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South Dakota Pharmacist

SOUTH DAKOTA
PHARMACIST
Volume 23 Number 3

SDPhA CALENDAR

South Dakota Pharmacists Association
320 East Capitol
Pierre, SD 57501
(605)224-2338 phone
(605)224-1280 fax
www.sdpha.org

"The mission of the South Dakota Pharmacists Association is to promote, serve and protect the pharmacy profession."

South Dakota Board of Pharmacy
4305 South Louise Avenue
Suite 104
Sioux Falls, SD 57106
(605)362-2737
www.pharmacy.sd.gov

Please note: If you are not on our mass e-mail system check our website periodically for district meetings and other upcoming events. They will always be posted at: *http://www.sdpha.org*.

July

17-18 SDPhA Board Retreat

August

6-7 Legislative Summers Study- Medicaid Reimbursement
Pierre, SD
6-8 National Association of Boards of Pharmacy (NABP)
District V Meeting, Omaha, NE

September

1 Labor Day

October *American Pharmacists Month*

TBD Fall District Meetings
1 License Renewals Due to the Board of Pharmacy
13 Native American Day
17-21 National Community Pharmacists Association (NCPA)
111th Annual Convention & Trade Exposition, New Orleans, LA
18-24 National Hospital and Health-System Pharmacy Week
19 National Pharmacy Technician Day

* Cover photo courtesy of Chad Coppess, South Dakota Tourism

SOUTH DAKOTA PHARMACIST
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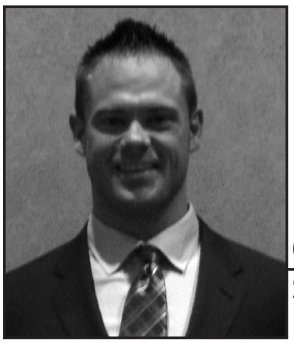

Chris Sonnenschein
SDPhA President

Greetings SDPhA Membership,

This is my first article written as President of the South Dakota Pharmacists Association. I hope it finds you enjoying your summer. First, I would like to thank you for the vote of confidence you bestowed to me just a few short years ago by electing me to your Board of Directors. Serving on the Board of Directors to date has been rewarding, and I look forward to a productive tenure as your President. It is truly an honor to serve the professionals who I have the utmost respect for as President of the South Dakota Pharmacist Association.

We recently finished our 2009 SDPhA Annual Convention in Watertown, SD. Sue, Jenny, and now Past-President Cole Davidson did an excellent job. We offered a wide variety of well rounded educational opportunities that appealed to pharmacists from all practice settings. The venue was also quite conducive to hosting the successful convention. In addition, I humbly offer our deepest appreciation to all the vendors who participated. The vendors had a very strong presence this year. Convention would not have been the success it was without them. Finally, I would like to thank all the members who attended.

In July, the Board of Directors will convene for our annual retreat. The retreat is time set aside at the beginning of each fiscal year for strategic planning. Two primary areas of focus will be to increase active participation from our membership and to enhance the service the Association provides to our members. It is critical that the Association leaders and our members collectively work to involve our pharmacist membership in Association activities. We are now in the throws of the debate surrounding Health Care Reform. It is more important than ever to become active, insert ourselves, and work to shape the future of our profession. Unfortunately, pharmacy does not have the political influence on the national level that larger organizations like the American Medical Association and Pharmacy Benefits Managers do. We do, however, have congressional delegates who are interested in our profession. Therefore, we need to leverage the opportunity we have and ensure we are in control of our own destiny. The process begins with each of you supported by your Association.

In closing, I would like to leave you with one last thought. You have elected me to lead this Association for the next year. The Association has my commitment to continually work to enhance the manner in which we serve our membership and to improve the practice of pharmacy. However, I am a president with few answers. I have been entrusted to lead the Association to represent your interests. The answers and my direction come from you. Therefore, I need your active participation in the Association to execute my commitment effectively.

Thank you and I look forward to serving you for the next year.

Chris Sonnenschein, PharmD, PMP
President
South Dakota Pharmacists Association

DIRECTOR'S COMMENTS

Sue Schaefer
Executive Director

Well, convention has come and gone and we're smack dab in the middle of summer already! The fourth of July is one of my favorite holidays and I never forget to be thankful for the freedom and independence that we all enjoy thanks to some tough veterans along the way…it's also a great time for family reunions and get-togethers. In the craziness of day-to-day business and politics, it's easy to take our loved ones for granted…make a choice not to let that happen to you…we all have so much to be thankful for!

The office has been busy with year-end business and setting plans and objectives in motion that were set forth by resolutions at convention. We will also be holding our board retreat to design new ideas as we continue to work to elevate South Dakota pharmacy in the eyes of the public and elected officials.

I just finished the first meeting with the South Dakota Legislature's Executive Board Health Sub-Committee and their chosen summer study topic, Medicaid reimbursement. The meeting was basically an informational meeting and was designed to assist legislators and interested parties in their development of a better understanding of Medicaid. It was devoted to presentations by the Departments of Social Services and Human Services, and is chaired by Representative Tim Rave, a great friend to pharmacy.

We will have an opportunity to testify before the committee regarding any suggestions, concerns, or issues we may have relating to the study at the second meeting, currently set for August 6th and 7th. If you have any information you'd like to share with us, please do so. The bottom line is we probably can't expect an increase, but we certainly would be damaged by a cut to the current reimbursement, and will let the committee know of our concerns. Patient access will always be concern for us as it should be.

With the heightened media attention about the documented increase in prescription drug abuse, we are receiving a significant amount of inquiries asking for speakers for service groups, etc. Many would like a pharmacist to come and visit with them about medication issues. If you are approached, please consider helping these folks out. It's a wonderful way to get pharmacy out there front and center in a positive fashion. We're continuing to work on a PowerPoint presentation about teen prescription drug abuse, and would be happy to share any information with you to assist.

As always, our door is always open…hope you give us a jingle or send us an email if you need us! We're here to help you.

Have a wonderful summer and enjoy your friends and family.

Sue

South Dakota Board of Pharmacy

Ron Huether
Executive Secretary

NEW REGISTERED PHARMACISTS

As of June 24, the following candidates recently met the requirements and were registered as pharmacists in South Dakota.

Licensure by reciprocity: Carol Born, Derek Johnson, Mark Mettlin, Michele Nicholson and Thomas Ryan.

