list as well as educate their patients on the importance of carrying an up to date medication list, including OTC's and herbal medications.

Hospital and Community Pharmacists need to start discussing ways to educate our patient's on the importance of up to date medication lists. Patients need to know that an up to date medication list is the starting point for their caregiver to write medication orders when they are admitted to our hospitals.

Probably the most important thing to remember is that the medication reconciliation process is not about lists, it is about patient care. This is "about the patient"

A little bit about ISMP. If you have not visited the Institute of Safe Medication Practices web site (ISMP.org) I would encourage you to do so. ISMP has a community and hospital pharmacy bulletin that provides information on how to improve the safety of our pharmacies. These bulletins have been very helpful and have identified areas for me to reference.



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A pharmacy technician enters a medication order.

Hospital Telepharmacy Network Offers Relief Services for Rural Hospital Pharmacists

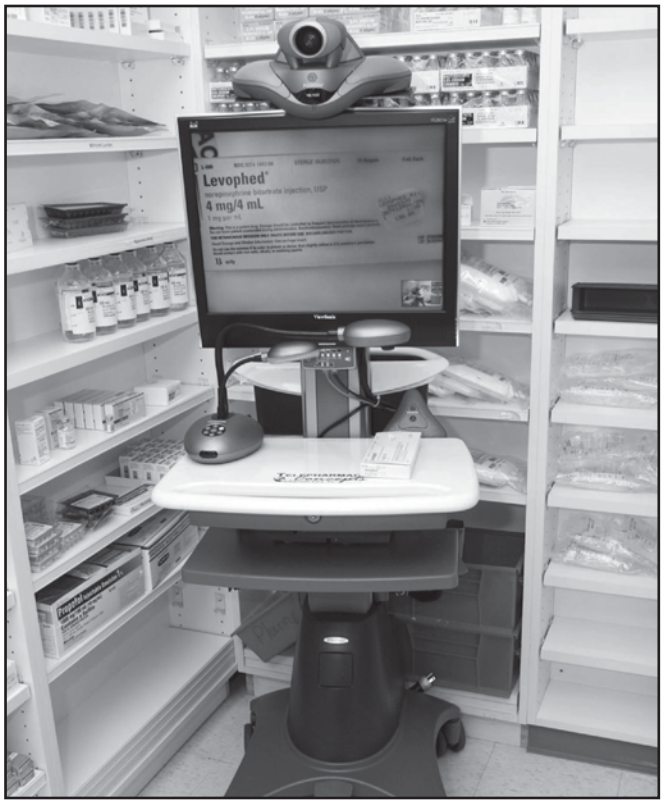
By Tessa Sandstrom

Rural hospitals nationwide face many challenges, but one of the things especially ailing them is the national pharmacist shortage. This is particularly true for the 39 small rural hospitals in North Dakota. Yet, the North Dakota Board of Pharmacy may have found a remedy for this problem through the initiation of the North Dakota Telepharmacy Project.

Established in 2002, this project was started with the purpose to restore, retain or establish pharmacy services in medically underserved rural communities through the use of telepharmacy technology. The project, which is the first of its kind in the nation, utilizes state-of-the-art telecommunications technology, including videoconferencing equipment.

Because of the success of telepharmacy in the community pharmacy setting, in 2003 the Board of Pharmacy decided to explore telepharmacy as a solution for rural hospitals as well. In 2004, a year after establishing rules for hospital telepharmacy, the Board approved the first hospital telepharmacy sites. As of September 1, 2006, a total of 13 rural hospitals participated in the project. Of these 13 hospitals, seven are connected in a network, including hospitals in Rugby, Devils Lake, Harvey, Rolla, Carrington, Mandan and Cando. These hospitals currently work together to help share pharmacist staffing to cover holidays, sick days, vacation time

A pharmacist verifies a medication order using telepharmacy technology.



A mobile telepharmacy cart can be conveniently moved between nursing stations allowing a staff pharmacist to approve and release medication orders directly at the nursing station.

and pharmacist professional leave time. "The telepharmacy network mutually supports all the pharmacists in the network. Pharmacists are able to cover for one another because on-site relief help is difficult to find," says John Skwiera, the director of pharmacy at the Heart of America Medical Center in Rugby. "This has created a sense of peace of mind because pharmacists in the network can now pursue their individual needs at some point—whether they are family emergencies, vacations or even the simplest thing like a dentist appointment—and not have to feel tied down 24/7 to work. Also, because we all know each other, there is a feeling of reassurance that the pharmacist at the other end is experienced and knowledgeable about hospital pharmacy, versus trusting those services to a relief pharmacist you may not know."

Many, including Skwiera, hope the network will be expanded to provide services after hours and on weekends. "Utilization has been sporadic and we are looking at options to increase the network's use," says Skwiera. "We need to expand the program and hire more staff, but once utilization is increased, we envision this will help cover small hospitals for any night or after-hours coverage. Certainly we're always planning for the future and looking for people who would be willing to utilize our services or provide their services to us as a network, so we're always open to inquiries as to how the network operates."

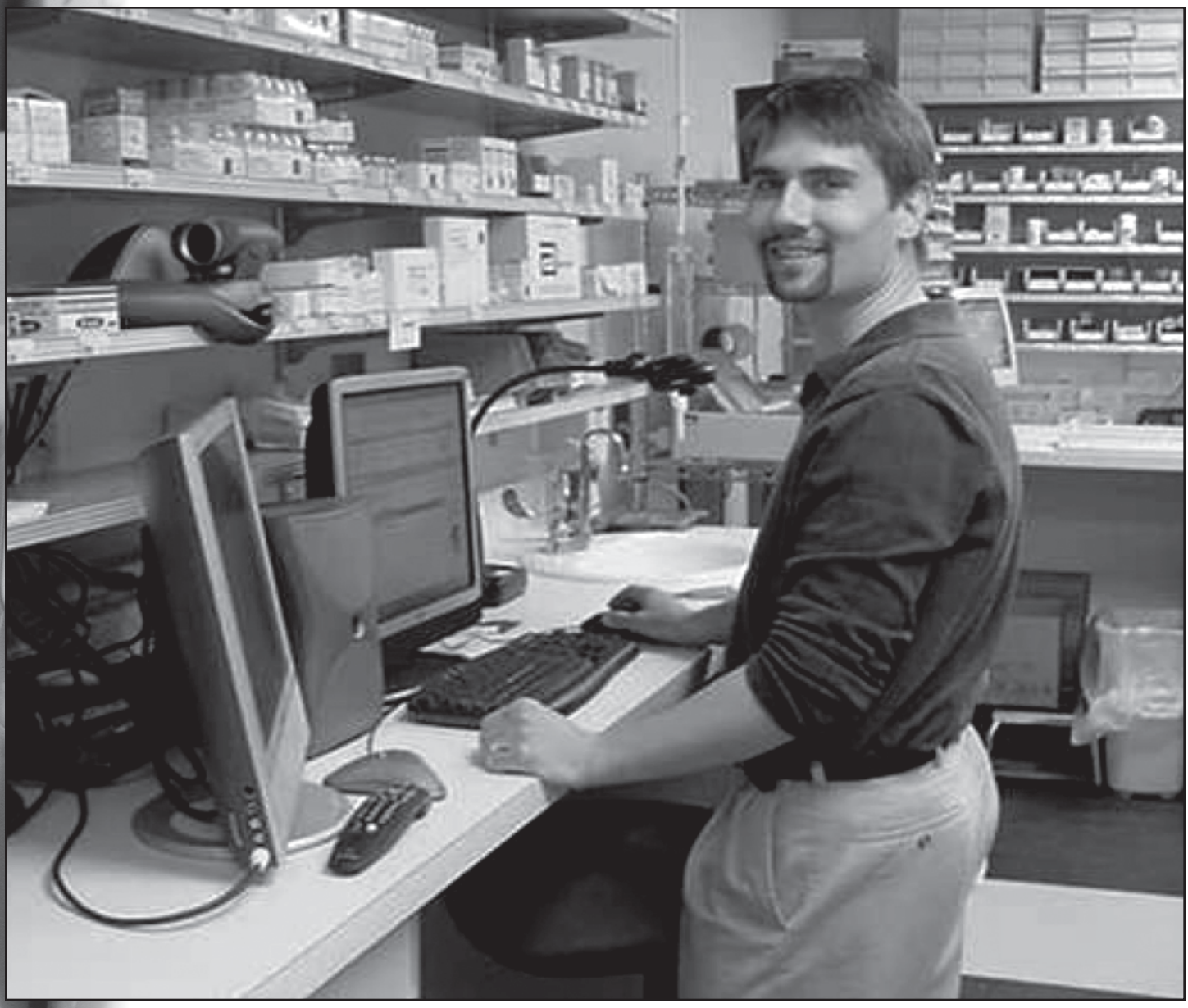
Ultimately, the goal of the North Dakota Telepharmacy Project is to provide 24/7 pharmacy services to all rural hospitals, says Ann Rathke, telepharmacy coordinator for the College of Pharmacy, Nursing and Allied Sciences at the North Dakota State University (NDSU). Currently, Thrifty White Drug is looking at establishing a central remote order entry site in Fargo, which will initially supply pharmacy services to eleven hospitals in eastern North Dakota. The State Board, the College of Pharmacy, the North Region Health Alliance and a four-member consortium of Catholic Health Initiates hospitals are helping to make this a possibility.