Licensure by examination: Billie Bartel, Jennifer Bergan, Kathryn Bremmon, Kathryn Carder, Laura Carlson, Jason Caviness, Alex Chmura, Dana Culver, Ashley Dendinger, Jaclyn Dvoracek, Jonathan Fliehs, William Freiberg, Ashley Hansen, William Hayes, Laura Haynes, Kyle Hendry, Nicole Hepper, Tiffany Jastorff-Gillies, Ashley Johnson, Elizabeth Kasten, Matthew Klein, Robin Lockhorst, Jana Moen, Ashley Mutschelknaus, Erin O'Leary, Matthew Olsen, Devin Paasch, Leslie Reiner, Katherine Rochleau, Martha Schmidt, Krista Schmit, Lynnette Seyer, Elizabeth Sinclair, Ashley Swanson, Tracy Swanstrom, Raelle Van Maanen, Brittney Vander Pol, Melinda Vander Vorst, Laura Viereck, Terrel Wiedenfeld, John Wiksen and Rebel Williams.

These pharmacists graduated from the following Colleges of Pharmacy: South Dakota State University (37); University of Iowa (2); University of Minnesota (2); University of Nebraska (2); Creighton (1); Drake (1); North Dakota State University (1); and Purdue (1).

PHARMACY LICENSES

A new pharmacy license was recently issued to: Duncan Murdy, iSurgery, Aberdeen.

NEWS FROM THE BOARD

Pharmacists are invited to attend board meetings. Board meetings are scheduled for:

August 6 – Sioux Falls;
October 2 – Rapid City;
December 11 – Sioux Falls.

The specific location and agenda for the meeting will be posted on our website approximately 30 days before the meeting. Board meetings are open to the public. Minutes of past meetings are available on the website.

Recent additions to the website: Guidelines for After Hours Hospital Pharmacy Services; Policy Statements on Starter Packs and Remote Pick-up Sites.
Your comments are valuable to the Board as we continue to review our administrative rules and make revisions to reflect the issues surrounding the changing practice of pharmacy. We are currently drafting rules for Sterile Compounding. The Board welcomes suggestions for changes and additions to the rules that will maintain or enhance pharmacy practice standards that protect the health and welfare of South Dakota consumers.

E-PRESCRIBING AND CONTROLLED SUBSTANCES

The Board frequently receives questions from pharmacists concerning the legal validity of controlled substance prescriptions that have been electronically "signed". Such prescriptions may have the electronically captured signature of the prescriber printed on them. Or a phrase such as "electronically signed by the prescriber" may be printed on the prescription. They are sometimes directly faxed to the pharmacy, sometimes sent via true e-prescribing to the pharmacy's computer, and sometimes printed out and given to the patient. Regardless of how an electronically "signed" controlled substance prescription arrives at the pharmacy, it is not legally valid. Current federal laws and rules do not permit electronic signatures for controlled substance prescriptions.

Here is an excerpt of the DEA's description of the rules that are currently in place. This description clearly indicates that the DEA interprets current federal laws and rules to prohibit electronic signatures for controlled substances:

A pharmacist may dispense directly a controlled substance listed in Schedule III, IV or V which is a prescription drug as determined under the Federal Food, Drug, and Cosmetic Act, only pursuant to a written prescription signed by a practitioner or a facsimile of a written, signed prescription transmitted by the practitioner or the practitioner's agent to the pharmacy or pursuant to an oral prescription made by an individual practitioner and promptly reduced to writing by the pharmacist containing all of the information required in Sec. 1306.05, except for the signature of the practitioner.

Schedule II controlled substance prescriptions must also be manually signed by the prescriber but can only be phoned or faxed to a pharmacy in the limited circumstances allowed under federal law and rules.

Continued next page

A pharmacist that receives an electronically signed Schedule III or IV controlled substance prescription is allowed to contact the prescriber and take the prescription as an oral order. The Board understands that it can be inconvenient and time-consuming to do this.

It is anticipated that the DEA may adopt new rules for e-prescribing of Controlled this year. However, until new rules are adopted pharmacists must obey the current laws and rules.

PHARMACISTS – BANK CONTINUING EDUCATION HOURS

Pharmacist license renewal time is right around the corner. To avoid a last-minute panic finding continuing education certificates, you can accumulate and enter the hours on the board's renewal site.
To log in use the same method as renewing your license:

1. Access the Board web site at www.pharmacy.sd.gov (new web address)
2. Click on the "Pharmacists" button on the right
3. Click on - On-line Renewal/Bank CE
4. The log-in name is letters "nspharm" plus your 4-digit license number. (Do not use the "R" if you have one in your license number).
5. The password is the letters "nspharm" and the last four digits of your SSN.
6. You will have the option of changing your password if you wish.
7. You can update any personal or employment information. The phone number requires you to use dashes. The dates should be in MM/DD/YYYY format. If a required field is left blank you will get an error message to complete that field. If you don't have an entry for that field enter N/A.
8. Click the continue button to go to the CE page.
9. Enter each CE program, the date, and the year that you want it used and then click "apply". (Enter 2009 for the October 1, 2009 through September 30, 2010 renewal year.) The program will automatically add them for you. Remember to use the MM/DD/YYYY format – this is probably the number one error people encounter.
10. Hours earned after September 30, 2008 can be used for the 2010-2011 licensing year.

Please contact the Board office at 605-362-2737 if you need assistance.

ERROR PREVENTION THROUGH BETTER COMMUNICATION

Your patients need to hear and understand what you are saying and you need to hear what the patient is both saying and not saying. Breakdown of communication between the pharmacist and his or her patient could lead to a tragic medication error. Here are some suggestions for better communication:

- Environment: Patients need to feel welcome and comfortable without worry of being overheard.
- Eye Contact: This demonstrates your attention to the patient.
- Ask and Listen: Ask for feedback and listen to the response to ascertain whether the patient indeed understands.
- Repeat the Instructions: Reinforce your instructions by having the patient repeat back to you what they heard. You may be surprised!

PHARMACY WORKFORCE FACTS

As of June 1, 2009 there were 227 pharmacies in South Dakota operating with full-time permits. Counties with the most full-time pharmacies are: Minnehaha (53) and Pennington (25). Currently 934 pharmacists are employed in South Dakota. Cities where the most pharmacists work: Sioux Falls (384); Rapid City (98); Watertown (38); Aberdeen (37); Mitchell (27); Brookings (26); Yankton (26); and Pierre (20). There are 1,381 pharmacy technicians registered with the Board: Sioux Falls (623); Rapid City (203); Aberdeen (58); Yankton (49); and Watertown (48).

Contribute to the 2009-2010 South Dakota Pharmacists Association District Dues and SDPhA Commercial and Legislative Fund!!

Visit our website at www.sdpha.org

Thank You for Your Support!

2008 Recipients of the "Bowl of Hygeia" Award

Wyeth Pharmaceuticals takes great pride in continuing the "Bowl of Hygeia" Award Program developed by the A. H. Robins Company to recognize pharmacists across the nation for outstanding service to their communities. Selected through their respective professional pharmacy associations, each of these dedicated individuals has made uniquely personal contributions to a strong, healthy community which richly deserves both congratulations and our thanks for their high example.

Wyeth Pharmaceuticals

Wyeth Pharmaceuticals, Philadelphia, Pennsylvania

**2008 recipients awarded in 2009*

Medicaid Integrity Program Provider Audit Fact Sheet
May 2009

Background
The Deficit Reduction Act of 2005 (DRA) created the Medicaid Integrity Program (MIP) and directed the Centers for Medicare & Medicaid Services (CMS) to enter into contracts to review Medicaid provider actions, audit claims, identify overpayments, and educate providers and others on Medicaid program integrity issues.

What are the Audit MICs?
Audit Medicaid Integrity Contractors (Audit MICs) are entities with which CMS has contracted to perform audits of Medicaid providers. The overall goal of the provider audits is to identify overpayments and to ultimately decrease the payment of inappropriate Medicaid claims. At the direction of CMS, the Audit MICs will audit Medicaid providers throughout the country. The audits will ensure that Medicaid payments are for covered services that were actually provided and properly billed and documented. Audit MICs will perform field audits and desk audits. Audits have begun in CMS Regions III & IV and will be expanded to all States and Territories. The audits are being conducted under Generally Accepted Government Auditing Standards.

Which providers will be subject to audit?
Any Medicaid provider may be audited, including, but not limited to, fee-for-service providers, institutional and non-institutional, as well as managed care entities.

How are providers selected?
Providers usually will be selected for audits based on data analysis by other CMS contractors. They also will be referred by State agencies. CMS will ensure that its audits neither duplicate State audits of the same providers nor interfere with potential law enforcement investigations.

What should a provider do if it receives a Notification Letter that it has been selected for audit?
Gather the requested documents as instructed in the letter. CMS contractors have the authority to request and review copies of provider records, interview providers and office personnel, and have access to provider facilities. Requested records must be made available to the Audit MICs within the requested timeframes. Generally, providers will have at least two weeks before the start of an audit to make their initial production of documents to the Audit MICs. In obtaining documents, Audit MICs will be mindful of state-imposed requirements concerning record production. Moreover, Audit MICs may accommodate reasonable requests for extensions on document production so long as neither the integrity nor the timeliness of the audit is compromised. The Audit MICs will also contact the provider to schedule an entrance conference. Notification Letters will identify a primary point of contact at the Audit MIC if there are specific questions about the Notification Letter or the audit process.

What process will follow the completion of the audit?
The Audit MIC will prepare a draft audit report, which will first be shared with the State and thereafter with the provider. The State and the provider each will have an opportunity to review and comment on the draft report's findings. CMS will consider these comments and prepare a revised draft report. CMS will allow the State to review the revised draft report and make additional comments. Thereafter, CMS will finalize the audit report, specify any identified overpayment, and send the final report to the State. The State will pursue the collection of any overpayment in accordance with State law. Providers have full appeal rights under State law. The Audit MICs will be available to provide support and assistance to the States throughout the State adjudication of the audit.

Who are the Audit MICs?
Umbrella contracts have been awarded to: Booz Allen Hamilton, Fox & Associates, IPRO, Health Management Solutions (HMS), and Health Integrity, LLC. Task orders have been issued for the following CMS Regions to the following MICs: Regions III/IV (Booz Allen Hamilton); Regions VI/VIII (HMS) and Regions IX/X (HMS). Task orders for the remaining CMS Regions will be awarded by the end of FY 2009.

For information on the Medicaid Integrity Program, please email Medicaid_Integrity_Program@cms.hhs.gov.

Jordre named SDSU Pharmacy Alumnus of the Year

The College of Pharmacy at South Dakota State University has named Pierre pharmacist Galen Jordre as its Alumnus of the Year. Jordre will be honored at an event on the Brookings campus in the fall.

"I look at others who have received the award and feel very honored just to be nominated," Jordre said. "To receive the award is something that I would never have anticipated."

According to the dean, Jordre earned the award. "Mr. Jordre has had a tremendous career," said College of Pharmacy Dean Dennis Hedge. "His deep involvement in professional and community organizations is truly noteworthy. Beyond that, Galen is a true gentleman and a great ambassador of our College and SDSU."

Jordre earned the award in recognition of a career dedicated to his profession and his longstanding relationship with his alma mater. A former executive secretary of the S.D. State Board of Pharmacy, for years Jordre administered exams to SDSU pharmacy graduates. He currently serves on the College of Pharmacy's Advisory Council and its Development Council.

"The College has always been very good to work with, and I am very impressed with the direction it is taking in educating future pharmacists," Jordre said.

Since his graduation from SDSU in 1968, Jordre has enjoyed a varied career in pharmacy that includes time in the U.S. Army as a pharmacy officer, service at the S.D. Development Center in Redfield, ownership of a pharmacy in Gettysburg and executive-level positions with the pharmacy associations of South Dakota and North Dakota.

Currently Jordre and his wife Ann, also a practicing pharmacist and SDSU grad, live in Pierre where he works as a consultant for the S.D. Department of Health.

Much has changed in the practice of pharmacy since Jordre banged out his first prescription label on a typewriter. Now medication therapy is more complex and pharmacists have a greater role in counseling patients about the medicines they take.

"Pharmacists have assumed a role of ensuring medications are appropriate and that patients understand their use," Jordre said. "We still need to reach the level where health care payers, policymakers and other health care professionals demand that role from pharmacists. If and when they do, the most rewarding days of the profession are still ahead of us."

Join SDSU faculty, alumni, friends and family at the College of Pharmacy Hospitality Tent during the Beef Bowl BBQ. Stop by the tent and enjoy a complimentary beverage. There will be a tent, tables, and chairs located North of the Stadium to meet and eat prior to the game. Look for the College of Pharmacy Banner.

September 19, 2009 starting at 4:00 PM

4:00 PM – 5:30 PM Hospitality Tent in the Backyard

6:00 PM Football game vs. Indiana State at Coughlin-Alumni Stadium

For more information, please contact Deidra Van Gilder at 605-884-4228
or
e-mail Deidra.VanGilder@sdstate.edu

SDSU Names Hartford pharmacist preceptor of the year

Like most preceptors or pharmacist tutor, Vince Reilly does an excellent job of backing up what students learn in the classroom. But then he gives them something extra; something you won't find in the textbooks.