A nurse receives consultation by pharmacist.

Representatives from Thrifty White recently visited four rural hospitals to find out more about how they operate, what the needs of rural hospitals are and how those needs can be filled in a safe and cost-effective way. "They'll take a look at the overall picture and what is unique at each site," says Rathke. "They can't be all things to all hospitals; however, they will come up with a proposal for how they can provide services to the group and yet offer some variability."

While this system is still in the planning stage, Rathke says that should Thrifty White establish a remote order entry site to serve the pharmacy needs of rural hospitals, it would be operated much like similar facilities in other parts of the nation.

While some remote order entry sites review orders for dispensing by automated dispensing devices (ADDs) at off-site hospitals, the North Dakota system would use audio and video computer links and document cameras to supervise the pharmacy technician, or technician trained nurse and release medication orders. According to Howard Anderson, executive director of the State Board of Pharmacy, by combining audio/video links and pharmacy technicians, the system can offer services otherwise not possible through ADDs. "With the pharmacy technician and video at the other end, it is possible to do business on a much broader range of products, and it gives the opportunity for the nurse or technician to talk with the pharmacist. In



A typical hospital telepharmacy equipment set-up includes audio and video computer links and document cameras to allow a pharmacist at a central pharmacy site to visibly and verbally supervise a pharmacy technician at a remote rural hospital site to process medication orders.

addition, it is much more cost effective."

In order to make it more cost effective for rural hospitals, the State Board of Pharmacy, together with the North Dakota State College of Science in Wahpeton, has developed on-the-job curriculum to cross train nurses from the rural hospitals as pharmacy technicians. "The cross training of nurses as technicians is good for small hospitals where the patient census is often low. It doesn't make sense to have a full-time technician there, but cross-trained nurses can serve in a dual capacity," says Rathke.

While the expansion of hospital telepharmacy in North Dakota is still in the planning stages, hospital pharmacists in rural areas are positive about how telepharmacy will help address critical problems facing their facilities. "The pharmacists working in rural communities are very dedicated people with a strong commitment to their hospitals, their patients and their communities. However, they can sacrifice themselves just so long," says Rathke. "Telepharmacy will vastly improve the situation for rural hospitals, create more desirable working conditions for pharmacists currently employed in rural hospitals and improve recruitment of new pharmacists to rural communities. Telepharmacy offers a way for pharmacists to be able to practice and to also have a personal and professional life outside of the workplace. The repercussions will be very positive."

Note To Ship Programs And The Aging Network:

Thank you for all of the work that you have been doing and continue to do to help CMS promote our Healthier US Starts Here Prevention Tour. We've now visited more than half of the continental United States, and we are looking forward to the remainder of the tour. If you aren't already participating, please contact me to learn how you can get involved.

Mymedicare.gov is a secure website that provides people with Medicare easy access to personalized information about their benefits; claims information, ability to track preventive services utilization; prescription drug plan choices and enrollment options; provider quality measurements and a variety of other personalized health management tools.

CMS has recently added new functionality to help beneficiaries track their preventive services eligibility and utilization. CMS now will send beneficiaries who have provided their email address an email reminder when they are eligible for one of their preventive services. This enhancement will notify beneficiaries that they are soon due for their preventive service. We are hopeful that the notification will encourage more Medicare beneficiaries to utilize the preventive services that are covered by Medicare. For more information about signing up for mymedicare.gov see our latest brochure: *Step by Step Instructions for Using Mymedicare.gov* (English) / *Step by Step Instructions for Using Mymedicare.gov* (Spanish)

In addition, we are working in conjunction with the Office of e-Health Standards & Services on a CMS Personal Health Record (PHR) pilot study involving Medicare Advantage and Part D plans. People who are enrolled in one of the plans participating in this pilot study and who are MyMedicare.gov users will see a new section on the website around PHRs. This section will display their Plan Name, PHR Name, PHR Phone # and PHR Website link providing them the option to sign up for their plan's PHR. The four plans that are currently participating in this study are HIP USA, Humana, Kaiser Permanente and University of Pittsburgh Medical Center. For more information, you can review the following article: http://www.fcw.com/article103093-06-25-07-Web&newsletter=yes

We encourage you to share this information with your partners. Mymedicare.gov is a great tool to help people keep track of their benefits with Medicare.

2007 Part D Enrollment Events

Bismarck	November 15, 2007 9:00 to 4:00	State Capitol, West Door Lobby 600 E Boulevard Ave, Bismarck ND 58505
Dickinson	November 16, 2007 9:00 to 4:00	Days Inn (Grand Dakota Lodge) 532 15th St W, Dickinson, ND 58601
Jamestown	November 20, 2007 9:00 to 4:00	Gladstone Inn 111 2nd St NE, Jamestown ND 58401
Grand Forks	November 28, 2007 9:00 to 5:00	Senior Citizens Association 620 4th Ave S, Grand Forks ND 58201
Fargo	November 29, 2007 9:00 to 5:00	West Acres Mall, Fountain Court by JC Penney 3902 13th Ave S, Fargo ND 58103
Minot	December 04, 2007 9:00 to 5:00	Comfort Inn 1515 22nd Ave SW, Minot ND 58701
Williston	December 05, 2007 9:00 to 5:00	Williston Senior Center 1001 15th Ave W, Williston ND 58801

Aftin Boling
Pharmacy D. Student

Happenings at the Board

With the end of the last legislative session, the North Dakota Board of Pharmacy has been busy with several programs that were approved by the North Dakota legislature.

Prescription Drug Repostiory

The first is the Prescription Drug Repository Program, which grew out of a request by the American Cancer Society to create a drug donation and repository program in North Dakota. The board of pharmacy then developed criteria for the establishment of the program and this past spring, Gov. John Hoeven signed House Bill 1256.

This program allows people to donate drugs that are still in the original, unopened package or single-unit dosed medication, in which the outside packaging has been opened and the single-unit dose package is unopened, to participating pharmacies. A few cases where the shipping package has not been opened may also be allowed.

Pharmacies may voluntarily choose to accept donations after registering with the board and then post the availability of the medications on a website, currently under design by the board of pharmacy. Patients and practitioners can then access this information to determine which drugs are available and where.

When these items are dispensed, the pharmacy may only charge a small fee of up to 2.5 times the medicaid fee of $4.60 to cover costs.

Prescription Drug Monitoring Program

The second program is the Prescription Drug Monitoring Program. This program allows the board to collect information on any Scheduled II, III, IV, or V, plus tramadol and carisoprodol dispensed for patients within North Dakota. This information can then be accessed, when requested, by law enforcement officers, practitioners, or pharmacists.

Pharmacies are required to submit this information at least once every day, unless a waiver is approved by the board.

New Board Website

In addition to these new programs, the board is working on a new website design for the board's website www.nodakpharmacy.com. This website will be more user friendly, have links for these two new programs, and information on resources which pharmacy staff may find helpful. Look for this change in the next upcoming months.

New Law Book

On a final note, changes have been made to the law book reflecting the law changes made during the last legislative session. We are working on getting copies made to be distributed to all the pharmacies, but in the mean time, the new law book is available on our website under Laws & Rules.

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Volume XXV, No. 2

Management of Orphan-designated Conditions: Pompe Disease and Hunter Syndrome


Gossel


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Goals. The goals of this lesson are to discuss the medical management of patients with Pompe disease or Hunter syndrome, with reference to enzyme replacement therapies.

Objectives. At the conclusion of this lesson, successful participants should be able to:

1. define the term "orphan drugs;"
2. choose key points relative to the etiology, pathogenesis, and clinical features of Pompe disease and Hunter syndrome;
3. identify the enzyme-replacement therapies for treatment of Pompe disease and Hunter syndrome in terms of their physiological and clinical characteristics; and
4. select important points to convey to patients relative to management of these two diseases.

An estimated 25 million people in North America are affected by one of the 5000 to 6000 known "rare diseases" (defined as conditions affecting fewer than 200,000 people in the U.S. per year), most of which are of genetic origin. These diseases are often chronic, progressive, disabling, and life-threatening, and their impact on quality of life of affected persons and their families is significant. Most have no effective treatment.

The Orphan Drug Act (ODA) was signed into law in 1983. The Act provided incentives (Table 1) for development of orphan drugs (i.e., drugs not developed, or "orphaned" by major drug companies because the high cost of gaining FDA approval and marketing cannot be recovered through sale to the small number of people in the target population). Since its passage, more than 280 drugs or biologicals have been made available in the U.S., whereas in the decade prior to the legislation, only 10 treatments for rare diseases were approved for marketing. The two largest groups of orphan drug designations are for rare forms of cancer (30 percent) and metabolic disorders (10 percent). Half of all orphan products approved to date are for pediatric use.

Five new drugs or biologicals were approved during 2006 to treat orphan-designated conditions. Pompe disease and Hunter syndrome are highlighted in this lesson. Though differing in specific etiology, both are inherited metabolic disorders.