"What I try to do, in addition to teaching the pharmacy curriculum, is instill important personal values," said Reilly, a 1987 South Dakota State University pharmacy grad who has owned and operated Medicap Pharmacy in Hartford the last five years.

"The entire world seems to revolve around money. There's too much emphasis on material things. I try to teach the students that that's not what it's all about. Job satisfaction and caring for people are much more important. The money will come anyway."

Reilly finds students receptive to his message.

"Students are very hungry for that message," said Reilly, named the SDSU College of Pharmacy's 2009 Preceptor of the Year. "It's easy to get them to listen to it."

Such was certainly the case for Brandon Maydew, who completed a rotation with Reilly in March 2009, graduated May 9 and is currently working at a Walgreens in Milwaukee.

Altering career plans

"I can honestly say that in my career path, I've changed because of Vince," said Maydew, a native of Sioux Falls.

"When you're in pharmacy school, you live six years on nothing. You eat Ramen, you're just trying to scrape by. You've been starving for that money for so long, that when graduation time gets close and companies start making offers, you can lose focus.

"One of Vince's big pushes is that it's possible to start your own pharmacy and be successful. That's kind of why I changed my goals. Eventually, as I get more financially stable, I want to start my own pharmacy, using him as a guideline. That path will make me more content. I'm a retail pharmacist at heart and kind of an entrepreneur at heart as well.

"I am a better pharmacist because of Vince," Maydew said. "I cannot say enough about him. He is just great."

Reilly, who attended State on an ROTC scholarship and was a pharmacist in the army for nine years after college, has lived in several states and worked with students from six universities during his 22 years as a pharmacist. But State students, he claims, are "far superior."

"It's not just the work ethic," says the Huron native, "but it's the really strong faculty and strong curriculum that SDSU provides. If a student can make it through the program at SDSU, they can compete anywhere in the world."

Challenges and rewards

The demanding aspect of working with students, Reilly says, is keeping abreast of the latest information.

"The challenge is staying current in all the therapeutics the students are learning," he says. "I do that by reading. Questions patients ask me and questions students ask me keep me current as well."

And the reward?

"Staying current in all the therapeutics," he laughed. "Staying current in the diseases and medications is a reward in itself. And knowing that I impacted someone's career choice is a great reward, too. Just to know that I did make a difference.

"The old adage that it takes a village to raise a child is very, very important in this preceptorship as well. If not for the support of the community, I couldn't do it. The community really endorses and helps in the training of the students. Students always comment on how nice the people of Hartford are."

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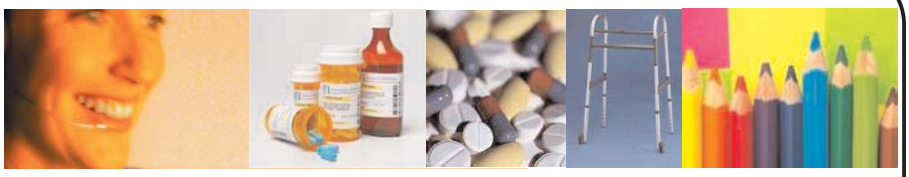

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South Dakota State University
College of Pharmacy

Dennis Hedge
Dean

Promoting Professionalism in our Next Generation of Pharmacists

Pharmacists have long been recognized for high professional standards. With the evolution of pharmacy care into a very patient-centered practice, a renewed emphasis on developing professionalism has emerged over the past few years in pharmacy education. In that regard, our College was very proud to learn this past spring that the SDSU APhA-ASP chapter was the recipient of the "Professionalism Award" at the APhA Annual Meeting in San Antonio.

Development of professional attitudes, values, and behaviors cannot occur by simply reading a book or listening to a lecture. Rather, professionalism must be developed via an active process over time. With this in mind, our faculty and students have developed several policies and sponsor several activities that enhance the culture of professionalism within the College and encourages an attitude of professionalism within each student.

During the P1 Year, we have two signature events aimed at creating a culture of professionalism. The P1 Orientation Program is a time for students just beginning their journey through the professional program, along with their immediate family members, to interact with faculty, staff, and students at the College. In addition to an overview of rules and policies, the incoming students hear messages about the importance of getting involved with professional organizations and their community. Beyond that, in small groups students discuss topics such as "patient-centered care", "drug and alcohol use", "ethics for pharmacists", and "academic dishonesty". At the beginning of the Spring Semester, a White Coat Ceremony is held for the P1 Class. During the ceremony, a professional white coat is given to each student symbolizing the student's acceptance of the professional conduct expected of him or her as students in a pharmacy professional program and in professional practice. A keynote speaker visits with the class during the ceremony about the importance of upholding a standard of professionalism, and as a group, the class recites the "Pledge of Professionalism".

Additional professional development activities occurring throughout our curriculum include "College of Pharmacy Convocation", which is held each semester, and our regularly scheduled "Professional Hour" sessions. The purpose of our Convocation is to provide students and faculty an opportunity to hear state and national pharmacy leaders present on current issues impacting the profession of pharmacy. During our professional hour sessions, the College addresses each class on various topics ranging from course registration and financial aid to discussions on diversity.

While each of the activities and events described above are quite valuable in developing professionalism in students, perhaps nothing is more effective than early exposure to mentors in practice environments. I am extremely grateful that the College has such a talented and committed group of pharmacists in our region that works with our students. The attitudes and values that our students witness from practicing pharmacists during Introductory and Advanced Pharmacy Practice Experiences make a deep and lasting impression. Thank you for your contribution as a partner in developing professionalism in our next generation of pharmacists.

Warm regards,

Dennis Hedge
Dean, SDSU College of Pharmacy

Prestigious Group 50-Year Pharmacists

Connie Teig Spawn

Right after graduation from SDSU, Connie married Jerry Spawn. "He told me that being in the Navy taught him that he might be happier to be in a profession where he could be his own boss, and that seemed to be Pharmacy" said Connie. "After he graduated in 1959, we worked for others for the first six years, and then purchased the Corner Drug Store in Crofton, NE. We moved there with a two year old son, Jerry O., and after a year, we had Steven D". She spent most of her time working for their church, community and home. When Jerry needed or wanted to be gone she ran the store.

She realized very early that Jerry was a veritable fanatic about fishing and hunting so when Rich Assam offered to sell them the store in Lake Andes, SD, the answer had to be yes!!! A year after they moved there, they had a third son Gregory L. They felt that this was a great place to rear the boys, as they were able to enjoy the many outdoor activities and would have good opportunities in school curriculum, music and sports.

They were happy that all three sons went to college and got their B.S. degree, however only one graduated from SDSU. Steve has a degree in Wildlife and Fisheries, and is a biologist , Jerry O. has a degree in Economics from USD, and Greg has a degree in Computer Graphics & CAD from BHSU.