Pompe Disease

First described by the Dutch pathologist J.C. Pompe in 1932, Pompe disease (glycogen storage disease type II; acid maltase deficiency) is a debilitating and often fatal genetic disorder of muscle caused by a deficiency of the enzyme acid alpha-glucosidase (GAA; also called acid maltase). Its deficiency results in intralysosomal glycogen (the storage form of glucose in animal cells) accumulation in multiple tissues and cell types, with cardiac, skeletal, and smooth muscle cells the most seriously

Table 1
Incentives Provided by the Orphan Drug Act for Development of Orphan Drugs/Biologicals

- Sponsors are granted seven years of marketing exclusivity after approval of its orphan drug product
- Sponsors are granted tax incentives for clinical research
- FDA's Office of Orphan Products Development will coordinate research study design assistance for sponsors of drugs for rare diseases
- The Office of Orphan Products Development encourages sponsors to conduct open protocols, allowing patients to be added to ongoing studies
- Grants are available to defray costs of qualified clinical testing expenses incurred in connection with the development of orphan products

Table 2
Selective Characteristics of Pompe Disease

Infants
- Rapidly progressive and profound muscle weakness including respiratory failure and infection
- Cardiomegaly & cardiomyopathy and/or cardiac failure
- Moderate hepatomegaly
- Feeding difficulties and poor weight gain
- Macroglossia

Late-onset Disease
- Progressive muscular weakness (all patients)
- Swallowing difficulty
- Respiratory difficulty and infection
- Cardiomegaly and cardiomyopathy (less severe than in infantile-onset)
- Moderate hepatomegaly
- Exercise intolerance
- Normal intelligence

affected. Lysosomes are intracellular bodies containing numerous enzymes that catabolize complex carbohydrates, lipids, nucleic acids, phosphates, proteins, and sulfates. Each lysosomal enzyme is part of a complex metabolic pathway that converts large molecules into smaller components that are reused by the cell or eventually eliminated from the body. Absence of a single enzyme causes a blockage in a catabolic pathway, leading to progressive accumulation of intermediate metabolic products such as undegraded lipofuscins (brown fatty pigment), sphingolipids (phospholipids), sterols, sulfatides (lipid esters of sulfuric acid), sphingomyelin (subgroup of phospholipids), gangliosides (fatty acids linked to saccharides), and triglycerides. With their accumulation, the lysosomes enlarge and occupy more and more intracellular space, which eventually interferes with cellular function.

Pompe disease affects as few as one in 300,000 individuals, or about 10,000 people worldwide. Clinically, the disease encompasses a range of phenotypes. It is inherited in an autosomal-recessive (from a chromosome that does not determine sex) manner; thus, both parents of an affected child can be carriers of the mutant gene. Since Pompe disease is familial, it is progressive, regardless of when signs and symptoms become apparent.

Infantile-onset Pompe disease is uniformly lethal since affected infants have virtually no GAA activity. Within the first few months of life, infants show symptoms of generalized loss of muscle tone with weakness, and a hypertrophic cardiomyopathy (thickening of the ventricular wall). Death from cardiorespiratory failure or respiratory infection and failure, usually follows by one year of age.

Juvenile and adult-onset (late-onset) Pompe disease is characterized by a less severe short-term prognosis and lack of severe cardiac involvement. Symptoms may appear at any age and are related to progressive dysfunction of skeletal muscles. Patients become immobile (wheelchair dependent) with time and eventually require artificial ventilation. Respiratory failure is the cause of significant morbidity and mortality in this form of the disease. The age at death varies from early childhood to late adulthood, depending on the rate of disease progression and extent of respiratory muscle involvement.

In addition to its categorization as a lysosomal storage disorder, Pompe disease is classified as a neuromuscular disease, a metabolic myopathy, and a glycogen storage disease. Pompe disease is the only glycogen storage disease that is also a lysosomal storage disorder. The infantile form is also considered a cardiac disorder because of prominent cardiac involvement.

Table 2 presents characteristics of both the infantile- and late-onset forms of Pompe disease. Infantile-onset Pompe disease has an higher incidence among African-Americans and persons in southern China and Taiwan, whereas the late-onset form has a greater incidence among individuals in the Netherlands.

Before development of alglucosidase alfa (Myozyme), supportive care was the only treatment for Pompe disease. Supportive therapy greatly improves the patient's quality of life and can minimize complications; however, it does not alter the disease course. Drugs such as epinephrine and glucagon, which enhance cytosolic glycogen breakdown (intracellular glycogen metabolism, but outside the mitochondria and endoplasmic reticulum), are without therapeutic benefit. Therapies that alter the synthesis of glycogen, such as diets rich in protein and alanine, are associated with transient clinical benefit in some patients, but do not reduce the glycogen accumulation. Early attempts at enzyme replacement therapy with unphosphorylated GAA from *Aspergillus niger* or human placenta did not alter the clinical course of affected infants, and bone marrow transplantation has not been successful.

Myozyme. Myozyme (alglucosidase alfa) consists of the human enzyme acid alpha-glucosidase. The enzyme is produced by recombinant DNA technology in a Chinese hamster ovary cell line. Safety and efficacy were determined in two clinical trials involving 39 infantile-onset patients with Pompe disease ranging in age from one month to 3.5 years at initiation of therapy. Survival without requiring ventilatory assistance was significantly increased in the Myozyme-treated patients.

Mechanism of Action. Myozyme provides an exogenous source of acid alpha-glucosidase. The enzyme binds to mannose-6-phosphate (M6P) receptors on the cell surface, after which it is brought into the cell and transported into lysosomes where it undergoes proteolytic cleavage that results in increased enzymatic activity. It then exerts its action by cleaving glycogen.

Adverse Effects. The most common adverse events in

premarketing clinical trials were fever, diarrhea, rash, vomiting, cough, pneumonia, otitis media, upper respiratory tract infection, gastroenteritis, and decreased oxygen saturation. The most serious adverse reactions were cardiorespiratory failure and anaphylactic reactions. The most common serious treatment-emergent adverse events (regardless of relationship) were pneumonia, respiratory failure, respiratory distress, catheter-related infection, respiratory syncitial virus infection, gastroenteritis, and fever. The most common adverse reactions requiring intervention were infusion-related reactions. Myozyme labeling contains a boxed warning of the substance's risk for hypersensitivity reactions.

Cardiac arrhythmia, including ventricular fibrillation, ventricular tachycardia and bradycardia, resulting in cardiac arrest or death, or requiring cardiac resuscitation or defibrillation, has been observed in infantile-onset Pompe disease patients with cardiac hypertrophy. These were associated with use of general anesthesia for the placement of a central venous catheter intended for Myozyme infusion. Caution is advised when administering general anesthesia in patients with infantile-onset Pompe disease confounded with cardiac hypertrophy.

Indications and Uses. Myozyme is indicated for use in patients with Pompe disease. It has been shown to improve ventilator-free survival in patients with infantile-onset Pompe disease, whereas its use in patients with other forms of Pompe disease has not been adequately studied to assure safety and efficacy.

Dosage, Administration, and Availability. The recommended dosage regimen of Myozyme is 20 mg/kg administered every two weeks by intravenous infusion. The total volume of infusion is determined by the patient's body weight and should be administered over approximately four hours. Myozyme is supplied in single-use, clear glass vials containing 50 mg of alglucosidase alfa.

Patient Information. A registry for patients with Pompe disease has been developed in order to aid healthcare workers and medical scientists to better understand the variability and progression of Pompe disease. It will also help them in monitoring and evaluating treatments. Patients and their caregivers should be encouraged to participate. Information regarding the registry program may be found at www.pomperegistry.com.

Hunter Syndrome

Hunter syndrome (mucopolysaccharidosis Type II) was first described by the Canadian physician Dr. Charles Hunter in 1917. It is an inherited disorder in which the enzyme, iduronate-2-sulfatase is deficient or absent. Iduronate-2-sulfatase catalyzes the metabolism of complex carbohydrates called mucopolysaccharides (also called glycosaminoglycans; GAG). These are macromolecules made up of repeating sulfated hexosamine and hexuronate disaccharide units attached to a core protein. When the enzyme is deficient, partially metabolized mucopolysaccharides including heparin and dermatan sulfate accumulate in the lysosomes of cells of multiple organs to cause their abnormal functioning, and in severe cases, early death. Since mucopolysaccharides comprise a major portion of the intercellular substance of connective tissue, primary systems involved include the cardiovascular, pulmonary, musculoskeletal, ocular, and integumentary (covering membranes of the body, e.g., skin, hair, nails).

Hunter syndrome is an X-linked recessive disorder transmitted on the female X chromosome from mother to child. Because females have two X chromosomes, their normal X chromosome can provide a functioning gene even if their other X chromosome is defective. Males have both an X and a Y chromosome, so they do not have another X chromosome to correct the problem if their X chromosome is defective. The syndrome is, therefore, more common in males. Hunter syndrome occurs at an incidence of one individual per 65,000 in some reports, to one in 132,000 births in others. It can occur in any ethnic group; a slightly increased incidence has been noted in persons of Jewish descent living in Israel.

Patients with Hunter syndrome are classified into one of two types. Type A (early-onset), the classic form, is the more severe and is usually diagnosed in children by the time they are one to two years of age. Children with type A Hunter syndrome often die before adolescence. The cause of death is cardiorespiratory failure secondary to upper respiratory obstruction and cardiovascular involvement. They will have cognitive degeneration along with profound and progressive mental retardation prior to death. Symptoms include those listed in Table 3. The milder, more insidious form, type B (late-onset), may not be diagnosed until adulthood. Affected individuals can live into their 70s. Their physical features are similar to those in type A, although persons with type B usually are of normal intelligence and do not have the severe skeletal complications of type A. Life expectancy of persons with type B is 20 to 60 years.

In type A Hunter syndrome, the child's appearance, along with other symptoms such as hepato- and splenomegaly and the ivory-colored skin lesions (considered a marker for the syndrome), suggest that the child has mucopolysaccharidosis. Type B Hunter syndrome is more difficult to identify and may only be noted when observing the maternal relatives of an affected child.

Medical care is directed toward relieving symptoms; there is no cure for Hunter syndrome. Bone marrow transplantation has been attempted for early-onset Hunter syndrome with variable results. The respiratory tract may become obstructed, so good respiratory care and moni-

Table 3
Selective Symptoms of Hunter Syndrome, Type A

- Coarse facial features and short stature
- Enlarged liver and spleen
- Progressive and profound mental deterioration and retardation
- Aggressive behavior, hyperactivity
- Ivory-colored skin lesions on the upper back and sides of the upper arms and thighs
- Skeletal changes, joint stiffness, short neck, broad chest, and enlarged head
- Progressive deafness
- Atypical retinitis pigmentosa and visual impairment

toring is important. Various specialists collaborate with the pediatrician in caring for individuals with Hunter syndrome, including geneticists to counsel the family and relatives about transmission of the syndrome, cardiologists, neurologists, orthopedists, otolaryngologists, ophthalmologists, occupational and physical therapists, and pulmonologists.

Elaprase. Elaprase (idursulfase) is a 525-amino acid glycoprotein produced by recombinant DNA technology in a human cell line. It is the first product to treat Hunter syndrome. Elaprase was approved after a randomized, double-blind, placebo-controlled study of 96 patients with Hunter syndrome showed that the treated participants had an improved capacity to walk. At the end of the 53-week trial, patients who received Elaprase infusions experienced, on average, a 38-yard greater increase in the distance walked in six minutes compared to those on placebo.

Mechanism of Action. Mannose-6-phosphate (M6P) residues on the enzyme's oligosaccharide chains allow specific binding of idursulfase to M6P receptors on the cell surface. This leads to lysosomal internalization of the enzyme, with subsequent catabolism of accumulated GAG. The enzyme cleaves the terminal 2-*O*-sulfate moieties from the GAG dermatan sulfate and heparin sulfate.

Adverse Effects. Adverse reactions observed in premarketing clinical trials that were reported in at least 30 percent of patients included fever, headache, and joint pain. The most frequent serious adverse event was hypoxia (lowered concentration of oxygen in arterial blood). Other notable serious reactions that occurred in the enzyme-treated patients, but not in persons receiving placebo, included cardiac arrhythmia, pulmonary embolism, cyanosis, respiratory failure, infection, and joint pain. Patients with compromised respiratory function or acute respiratory disease may be at increased risk of life-threatening complications from infusion reactions. Elaprase infusion in patients with concomitant acute respiratory and/or febrile illness should be delayed.

The most common adverse reactions requiring intervention were infusion-related. These include headache, fever, cutaneous reactions (rash, itching, redness, hives), and hypertension. Their frequency decreased with continued Elaprase treatment. Hypersensitivity reactions, which may be life-threatening, were observed in some patients; the product labeling, therefore, contains a boxed warning of its risk for hypersensitivity reactions.

Indications and Uses. Elaprase is indicated for patients with Hunter syndrome. Elaprase has been shown to improve walking capacity in these patients.

Dosage, Administration, and Availability. The recommended dosage regimen of Elaprase is 0.5 mg/kg of body weight administered every week as an intravenous infusion. Elaprase is a concentrated solution for intravenous infusion and must be diluted in 100 mL of 0.9% Sodium Chloride Injection, USP. Each vial contains a 2 mg/mL solution of idursulfase protein (6 mg) in an extractable volume of 3 mL, and is for single use only. The total volume of infusion may be administered over a period of one to three hours. Patients may require longer infusion times due to reactions at the injection site; however, infusion times should not exceed eight hours and at no time should the rate exceed 100 mL/hour. Elaprase is supplied in 5 mL vials.

Patient Information. A Hunter Outcome Survey is available to help healthcare workers and medical scientists better understand the variability and progression of Hunter syndrome in the population as a whole. It will also help in monitoring and evaluating long-term treatment effects of Elaprase. Patients and their physicians are encouraged to participate in this program. For more information, visit www.elaprase.com.

Overview and Summary

Pompe disease and Hunter syndrome are rare, progressive genetic disorders that encompass a wide spectrum of clinical presentations. Before approval of Myozyme and Elaprase, supportive treatment of symptoms were the only therapies available; however, early death was often the outcome. The new enzyme replacement therapies offer renewed hope for enhanced quality of life for affected persons and their family members.

Continuing Education Quiz

Management of Orphandesignated Conditions: Pompe Disease and Hunter Syndrome

1. All of the following statements are true EXCEPT:
   a. rare diseases are defined as conditions affecting fewer than 200,000 people per year in the U.S.
   b. since passage of the Orphan Drug Act, more than 280 drugs or biologicals have been made available in the U.S.
   c. orphan drugs are indicated for chronic, progressive, disabling and life-threatening diseases.
   d. the largest group of orphan drug designations is for cardiovascular diseases.
2. Pompe disease is also known as:
   a. acid maltase deficiency.
   b. glucose-6-phosphate deficiency.
   c. iduronate-2-sulfatase deficiency.
   d. monoamine oxidase deficiency.
3. Absence of a single lysosomal enzyme leads to accumulation of brown fatty pigments called:
   a. gangliosides. c. sphingomyelins.
   b. lipofuscins. d. sulfatides.
4. Pompe disease is classified as all of the following EXCEPT:
   a. lysosomal storage disorder.
   b. metabolic myopathy.
   c. mucopolysaccharide storage disease.
   d. neuromuscular disease.
5. Myozyme consists of:
   a. acid alpha-glucosidase.
   b. glucose-6-phosphatase.
   c. iduronate-2-sulfatase.
   d. monoamine oxidase.
6. The recommended dosage regimen of Myozyme is:
   a. 1 mg/kg every two weeks.
   b. 2 mg/kg every two weeks.
   c. 10 mg/kg every two weeks.
   d. 20 mg/kg every two weeks.
7. Hunter syndrome is an inherited disorder caused by a deficiency or the absence of:
   a. acid maltase. c. iduronate-2-sulfatase.
   b. glucose-6-phosphate. d. monoamine oxidase.
8. Hunter disease occurs more commonly in:
   a. females. b. males.
9. Elaprase acts by binding to which of the following types of receptors on cell surfaces?
   a. D6P c. M6P
   b. G6P d. S6P
10. The recommended dosage regimen of Elaprase is:
    a. 0.01 mg/kg weekly.
    b. 0.05 mg/kg weekly.
    c. 0.1 mg/kg weekly.
    d. 0.5 mg/kg weekly.

Management of Orphandesignated Conditions: Pompe Disease and Hunter Syndrome

October 2007 ACPE **#129-047-07-001-H01**

The Ohio Pharmacists Foundation Inc and NDSU College of Pharmacy are approved by ACPE as providers of continuing pharmaceutical education. To receive 1 1⁄2 hours (0.15 CEUs) of continuing education credit, complete the following and mail with $10.00 to:

Continuing Pharmacy Education Office
Department of Pharmacy Practice
North Dakota State University
123 Sudro Hall - P.O. Box 5055
Fargo ND 58105-5055

Note: Answer sheet may be copied as needed but original answers are required on each.

Name _____

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Your SSN will be used to maintain a permanent record of the courses you have taken. Your SSN will be kept confidential and will be used ONLY to identify you at NDSU.

COURSE EVALUATION

Evaluation Must Be Completed To Obtain Credit

How much time did this lesson require? _____

Today's Date_____

EXPIRATION DATE: 1-15-09

Learning objectives on first page were addressed.

	1 Disagree - 5 Agree
Objective 1	1 2 3 4 5
Objective 2	1 2 3 4 5
Objective 3	1 2 3 4 5
Material was well organized and clear.	1 2 3 4 5
Content sufficiently covered the topic.	1 2 3 4 5
Material was non-commercial in nature.	1 2 3 4 5

Answer Sheet:

1. a b c d	6. a b c d
2. a b c d	7. a b c d
3. a b c d	8. a b
4. a b c d	9. a b c d
5. a b c d	10. a b c d

NCPA, APhA And NASPA Partner With Mirixa Corporation To Launch RXWiki.com

First Web 2.0 Medication Therapy Management Encyclopedia Written By Pharmacists

ALEXANDRIA, Va. –August 8, 2007– The National Community Pharmacists Association (NCPA), the American Pharmacists Association (APhA), the National Alliance of State Pharmacy Associations (NASPA) and Mirixa Corporation today announced the beta launch of www.RxWiki.com, the first Web 2.0 medication therapy management encyclopedia for consumers, written and edited by pharmacists. RxWiki is a free website publishing pharmaceutical, over-the-counter, and nutraceutical medication information. RxWiki also serves as a community network for pharmacists to create and share information for their patients and consumers at large, and to collaborate in the advancement of Medication Therapy Management (MTM).