They have five wonderful grandchildren, four girls, and one boy who of course are all very, very talented, very, very beautiful, and very, very smart. Some are close by so she can enjoy their school activities.

They sold the store, Andes Pharmacy, in 1990 to Dennis Wollman of Freeman, SD, after Jerry had a heart attack and bypass surgery Connie went back to work for Dennis an average of 25 to 30 hours a week, and still is there. She was grateful to be able to be home when the boys were still around, and so now she is "paying back". She is part of a dying breed in the profession. The small town druggist is bring forced out by many outside influences, but she feels that they do fill a need and that, in some way, she helped someone every day. In this particular area they deal with a lot of Native Americans and many young parents. Connie freely shares advice with them from the wisdom she has garnered over these many years.

Things she enjoys the most are traveling, shopping, reading, playing cards (bridge) and attending concerts and theatrical productions. Connie feels fortunate to have been able to tour parts of Europe twice and took a great family cruise to Alaska. She is also a 50 year member of the P.E.O. sisterhood and it has been an important part of her life.

As a couple Jer and Connie had great fun taking bus trips with El Riad Shrine Chanters to the Midwest Shrine Conventions in the late 70's and 80's. Connie bowled and played golf for a number of years but finally faced the fact that she is not an athlete. Another source of enjoyment is the family cabin they own at Iron Creek Lake about 11 miles from Spearfish. The opportunity to get the cabin with the help of another pharmacist, Myron Weber who met our son Jerry out here one day...

The saddest part of their lives was caused by the death of their parents, good friends and relatives. Jerry's father died at the age of 55, and her parents died in their early 70's. Jerry's mother lived to be 96 and then Jerry died in 2004 at the age of 69.

In the past ten years she has been fortunate to be able to get re-acquainted with best friends from high school and college with several great visits. It has been like an unexpected gift, and she is so happy it was possible. At the present she is anticipating getting her knees "fixed", but hopes to see you all at the reunion, Lord willing and the boat don't sink."

Congratulations Connie!

Doug Berkley

Doug was born in Elgin, Illinois and graduated in 1954 from Dundee High Scholl in Illinois. He graduated in 1959 from South Dakota State University with a BS in Pharmacy.

Doug was commissioned 2nd Lt. in the United States Air Force in Alabama from 1960 to 1963. He was a Pharmacist and partner at Northside Drug and Stout Drug in Aberdeen from 1963 to 1967, then a pharmacist at Walgreen Drug in Aberdeen from 1967 to 1973. Doug and his wife Rhoda (SDSU '59) purchased the Medical Center Pharmacy in Aberdeen in 1973, as well as the Plaza Pharmacy in 1976 and the Dakota Square Pharmacy in 1994. Doug retired in 1997.

During the 20 some years he owned and operated the pharmacies, he was also a preceptor pharmacist for many SDSU students. He was also a Nursing Home Consultant during his career and serviced over 400 beds. Doug served on many community boards throughout his career. In 2001, he received the Honorary President's Award and in 2004 he was honored with the Bowl of Hygeia Award.

Doug and his wife have been married 50 years this year and have three sons, Jon, Michael, and David. They have three grandchildren Jenna, Trevor, and Cole. They reside in Aberdeen and spend the winter months in California.

Congratulations Doug!

Prestigious Group 50-Year Pharmacists continued

Robert L Gregg

Robert (Bob) Gregg, was born at White River, SD on March 2, 1932. He grew up on a ranch north of White River, and graduated from White River High School in 1949. He worked a year and then attended SDSU. In 1953, he was called to Army duty and served in Korea in the Medical Corp in Tokyo, Japan at a United National Medical Laboratory.

After service, he returned to SDSU's Pharmacy School. In 1956, Bob and Julie Tyler from Canistota were married. They have three children, seven grandchildren and five great-grandchildren.

Bob & Julie operated Kennebec Drug in Kennebec from 1959 to 1979, and Gregg Drug in Chamberlain from 1978, through 2003. Bob is currently working as a part-time pharmacist for Casey Drug in Chamberlain.

Bob served as a SD Pharmacists Association officer and was President in 1986. He served as a member, chairman of the Board of Pharmacy, and served 13 years on the Advisory Council of the College of Pharmacy. He served in the office of the Rosebud District of the Association and was a delegate to Legislative Days many times. Bob served on a number of national Pharmacy Organizations committees.

Bob received the Bowl of Hygeia in 1992, and received the Hustead Pharmacist of the Year Award in 1996. He has been involved in many community affairs and endeavors over the years, serving in a number of offices of local organizations.

For leisure activities, Bob has remained involved in horse related activities, He has organized and led trail rides and been involved in many other horse activities and is still riding.

Bob has received the SD Horse Council sponsored Horseperson of the Year Award in 1999. He has participated in the Custer State Park Buffalo Roundup as a core rider for 15 years. Last summer, he and his 12-year old granddaughter Joey participated in the 1880 Trail wagon train from Ft. Pierre to Deadwood, and he hopes to ride with grandchildren and friends on more trails this year.

Congratulations Bob!

William (Bud) Pederson

William graduated from Garretson High School in 1954 and South Dakota State College in 1958. He was an intern at Lewis Drug in Sioux Falls from June 1958 to June 1959 at which time he passed the exam and became a Registered Pharmacist. He was employed at Lewis Drug until October of 1959 when he entered the US Army. He was in the Army from October 1959 to April 1962. William spent most of that time at Fort McPerson, Georgia as a Pharmacy Officer. After his Army time he moved to Rapid City where he was employed at Mills Drug Store for ten years until the store was sold. William then went to work at Boyd's Pharmacy for the next five years. He then went to work for Vere Larsen at Larsen Drug in Alcester. In 1981, he and his wife purchased the store from Vere Larsen, and changed the name of the store to Alcester Drug. In 2000, they sold the store to Arne Anderson of Canton. William is presently semi-retired.

While in Alcester, William has been active in the Alcester Lions Club having serve every office (twice as president) and is currently the club secretary. He has served on the city council and church council, where he is currently the treasurer. William also served 20 years as an EMT with the Alcester Volunteer Ambulance.

In May of this year, William and his wife Donna celebrated their 50th wedding anniversary. William and Donna have four children. Rochelle is a graduate of the University of South Dakota and is an elementary teacher in Tonopah, NV; Jeff is also a graduate of USD, and is a CPA, and currently the president of Hagan Benefits in Sioux Falls; Roxanne is a graduate of SDSU and is currently a Sonographer at Avera McKennan in Sioux Falls, and Renee is a graduate of Northern State University and is currently an Instrumental Music Teacher in White Lake, SD.