"Today, 34% of all US online consumers use Wikipedia, and 7% of US online consumers with medical conditions used peer-edited health information in the past 12 months. The mission of RxWiki is to become the Web's most trusted source of medication information," said NCPA Executive Vice President and CEO Bruce Roberts. "NCPA, APhA and NASPA all believe our member pharmacists will gain tremendous professional satisfaction from contributing to this new medium knowing it will be one more way they improve consumers' use of medications."

"It is often difficult for consumers to find accurate medication information online," added Dr. John Gans, APhA's Executive Vice President & CEO. "APhA was eager to join RxWiki in filling that gap by empowering consumers to freely access prescription and over-the-counter medication information. RxWiki is different from other medication resources because it's a community-driven content portal that taps America's pharmacists as trusted content editors."

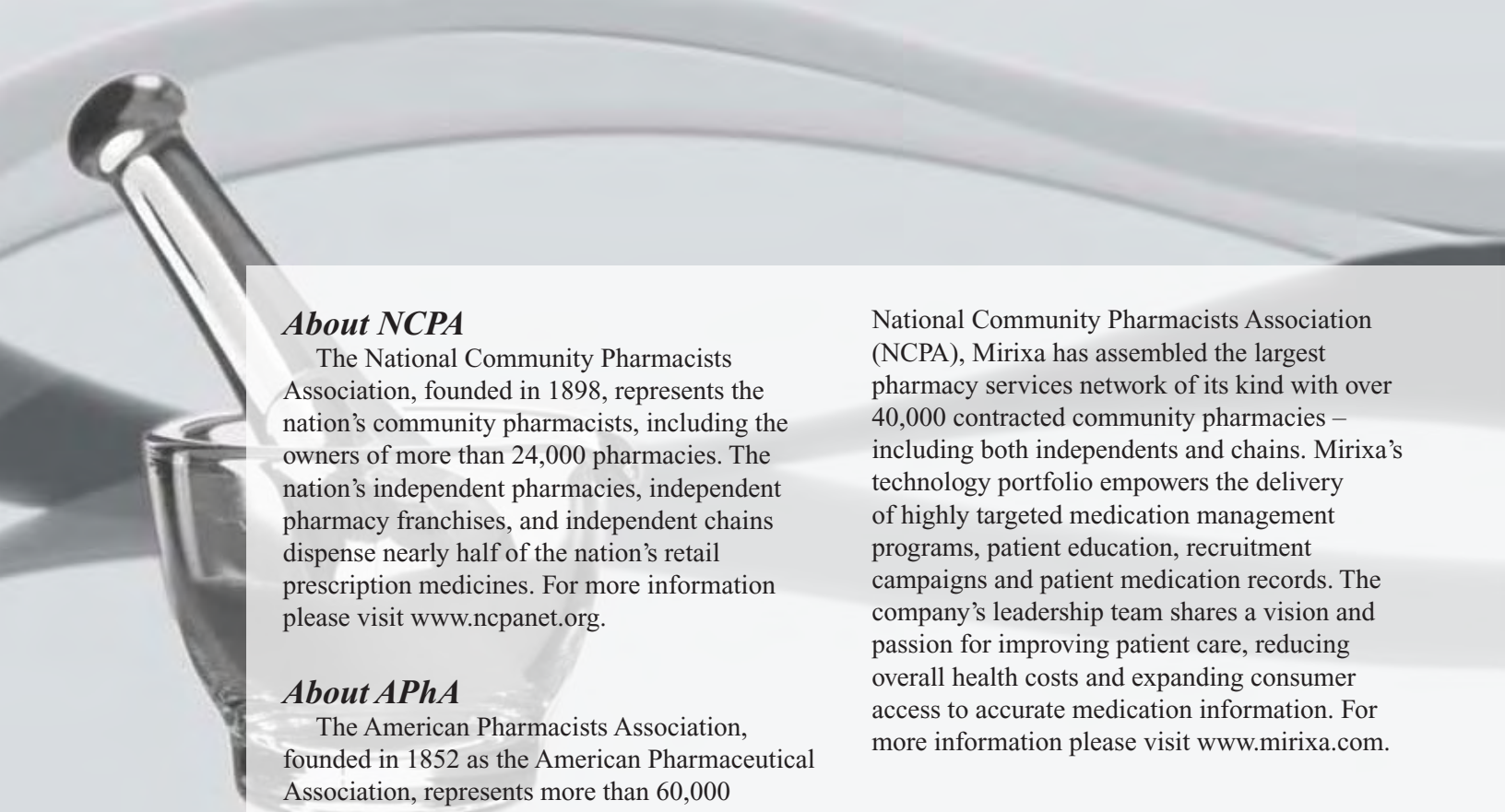
"Patients who actively participate in their healthcare, their medication therapy and who have a personal relationship with their pharmacist can experience improved health outcomes. RxWiki will serve as the premier medication resource for patients in increasing their understanding of their medications and will enable them to take a more active role with their pharmacist, and in managing their medication therapy," asserted NASPA Executive Vice President and CEO Rebecca Snead.

RxWiki features include:

- Medication content created by authorized pharmacists
- Latest articles from leading medical news services via RSS content syndication
- Weekly newsletter personalized for subscribing consumers
- Easy to integrate website "gadget" provides access to search RxWiki from pharmacy websites
- Free Toolbar provides search capabilities, updated information and links to other resources

"Mirixa is proud to partner with the NCPA, APhA and NASPA in the creation of RxWiki," said Don Hackett, chief executive officer of Mirixa Corporation. "The publishing model is powerful: pharmacists are able to contribute medications articles at a dramatically faster rate than historical methodologies, providing consumers with the most up-to-date information. We expect the consumer audience to build rapidly – witness the rapid growth of Wikipedia – drawn to RxWiki by its ease of use, timeliness, and the inherent trust consumers have in their local pharmacists."

"With the launch of the beta site, pharmacists can easily complete the authentication process and become RxWiki content contributors, as well as subscribe to our pharmacist eNewsletter," said Hackett. "NCPA, APhA and NASPA will be working with their members to get them engaged with this exciting new offering."



About NCPA

The National Community Pharmacists Association, founded in 1898, represents the nation's community pharmacists, including the owners of more than 24,000 pharmacies. The nation's independent pharmacies, independent pharmacy franchises, and independent chains dispense nearly half of the nation's retail prescription medicines. For more information please visit www.ncpanet.org.

About APhA

The American Pharmacists Association, founded in 1852 as the American Pharmaceutical Association, represents more than 60,000 practicing pharmacists, pharmaceutical scientists, student pharmacists, pharmacy technicians, and others interested in advancing the profession. APhA, dedicated to helping all pharmacists improve medication use and advance patient care, is the first-established and largest association of pharmacists in the United States. More information is available at www.aphanet.org.

About NASPA

The National Alliance of State Pharmacy Associations (NASPA) exists to strengthen and support our nation's state pharmacy associations, representing over 76,000 pharmacists, student pharmacists and technicians in all professional venues. NASPA is proud of its eighty year history of helping state pharmacy associations achieve their mission of providing leadership, education, legislative and regulatory advocacy that empowers their members to improve medication use and enhance patient care outcomes. More information is available at www.naspa.us

About Mirixa

Mirixa Corporation is a leading developer of innovative clinical solutions that facilitate pharmacist-based patient care services and a leader in Medication Therapy Management (MTM) technology solutions. Founded by the National Community Pharmacists Association (NCPA), Mirixa has assembled the largest pharmacy services network of its kind with over 40,000 contracted community pharmacies – including both independents and chains. Mirixa's technology portfolio empowers the delivery of highly targeted medication management programs, patient education, recruitment campaigns and patient medication records. The company's leadership team shares a vision and passion for improving patient care, reducing overall health costs and expanding consumer access to accurate medication information. For more information please visit www.mirixa.com.

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2008 CONTINUING PHARMACY EDUCATION STUDY/TRAVEL PROGRAM

Offered by Extension Services in Pharmacy at
The University of Wisconsin-Madison School of Pharmacy
in cooperation with Ferris State University College of Pharmacy,
The University of Texas at Austin College of Pharmacy, and
North Dakota State University College of Pharmacy

THE SHERATON MAUI
LAHAINA (KA'ANAPALI BEACH), MAUI, HAWAII
February 6-13, 2008

Early Booking Tour Cost	**From $1321 Per Person, Double Occupancy, Land Only (Add $150 per person for bookings made after October 15, 2007.)**

ITINERARY

Wednesday, February 6: Depart from your home city for Kahului, on the island of Maui. Arrive in Maui this evening, which is yours to spend at your leisure.

Thursday, February 7: This morning, the first Continuing Education session is to be held from 8:00 a.m. to 12 noon. This evening enjoy a welcome cocktail reception with Hawaii PuPus (hors d'oeuvres).

Friday, February 8: The second session of the Continuing Education program from 8:00 a.m. to 12 noon. The afternoon and evening are free for you to pursue your own interests.