Congratulations Bud!

PRESTIGIOUS GROUP 50-YEAR PHARMACISTS CONTINUED

Derald R Hughes

After graduation from SDSU in 1958, Derald worked his internship at Mt. Sinai Hospital in Minneapolis. He married Barbara Baxter, June 28 1959 and went to work at Stout Drug in Aberdeen.

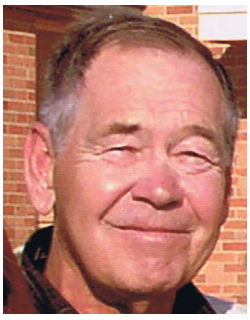
To fulfill his US draft obligation he chose the six month training and was assigned to Fort Leonard Wood. After completing that duty he worked at Memorial Hospital in Watertown. Derald also worked at Haggar Drug before opening his own clinic pharmacy on 4th Street North East in Watertown in November 1967.

As part of the 4th Street Pharmacy he served Jenkins and Clear Lake Nursing homes with a daily unit dosage system. To accomplish the demand and fulfill the drug store duties he surrounded himself with dedicated and loyal, hardworking employees.

After selling the store in 1988 Derald enjoyed relief pharmacy in DeSmet, Madison, Parkston, and Faith. He has three daughters, Mrs. Diane (Alan) Stoick of Kent, Washington; Mrs. Nadine (Trent) Steichen of Ridgecrest, CA and Mrs. Janet (Troy) Johnson of Lakeville Minnesota. Derald and Barb have seven grand children.

Congratulations Derald!

Willliam Syverson



William was born in Madison, SD on March 12th 1934, the son of a pharmacist, Ralph Syverson #2609 and the grandson of a pharmacist, R.B. Syverson # 96.

He grew up in a prescription room in Redfield, SD where his dad had a drug store. He received his apprenticeship license when he was 15 and never looked back.

He graduated from Redfield High School in 1952 and after a hitch in the marines he attended pharmacy school at the University of Wyoming and graduated there in 1959.

William married Myrna Barrie of Turton, SD in 1959 and was blessed with 4 children and 14 grandchildren. He ran the family drug store for a few years then went to work at the Veterans Administration Hospital in Long Beach, California.

He retired there in 1996 and spent his retirement years between Long Beach and Turton, SD.

He sends best wishes to the new registrants. They have chosen on of the finest professions in the world. One that will reward them beyond their wildest dreams.

Congratulations William!

The Burden of Diabetes in South Dakota—Common, Costly, and Controllable

South Dakota Diabetes Prevention & Control Program
A New Wave of Life

- The prevalence of diabetes among Native Americans was 11% – nearly twice the prevalence of Whites (6.7%)
- Native Americans have a lower average age at death than Whites-66 years vs. 80 years respectively
- Native Americans are more likely to die from diabetes than Whites (8.6% vs. 3.2%)
- Of those making less than $25,000, 10.9% have diabetes versus 4.8% of those making more than $50,000 per year

From The Burden of Diabetes in South Dakota produced by the South Dakota Department of Health Diabetes Prevention & Control Program (DPCP). The full burden report , along with the Recommendations for Management of Diabetes in South Dakota guidelines and the South Dakota Diabetes State Plan 2007-2009 are available at http://diabetes.sd.gov or from the DPCP at (605) 773-7046 or colette.hesla@state.sd.us. These publications were developed as part of a statewide initiative to improve the health care of people at risk for and with diabetes.

Academy of Student Pharmacists

Jenna Kucera
APhA-ASP President

Greetings from APhA-ASP!

As I get older, I start to realize what my mother meant by time flies by. It seems as though finals were last week, and now the 4th of July is around the corner. I hope everyone slows down and sips lemonade with family and friends. APhA-ASP uses summer as a time to reflect, prepare, and plan for the fall semester. I would like to start by thanking the South Dakota Pharmacists Association for inviting us to participate in the Annual SDPhA Convention held in Watertown on June 5th-7th. We had a fantastic time playing Jeopardy!

Before the spring semester ended, APhA-ASP took part in the Student Recognition Program on April 30th. During the program I announced the APhA-ASP Members of the Year. Congratulations to the following recipients: Pre-Pharmacy- Kelci Owen, P1-John Weitgenant, P2-Curtis Wong, P3-Claudia McIntosh, and P4-Kate Rochleau. Each member went above and beyond his or her duty to develop our chapter into an award winning chapter. Thank you all for your hard work and winning attitude. Also, APhA-ASP hosted the annual P1 Ice Cream Social for the incoming P1's. APhA-ASP would like to thank former Dean Houglum who spoke to the students and passed on advice. The social allowed the new students to meet each other and hear from the professional students and organizations.

The fundraising committee and APhA-ASP would like to thank everyone who helped out and/or attended the annual APhA-ASP auction which was held on April 2nd in Sioux Falls. It was a great success, and we raised over $4000. Our chapter will use that money to defer costs for regional and national meetings attended by our student pharmacists. I would like to especially thank the Fundraising Co-Chairs; Matt Hines, Michelle Eykamp, and Joe Rose. These individuals are responsible for organizing the auction and making it the great success it was. We hope that you'll join us again next year. Also, they are selling College of Pharmacy cookbooks for $20. Each cookbook has over 900 recipes submitted by students and professors. Email Michelle (mleykamp@jacks.sdstate.edu) if you would like to purchase one.

As Fall 2009 semester approaches, APhA-ASP prepares for upcoming events. Kayley Lyons, President-Elect, is attending the Student Leadership Institute in Washington, DC on July 10th-12th. At the meeting she will learn new techniques and tools to help pave our chapter's future. Co-chairs prepare for the 2nd Annual APhA-ASP Student Organizational Fair to be held on Tuesday, September 8th from 3:00-6:00 with the Welcome Back Picnic to follow. The picnic has been sponsored by the South Dakota Pharmacists' Association the past several years, and we greatly appreciate the support. Since the fair and picnic have been such a success in the past, we have decided to hold membership sign-ups at them both. Students will have the option of signing up online, so those who choose to should bring a credit card.

For those who enjoy running, biking, and swimming either competitively or for fun, APhA-ASP is currently organizing a mini "Iron Pharmacist". The date has not been set, but should take place in September. For updates on this event, visit http://studentorgs.sdstate.org/asp/.

I would like to conclude by thanking our advisors Dr. Teresa Seefeldt and Dr. Kelley Oehlke for their service, support, and guidance. They have wonderful ideas and are always a pleasure to work with.

Sincerely Yours,

Jenna Kucera
APhA-ASP President
South Dakota State Chapter

SD Society of Health-System Pharmacists

Jodi Wendt

SDSHP President

Greetings from SDSHP:

On behalf of the South Dakota Society of Health-System Pharmacists, I hope you are enjoying your summer. Here is a brief update of the activities of SDSHP.

Our annual convention took place April 16th and 17th at the Holiday Inn in Sioux Falls. There were over 120 convention participants, 22 exhibitors, and 16 poster presentations by pharmacy practice residents and graduate students, making it the largest annual meeting in the history of the Society. Doug Smith was recognized as Pharmacist of the Year and Deb Cummings was named Technician of the Year. Thank you to all who attended and contributed to the success of the convention. We will host the 2010 convention in Rapid City on April 9th and 10th at the Holiday Inn. We hope to see you there!

Over the past year we have had the opportunity to collaborate with other pharmacy organizations within our state including SDPhA, SDAPT, the SD Board of Pharmacy, and the SDSU College of Pharmacy. The SD Pharmacy Alliance has served as a forum to discuss important issues facing South Dakota pharmacists and to improve services to our members. As a result of the alliance, joint continuing education programs have been made available to pharmacists . More recently, the alliance has worked to draft an initiative to provide a more unified representation of pharmacy when addressing legislative issues in Pierre.

The Gary Van Riper Golf Open and Scholarship Dinner will take place July 24th at Bakker Crossing golf course in Sioux Falls. Proceeds from the event go towards scholarships for SDSU pharmacy students. Registration and event information may be found on our website at www.sdshp.com.

I would like to take this opportunity to recognize and congratulate two of our SDSHP members. Eric Kutscher, immediate SDSHP past president, received the Distinguished Young Pharmacist award presented by Pharmacists Mutual at the recent SDPhA convention. Tom Johnson is the first South Dakota pharmacist to earn fellow distinction from the American Society of Health-System Pharmacists (ASHP). Both of these individuals have contributed significantly to our profession - congratulations!

We welcomed new board members this Spring. New and continuing board members include: Jan Opperman, President Elect; Eric Kutscher, Past President; Gary Van Riper, Secretary; Kelley Oehlke, Treasurer; Erin Christensen, Member At Large; April Schultz, Member At Large; Wendy Schulte, Student Member; Curtis Wong, Student Member; and Jolene Kujawa, Technician Member.

Thank you for your support of SDSHP. Please visit our web page for up to date information on CE opportunities and organizational events.

Jodi (Hurd) Wendte, Pharm.D.
President
South Dakota Society of Health-System Pharmacists
www.sdshp.com

Announcing the 8th Annual
Gary Van Riper
Society Open Golf Classic
and
Scholarship Dinner

Bakker Crossing Golf Course
47172 Clubhouse Rd.
Sioux Falls, SD 57106
(605) 368-9700
Date: July 24th, 2009
Registration / Lunch / Driving Range at 11:00 AM
Shotgun start at 1:00 PM
Deadline to register July17th

Contact:
Sanford USD Medical Center Pharmacy
Attn: Tyler Turek
1305 W. 18th St.
Sioux Falls, SD 57117
turekt@sanfordhealth.org
Phone: 605-333-4288 or 605-261-4455
Fax: 605-333-1572

Includes range balls, 18 holes of golf, a shared cart, lunch, supper, freebies, and a whole lot of FUN!!!

SD Association of Pharmacy Technicians

Ann Oberg
SDAPT President

Is it Summer yet?
Is it just me, or does it seem like we have gotten a late start on summer this year? I keep hearing people complain about the cold temperatures in the first part of June. Don't worry—Warm weather is on the way!

Convention update: Thanks to the efforts of Sue, Jenny and the officers of SDPhA, we had a big turnout for technicians this year the SDPhA convention in Watertown. The "Free Friday" afternoon session for the first fifty technicians was a great incentive. I personally want to thank SDPhA for their support in offering that option this year. Kudos to our SDAPT fundraising committee! Sue DeJong spearheaded the committee and put together a design for the t-shirts. We all agree that she and the committee did a fantastic job designing and selling the t-shirts at our booth and during the convention. Thanks to all the pharmacists and technicians that purchased shirts. We know that "Pharmacy Techs are Indispensable" and now so will everyone else! Sue said she will be taking orders for shirts if you still want to purchase one. We may also be selling them at our fall meeting.

SDAPT Fall Business meeting and Continuing Education
The date for the fall meeting has been set for Saturday, October 10th, 2009 in Sioux Falls. The meeting will be held at the Avera Education Center in the Orthopedic Institute building located on the Avera McKennan campus. We are starting earlier this year in order to provide 5 hours of CE and make it worthwhile for those traveling a distance. The meeting will start with registration and check in at 8:00 a.m. and the CE's will start at 8:30 a.m. SDAPT is pleased to announce we will be having a technician speaker from the 2008 ASHP Midyear meeting, Barbara Hintzen. Barbara is the Inpatient Pharmacy Operations and Purchasing Manager at University of Minnesota Medical Center-Fairview. Her presentation, entitled "Pharmacy Technician Roles in Process Improvement: Challenges and Opportunities", details how she implemented changes to save the pharmacy department thousands of dollars. Other topics include an hour on law for those who need that for recertification and other great local pharmacists presenting on their area of expertise.

For all current members, your membership will be expiring at the end of August. Our dues will remain at $35 for the year and a membership renewal form will be on the website (www.sdapt.org) in August. We will be trying something new this year by emailing out a reminder to renew your membership. I encourage you to continue your SDAPT membership so that you can network with other technicians and actively participate at our annual fall meeting. As you recall, free registration for the SDAPT Fall Continuing Education and Business meeting is a membership benefit! Some other membership benefits are: SD Pharmacist Journal subscription (a $25.00 value), reduced registration fees for the SDPhA annual meeting (savings of $50), and the opportunity to impact the profession of pharmacy technicians by participating in the annual state meetings.

SDAPT Officer Nominations
SDAPT is looking for a few good men and women! We are in the process of looking for some good volunteers that are interested in becoming officers in our organization. Per our constitution and bylaws,
"The officers of the Association shall be President, Immediate-Past President, President Elect, Secretary and Treasurer. The President Elect shall be elected biannually and shall ascend successively to the office of President and Immediate Past President; serving for two years in each of these positions. All officers shall be elected biannually, but may not hold the same office for more than two consecutive terms. No person may hold more than one office concurrently. The officers shall presently be members directly involved with the Association activities and shall have been a member the previous year. "
We have openings for President-Elect, Secretary and Treasurer. If you know of someone who is a current member and you would like to nominate them, please forward that information to our president-elect, Phyllis Sour at the email listed below. As we come to the close of another membership year, I would like to take this opportunity to thank the officers for their hard work and dedication to SDAPT. I also want to thank the members of the two state pharmacist associations, SDPhA and SDSHP, for their hospitality in allowing us to display at each of their conventions this year. Phyllis Sour, current president-elect and I represented SDAPT at both meetings this year. Last, but not least, I want to thank the membership for their support of SDAPT and for continuing to make it all possible. When I reflect on the past year, it is evident that we did not accomplish all that we set out to do. But the fact remains that this was a great year and we are all still working together to make the profession stronger. So, it is with a renewed spirit that I look forward with great hopes for the 2009-2010 membership year!