Saturday and Sunday, February 9 and 10: The weekend is completely unscheduled for you to enjoy the Island of Maui. Plan ahead for your weekend golf, optional tours and excursions!

Monday, February 11: The Continuing Education program will resume with your third session from 8:00 a.m. to 12 noon. The afternoon and evening are again at leisure.

Tuesday, February 12: The final Continuing Education session, 8:00 a.m. to 12 noon. Upon conclusion, you are free for your own pursuits ... last-minute shopping, optional excursions, or just relaxing. This evening, join your colleagues at a farewell reception with Hawaiian PuPus (hors d' oeuvres).

Wednesday, February 13: Departure from Kahului this afternoon (or evening) back to your home city. Arrival on Thursday (February 14).

LAND PACKAGE INCLUSIONS, PRICE STARTS AT: $1321

- Deluxe room for seven nights at the Sheraton Maui Resort & Spa, double occupancy.
- Welcome Cocktail Reception, featuring hot and cold Hawaiian PuPus.
- Farewell Reception, including hot and cold Hawaiian PuPus.
- Bellman and Resort Service Fees.
- Complimentary flower lei greeting.
- All taxes and gratuities on included meal functions.
- Services of a professional Burkhalter Travel Trip Director.

*A Hospitality Desk will be staffed at specified times by your professional Burkhalter Travel Trip Director, who will be happy to assist you with dinner reservations, optional excursions, sports and recreational activities.

Please Note: Airfare is not included in the price, and is based on your departure city and actual travel dates. Burkhalter Travel would be happy to assist you in making your preferred air travel arrangements at the best available price. They also have secured a special group fare from Chicago that you can take advantage of. Please contact your Burkhalter Travel agent for details.

For detailed information about hotel/travel arrangements, call Burkhalter Travel, 608-833-6968 or 800-556-9286. If you wish to extend your visit to the Islands beyond the group trip dates, arrangements can be made through Burkhalter Travel in Madison, Wisconsin. They can arrange for inter-island flights, hotel stays of any length and optional sight-seeing trips. Ask Burkhalter Travel to help you plan your vacation time!

OVERVIEW/EDUCATIONAL OBJECTIVES:

CE Program topics should be of interest and benefit to all pharmacists regardless of their practice site. The goal is to present relevant, practical information that is applicable to the daily practice of pharmacy. Program format will include lectures and interactive experiences on the mornings of February 7, 8,11, & 12 from 8 AM to 12 Noon. Through participation in this program, attendees should be able to perform the following tasks for each of the topics listed below: (1) describe epidemiology and pathophysiology; (2) discuss drug therapy management; and (3) improve patient outcomes through patient counseling, education and drug monitoring.

FACULTY:

Steven C. Ebert, PharmD, FCCP, BCPS-ID
Clinical Specialist, Infectious Diseases
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Meriter Hospital
Clinical Professor
School of Pharmacy, University of Wisconsin
Madison, Wisconsin

Brien L. Neudeck, PharmD
Associate Professor of Clinical Pharmacy
Assistant Professor of Pharmaceutical Sciences
College of Pharmacy, University of Tennessee
Memphis, Tennessee

PRELIMINARY PROGRAM TOPICS/ INFORMATION:

Management of Gastrointestinal Diseases

- GERD (overview; influence of obesity; elderly as a unique subset of GERD patients; rationale use of acid suppressants in GERD therapy; extraesophageal manifestations of GERD)
- Prevention of NSAID Induced Ulcers
- Prevention of Gastrointestinal Bleeding
- Probiotics

Management of Infectious Diseases

- Newer antimicrobials (antibacterials and antifungals)
- Antimicrobial resistance
- Community-acquired pneumonia
- Skin/skin-structure infections
- Clostridium difficile infection

Brochure space does not allow for a complete description of topics or a listing of specific educational objectives for all the program topics. A complete description to include learning objectives, universal program numbers and hours of credit per individual presentation is available upon request.

CE PROGRAM REGISTRATION FEE:

The CE fee is $545 per person IF registered for the travel package through Burkhalter Travel. For those not registered for the travel package through Burkhalter (i.e., CE Only), the CE fee is $725 per person which also includes participation in the opening reception for the CE registrant – arrangements for inclusion in the opening reception for those accompanying the "CE Only" participant can be made through Burkhalter. All CE Fees are payable to Burkhalter Travel. In the event of participant cancellation prior to October 15, 2007, a refund of the CE fees less a $50 administrative fee will be provided; after this date, no refund of CE fees will be made.

CE CREDIT:

Extension Services in Pharmacy (ESP) at the University of Wisconsin-Madison School of Pharmacy is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. Successful completion of this program, as evidenced by both attendance and satisfactory completion of all evaluation exercises, provides the participant with an opportunity to earn 4 hours of CE credit for each of the 4 days or a total of sixteen (16) hours of continuing pharmacy education credit (1.6 CEUs). CE statements of credit will be issued by ESP within four weeks of receipt of all evaluation materials. For more detailed information regarding the CE Program (goals, objectives, fees, cancellation policy, etc.), contact Alan L. Hanson at the University of Wisconsin-Madison, School of Pharmacy (608-262-3130), 777 Highland Avenue, Madison, WI 53705-2222. For updated program information, please refer to the ESP website: www.pharmacy.wisc.edu/esp

For more information about hotel/travel arrangements, including the opportunity to extend your visit in the Islands, contact Burkhalter Travel Group Department at either of the following numbers: 608-833-6968 or 800-556-9286, ext. 250, 251, or 254.

Please contact your financial advisor for information regarding tax deductibility of expenses associated with educational meetings.

ABOUT THE HOTEL ...

The Sheraton Maui is located about 30-40 minutes from Kahului Airport and can be reached by rental car or shuttle service. As the first resort to grace the shores of Ka'anapali, the Sheraton Maui Resort reflects a truly Hawaiian ambiance. Its rebirth in 1996 gave rise to the 510 rooms and suites on 23 oceanfront acres. Privately nestled at historic Black Rock, the island's premier snorkeling location, the Sheraton Maui resort features a 142-yard freshwater swim-

COMMENTS FROM PAST CE TRAVEL SEMINAR PARTICIPANTS ...

- "This was our 6th trip. We have come to expect the best and have yet to be disappointed."
- "The CE Program has not only provided an opportunity for rest and relaxation, it has allowed me to gain valuable knowledge for consulting in pharmacy."
- "I have never participated in one of these travel seminars before, so I really did not know what to expect - it was far better than imagined."
- "The strength of this program is the relaxed teaching atmosphere, quality of the faculty and interaction with pharmacists from different practice sites."
- "I can't believe how much I have used what I learned at the seminar since I have returned home. Job well done!"
- "What a wonderful way to earn the CE credits I need to maintain my license!"
- "I appreciated the opportunity to learn in an environment far removed from the demands of the work place."

ming lagoon that meanders throughout the lush gardens, three night-lit tennis courts, a salon and day spa (indulge, relax and rejuvenate your mind and body with a massage or facial), and beachfront catamaran sails. Snorkeling equipment and other water sports equipment are available for a nominal rental fee. Island-inspired menus are found at the resort's open-air restaurants and poolside bars feature nightly entertainment and a cliff dive ceremony at sunset. The Ka'anapali Resort area appeals to all ages with shopping and dining opportunities within walking distance, 36 holes of championship golf at Ka'anapali golf Courses, the Ka'anapali Sugar Cane Train, and some of the most romantic sunsets in the Pacific on Ka'anapali Beach. The Hospitality Desk can assist you with all of your needs while visiting Maui.

ABOUT THE ISLAND ...

Maui is the best of all worlds: daytime adventures, some of the best golf in the world, stimulating nightlife, fine dining and tropical weather. Some of the highlights of Maui are taking the winding road to Hana and seeing the breathtaking waterfalls along the way.

A trip to the cool upcountry can be capped off by a visit to Haleakala National Park. Enjoy the historical town of Lahaina where Maui's history lives alongside art galleries, trendy restaurants and the harbor where snorkel cruises depart by day and dinner cruises cast off at sunset. Between December and April the Giant humpback whales make their winter home in Maui's offshore waters. So whatever you like to do you will find it in Magnificent Maui!

CONTINUING PHARMACY EDUCATION STUDY/TRAVEL PROGRAM REGISTRATION FORM

WI C1637

Send completed application and deposit to:

CE Study Tour, Burkhalter Travel Agency, Inc.
6501 Mineral Point Road, Madison, WI 53705
Telephones: 608-833-6968 or 800-556-9286, Ext. 250, 251, 254
Fax: 608-833-8527

Name _____

Name of Accompanying Person(s) _____

Address _____

City _____ State _____ Zip _____

Telephone: (Home) _____/_____ (Office) _____/_____ E-mail:_____

Please reserve _____ places on the Continuing Education Study/Travel Program to Maui.

Name(s) of person(s) attending CE Seminar _____

ACCOMMODATIONS AND RATES

Room Type	Package Price	Cash Discount Price
Garden View	$1354 *	$1321 *
Mountain View	$1459 *	$1423 *
Partial Ocean View	$1618 *	$1579 *
Deluxe Ocean Front	$1678 *	$1637*
Single Room Supplement	from $ 796 *	from $ 776 *

* Prices are per person, based on double occupancy, and include early booking discount. Add $150 per person for bookings made after October 15, 2007.

PLEASE NOTE: Penalty may apply for early check-out.

Package is land only pricing. Please contact Burkhalter Travel regarding airfare from _____.

❑ I will make my own air arrangements. ❑ Please call me regarding car rentals and/or airport transfers.

❑ My check for $_____ is enclosed ($300 deposit per person required), made payable to **Burkhalter Travel**. Final payment, including the CE Registration Fee, is due no later than November 23, 2007.

❑ Please charge my credit card for $ _____, representing full/partial payment for _____ persons. ❑ Mastercard ❑ Visa

Acct. Number: _____ Exp. Date _____ _____

Name of Cardholder (Please Print)

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Pharmacy Organizations Create Guide To Prepare For Pandemics

APhA, ASHP and NACDS Foundation Detail Important Role of Pharmacists in Fighting Influenza

BETHESDA, Md.— A new guide designed to help pharmacists respond to pandemic influenza has been created through a collaborative effort of the American Pharmacists Association (APhA), American Society of Health-System Pharmacists (ASHP) and National Association of Chain Drug Stores (NACDS) Foundation. The document details how pharmacies can help raise awareness and educate the public in the fight against a pandemic and how planning by pharmacists and others can significantly reduce the impact of this disease.

With specific instructions, the document advises that pharmacists, who play an important role in responding to pandemics, should learn about government preparedness and response plans, understand resources available in their health systems, corporations, and community and actively participate in planning meetings dealing with pandemics. The guide also recommends that pharmacists take part in immunization training opportunities and establish a plan to maintain a week's supply of resources, such as prescription drugs and consumable supplies.

"Pharmacists serve as community health resources and will play a significant role in helping the public respond to a pandemic outbreak. This guide will not only share important information to pharmacists, but also help them educate and raise awareness with their patients," said NACDS President and CEO Steven C. Anderson, IOM, CAE.

The guide features a "Pandemic Flu Pharmacy Checklist" that lists supplies for immunizations, such as alcohol swabs and latex gloves; consumables such as bottled water and electrolyte solution; and drugs such as anti-nausea medications and opioids. In addition, the plan encourages pharmacists to have an action plan for their practice and home.

The document also lists top medications dispensed during Hurricane Katrina, including hydrochlorothiazide and albuterol, as reported by a major pharmacy chain, as an example of non-influenza medications that might be needed to meet the needs of patients.

"Pharmacists now have a clear-cut and organized resource to advise them on how to be thoroughly prepared in the event of a pandemic," said APhA Chief of Staff and Project Coordinator Mitchel Rothholz. "The knowledge gained from this document can help pharmacists become an invaluable resource for their patients and their community during a pandemic outbreak of influenza."

ASHP lauded the valuable partnership between APhA, ASHP and the NACDS Foundation that led to the generation of this document. "This is a great example of how organizations representing pharmacists in different practice settings can contribute their distinct perspectives to address this serious health concern," said ASHP President Janet Silvester, M.B.A.

The guide to preparing for pandemics will be available at no cost on the Web sites of APhA, ASHP and NACDS Foundation.

APhA

The American Pharmacists Association, founded in 1852 as the American Pharmaceutical Association, represents more than 60,000 practicing pharmacists, pharmaceutical scientists, student pharmacists, pharmacy technicians, and others interested in advancing the profession. APhA, dedicated to helping all pharmacists improve medication use and advance patient care, is the first-established and largest association of pharmacists in the United States.

ASHP

For more than 60 years, ASHP has helped pharmacists who practice in hospitals and health systems improve medication use and enhance patient safety. The Society's 30,000 members include pharmacists and pharmacy technicians who practice in inpatient, outpatient, home-care, and long-term-care settings, as well as pharmacy students. For more information about the wide array of ASHP activities and the many ways in which pharmacists help people make the best use of medicines, visit ASHP's Web site, www.ashp.org, or its consumer Web site, www.SafeMedication.com.

NACDS Foundation

The NACDS Foundation is the education, research and charitable affiliate of the National Association of Chain Drug Stores. The NACDS Foundation supports programs that advance and strengthen the chain pharmacy industry for the benefit of the public it serves. Among its activities, the Foundation provides scholarships for pharmacy students and supports pharmacy education programs that address the needs of community pharmacy practice. Additionally, the Foundation supports research efforts which document community pharmacy's role and value in America's healthcare system. For more information about the NACDS Foundation, visit www.nacdsfoundation.org.

American Pharmacists Association
Improving medication use. Advancing patient care.
APhA

NACDS
NATIONAL ASSOCIATION OF CHAIN DRUG STORES FOUNDATION

American Society of Health-System Pharmacists®
TOGETHER WE MAKE A GREAT TEAM

NAPT Updates

By Brittany Muchow - NAPT Presidnet

Greetings!

October is here, which means one thing Fall Conference has come and gone. Fall Conference was held in Williston,ND on September 28-29th. The Conference started on Friday with Addictive Behaviors/OTC Drug Abuse and ended with an NAPT business meeting. Saturday continued with topics on Community-acquired MRSA, HIPAA and Drug Diversion, Compounding, Spirituality in the Hospice/Healthcare Setting and Medical Emergencies. I would like to give a big round of applause to the planning committee for putting on a sucessful conference.

One of the items discussed at Fall Conference during the general business meeting was technician involvement in the possibility of affiliating with NDPhA's academy structure. Please be on the look out for a seperate mailer asking for your vote on affiliation with NDPhA's academies. This is a very important issue for pharmacy technicians, if you have any questions please contact any member of the board.

The NAPT Executive Board will be traveling to all 8 districts to have a town hall meeting and provide a CE. If anyone is interested in assisting in the setting up of these meetings in your district, please contact any member of the board.

NAPT has created an e-mailing list for the registered technicians. To get your name added to this listing, please send an e-mail to rphtechnd@yahoo.com. If you do not have access to e-mail you may contact any member of the NAPT Executive Board and prvide them with your name and address. This information (e-mail address or mailing address) will be used to provide time sensitive information pertaining to the Pharmacy profession as well as any other inportant issues that may affect you.

I hope everyone enjoys the holidays!

National Pharmacy week was October 21-27. I hope you all enjoyed it. Pharmacy couldn't be where it is today, without all of what you did yesterday. As always if anyone has any issues they would like to discuss, the board is always open for your comments.

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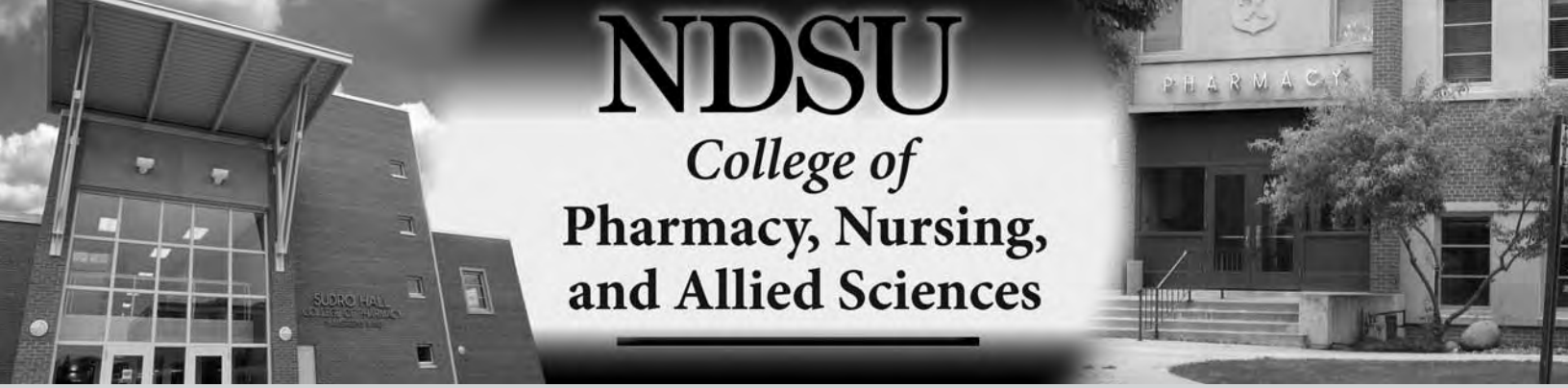

Charles Peterson, Dean
NDSU College of Pharmacy

New Faculty And Staff

Alicia Fitz accepted a faculty position within the College as Assistant Professor of Pharmacy Practice. Dr. Fitz duties will include being pharmacist-charge at the Student Health Service Pharmacy on campus and teaching in the Concept Pharmacy. Dr. Fitz received her Doctor of Pharmacy degree from Creighton University School of Pharmacy and Allied Health in Omaha, Nebraska in 1996. Her work experience includes being pharmacist-in-charge at the Allina Medical Clinic in Eagan, Minnesota and Ambulatory Care Pharmacist at the Allina Medical Clinic in Woodbury, Minnesota. Dr. Fitz began her duties at NDSU on November 6, 2006.

Dr. Chengwen Sun accepted a faculty position within the College as Assistant Professor of Pharmaceutical Sciences. Dr. Sun's duties will include teaching in the pharmacodynamic course series and establishing an active research program in neuropharmacology. Dr. Sun received his MD and Ph.D. in Immunology from the Norman Bethune University of Medical Sciences in China in 1988 and 1996, respectively. He also completed a post-doctoral fellowship in the Department of Physiology, Medical College of Wisconsin in Milwaukee and a postdoctoral associate at the Department of Physiology, College of Medicine, University of Florida in Gainesville, in 2000 and 2005 respectively. Dr. Sun's research interests are in studying hypertension in cardiovascular, renal, and neuronal systems; and mechanisms of chronic heart failure; and studying the cellular and molecular mechanisms of Angiotension II in the CNS. Dr. Sun began his duties at NDSU on April 1, 2007.

Dr. Mary Wright accepted a position within the College as Associate Dean of Nursing and Allied Sciences and Associate Professor of Nursing. Dr. Wright will actively participate as a member of the Dean's administrative council and provide administrative oversight for both nursing and allied sciences programs. Dr. Wright received a bachelor of arts with a major in nursing at the College of St. Scholastica in Duluth, Minnesota in 1975, a master of science with a major in nursing (major in maternal child health and minor in nursing education) and a Doctor of Philosophy with a major in nursing (major in educational administration and research) at the University of Texas at Austin School of Nursing in Austin, Texas in 1978 and 1988, respectively. Dr. Wright's work experience include Associate Professor and Chair, Department of Family Nursing at the School of Nursing, University of Wisconsin in Eau Claire; Associate Professor and Director of the Graduate Nursing Program in the Department of Nursing at the College of St. Catherine in St. Paul, Minnesota; Associate Professor and Director of the Undergraduate Nursing Program in the Department of Nursing at the College of St. Scholastica in Duluth, Minnesota; and Assistant Professor in the College of Nursing at the University of North Dakota. Dr. Wright began her duties at NDSU on June 15, 2007.

Dr. Rebecca Focken accepted a faculty position within the College as Assistant Professor of Pharmacy Practice. Dr. Focken's duties will include coordinating the pharmacy program's Introductory Pharmacy Practice Experiences (IPPE) and teaching in the Concept Pharmacy. Dr. Focken received her bachelor of science in biology and minor in chemistry from Bemidji State University in Bemidji, Minnesota in 2000; a bachelor of science in pharmaceutical sciences with minor in chemistry, and a Doctor of Pharmacy from North Dakota State University, College of Pharmacy, Nursing, and Allied Sciences in 2002 and 2004, respectively. Dr. Focken completed a post-doctoral ASHP accredited pharmaceutical care residency at the University of Minnesota at Paynesville Area Health System in Paynesville, Minnesota in 2005. Her work experience includes being Assistant Professor of Pharmacy

Practice at the St. Louis College of Pharmacy in St. Louis, Missouri. Dr. Focken's duties began at NDSU on July 16, 2007.

Dr. Benedict Law (Shek Hang) accepted a faculty position within the College as Assistant Professor of Pharmaceutical Sciences. Dr. Law's duties will include teaching and establishing an active research program in pharmaceutical biotechnology. Dr. Law received his bachelor of science in pharmacy from Portsmouth University, in Portsmouth, UK in 1997 and his Doctor of Philosophy from the School of Pharmacy from the University of Manchester, UK in 2002. Dr. Law completed a postdoctoral fellowship at the Center for Molecular Imaging Research, at Harvard Medical School and Massachusetts General Hospital from 2002 to 2007. Dr. Law's research interests include optimization of mitochondria disrupting peptide derivatives as potential anti-cancer agents and development of nano-material for delivery of therapeutic and imaging agents. Dr. Law began his duties at NDSU on August 1, 2007.

Dr. Christian Albano accepted a temporary one year non-tenure track faculty appointment within the College as Assistant Professor of Pharmaceutical Sciences. Dr. Albano's duties will include teaching pathophysiology, pharmacy administration coursework, and providing instructional assistance in the Concept Pharmacy. Dr. Albano received his bachelor of science in kinesiology at the University of Illinois at Chicago in 1994; his master of science in education from the Department of Health in Nutrition and Exercise Science, his Doctor of Philosophy in pharmaceutical sciences from the College of Pharmacy, and his MBA from the College of Business Administration, at North Dakota State University in Fargo, in 2000, 2005, and 2007 respectively. Dr. Albano's research interests are in pharmacoeconomic outcomes research. Dr. Albano began his duties at NDSU on August 15, 2007.

June Perrizo accepted an administrative secretary position for College Advancement. Ms. Perrizo's work experience includes being CCE Training Coordinator at Bismarck State College and Program Coordinator for the Bismarck-Mandan Chamber of Commerce in Bismarck, North Dakota. Ms. Perrizo began her duties at NDSU on May 15, 2007.

Dana Davis accepted a position within the College as Director of Recruitment. Originally from Christine, North Dakota, Ms. Davis received a bachelor degree in elementary education from Valley City State University in 2002 and she is currently working on completing her master degree in educational leadership with an emphasis on student affairs at NDSU. Ms. Davis' work experience includes being admissions counselor in the Office of Admissions at NDSU. Ms. Davis began her duties in the College in June 2007.

Please join me in welcoming our new faculty and staff to our College !

Faculty Awards

Three pharmacy faculty were honored for excellence in teaching at the College of Pharmacy's annual graduation hooding ceremony in May 2007. Students selected Dr. Rob Nelson, Assistant Professor of Pharmacy Practice as the 2007 Pharmacy Program Teacher of the Year. The award recognizes outstanding contributions and commitment to excellence in teaching. The Teacher of the Year Award includes recognition at the American Association of Colleges of Pharmacy annual meeting in July. In addition, the graduating senior class selected Dr. Rick Clarens, as the 2007 Faculty Preceptor of the Year. The award recognizes a full-time faculty member for outstanding contributions and commitment to excellence in clinical instruction of pharmacy students on clinical rotations. And practicing pharmacist, Ms Lynn Grani, community pharmacist at SunMart Pharmacy in Moorhead, Minnesota was selected by the graduating senior class as the College of Pharmacy 2007 Adjunct Preceptor of the Year. The award recognizes outstanding performance and commitment in instruction of pharmacy students on clinical rotations by a practicing pharmacist who volunteers their time to provide clinical instruction of pharmacy students. Each faculty award includes a plaque and a $1,000 cash award. And Dr. Mary Margaret Mooney receive the College's Exemplary Service Award for her years of dedicated service to the College as Department Chair of Nursing.

Please join me in congratulating these individuals for being our 2007 Faculty Recognition Award recipients.

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North Dakota Pharmacists Association

2007 Operational Budget Summary

April 2007 – March 2008

Income:	Annual Budget	Actual YTD
NDPSC - EVP Contract for Services	$40,165.95	$18,257.25
Membership Dues	$72,000.00	$69,200.00
Associate Membership	$2,000.00	$840.00
NDSHP	$0	$0
NAPT	$8,500.00	$0
Advertising Income	$3,000.00	$2,250.00
Marketing Income	$25,000.00	$19,036.00
Convention Income	$5,000.00	$10,425.17
Journal Reimbursement (NDSU, BOP)	$16,800.00	$6,826.20
Other	$2,400.00	$1,335.46
Total Income:	**$174,865.95**	**$128,170.08**
Expenses:		
Payroll Expenses	$67,196.00	$34,311.21
Meeting/Conference (travel, meals, lodging)	$9,700.00	$1,028.52
Funds to NDSHP	$8,760.00	$8,760.00
Funds to NAPT	$4,600.00	$0
Insurance	$1,350.00	$744.50
Grant Expense (last payment from 2006)	$7,500.00	$7,500.00
Occupancy	$5,640.00	$3,289.66
General Expenses (supplies, phone, internet, etc…)	$19,120.00	$9,802.68
Journal	$34,100.00	$10,717.02
Committees/Special Functions	$4,550.00	$743.54
Convention	$5,000.00	$8,721.89
Other	$1,000.00	$681.10
Total Expense:	**$168,516.00**	**$86,300.12**
Estimated Year-End Net Income	**$6,349.95**	**(YTD) $41,869.96**

• If you would like a complete copy of the 2007 budget, please contact the ND Pharmacists Association office at: (701) 258-4968 or email mschwab@nodakpharmacy.net

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MISC0142-03-07

POSITION DESCRIPTION

Prescription Drug Monitoring Program Program Assistant

The program assistant will serve as administrator and provide general direction and assistance to ensure the project maintains focus and timelines are met and will assist with required grant reporting, advisory committee meetings, and training and education. The program assistant will compile statistics and records requested by the advisory council or needed to evaluate program effectiveness. This person will assist in all program implementation and maintenance activities as directed including coordinating, receipt and dissemination of program data, reconciliation of incompatible data issues, resolution of technical conflicts, grant reporting, and responding to queries from pharmacists, prescribers, law enforcement, and the public.

Preference will be given to Registered Pharmacy Technicians, with an Associate of Applied Sciences Degree

The program assistant will cross train with the Administrative Assistant of the Board of Pharmacy to be able to help during license renewal cycles, vacations and other absences.

Applications will be accepted until November 9th, 2007 and then we will review resumes and begin inviting qualified candidates to interview. Hiring is anticipated by November 22nd with consideration given to notifying previous employers to provide for an orderly transition.

Salary Range 26,000 to 34,000

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