Ann, Phyllis, Sue, Nadine and Judy

"Ann, Phyllis, Sue, Nadine and Judy
Ann Oberg, President (akoberg@sio.midco.net)
Phyllis Sour, President-Elect (pep12009@rap.midco.net)
Sue De Jong, Secretary (sdejong99@hotmail.com)
Nadine Peters, Treasurer (nadine@pie.midco.net)
Judy Rennich, Past-president (jrennich@itctel.com)

2009 Convention Awards

Bowl of Hygeia
Lynn Greff

The *Bowl of Hygeia Award*, sponsored by Wyeth Pharmaceuticals, recognizes pharmacists for outstanding service in community. This years recipient was Lynn Greff.

Lynn received a BS in pharmacy at SDSU, has been the South Dakota Pharmacists Association's Black Hills District Secretary, and was member of NARD's geriatric specialty committee, a member of the American Society of Consultant Pharmacists Professional Affairs Committee, a Deacon of First Christian Church, and held a position on the Medical Advisory Committee for South Dakota Medicaid.

Distinguished Young Pharmacist
Eric Kutscher

The 2009 *Distinguished Young Pharmacist Award*, sponsored by Pharmacists Mutual Insurance Company was awarded to Eric Kutscher.

Eric graduated from the University of Iowa in 2001. He is a member of the South Dakota Pharmacists Association, American Society of Health-System Pharmacists, American Association of Colleges of Pharmacy, American College of Clinical Pharmacy, College of Psychiatric and Neurologic Pharmacists, International Order of DeMolay, Kaaba Shrine, Roosevelt Masonic Lodge, Kappa Psi Pharmaceutical Fraternity, National Alliance on Mental Illness, Phi Lambda Sigma National Pharmacy Leadership Fraternity, Rho Chi Pharmaceutical Honor Society, and past president of the South Dakota Society of Health-System Pharmacists.

Hustead Award
David Helgeland

The *Hustead Award* recognizes contributions or service during a career or significant accomplishments during a short period of time that impacts the profession in a positive manner. David Helgeland demonstrated the dedication, resourcefulness, service and caring that has made pharmacy one of the most respected professions in our country. This award also stresses the significance of David's professional career as well as the impact he has made on the profession, and his dedication to community service.

Honorary President's Award
Galen Jordre

The *Honorary President's Award* recognizes a career pharmacist who has not been the President of the Association. Galen Jordre was this year's recipient.

Galen graduated in 1968 from SDSU with a BS Degree in Pharmacy, and became a Pharmacy Officer for the US Army Medical Services Corps. After the Army he moved to Redfield to work at the SD Development Center. He then moved to Gettysburg and was owner of Jordre Drug. In 1986, he moved to Pierre and was the Executive Director of SDPhA and the Executive Secretary of the Board of Pharmacy. In 1997 he moved to Bismark, ND as the Executive Vice President of the NDPhA, ND Society of Health-System Pharmacists and the ND Pharmacy Service Corporation. He moved back to Pierre in 2004 and accepted a position as a Pharmacist Consultant for the SD Department of Health, a position he currently holds.

2009 Convention Awards con't

Innovative Pharmacy Award

Deidra VanGilder

Deidra VanGilder was the recipient of the *2009 Innovative Pharmacy Practice Award* on behalf of NASPA. Deidra was selected by demonstrating innovative pharmacy practices resulting in improved patient care.

Deidra received her Doctor of Pharmacy degree from the South Dakota State University in 2002. She has an impressively diverse array of outstanding contributions within many areas of pharmacy. She currently is an Assistant Professor of Pharmacy Practice at the SDSU College of Pharmacy and also maintains a clinical pharmacy practice at the Brown Clinic Pharmacy in Watertown.

District Salesperson of the Year

Jody Loberg	Aberdeen District
Jon Briney	Black Hills District
Rob Wallner	Huron District
Marli King	Sioux Falls District
Corey Weide	Watertown District
Jeff Smith	Yankton District

District Technicians of the Year

Carol Lund	Aberdeen District
Sheila Ottenbacher	Aberdeen District
Tami McGhan	Black Hills District
Meg Simonds	Huron District
Esther Lindwurm	Rosebud District
Louise Keenan	Sioux Falls District
Barb Skogland	Watertown District
Melinda Burtrand	Yankton District

2009 Convention Sponsors THANK YOU!

AmerisourceBergen

Pharmacists Mutual Companies

Bayer HealthCare

Walgreens

DAKOTACARE

Walmart
Save money. Live better.

McKESSON
Empowering Healthcare

BankWest

2009 Resolutions

Title of Resolution: Prescription Take Back Program
Do Pass

Purpose/Objective of Resolution: Encourages the South Dakota Pharmacists Association to work with the South Dakota Board of Pharmacy to develop a prescription take-back program

Whereas, prescriptions are being returned to South Dakota Pharmacies by families of patients who have passed on, persons who no longer need the medication, or a patient's prescription has been changed, leaving unused medications in the home; and

Whereas, the state of South Dakota does not have guidelines in place directing pharmacies on how to acquire, secure and dispose of these medications,

Therefore be it resolved that, the Black Hills District encourages the South Dakota Pharmacists Association to work together with the South Dakota Board of Pharmacy to research the possibility of a prescription take back program for South Dakota Pharmacies.

Submitted by, The Black Hills District. Spring Meeting, 2009

Title of Resolution: Legislative Grassroots Network
Do Pass

Whereas, the South Dakota Pharmacists Associations (SDPhA) advocates on the behalf of pharmacists, students, and technicians in the state of South Dakota,

Whereas, specialized pharmacy organizations advocate for specific areas of pharmacy practice,

Whereas, a unified voice is needed to effectively advocate for the profession of pharmacy in the realm of politics and public affairs,

Therefore be it resolved, that SDPhA will establish a legislative steering committee with representatives from all areas of pharmacy practice to execute a grassroots network throughout the state to educate and advocate for the profession of pharmacy.

Submitted by: The leaders of SDSHP, SDPHA, and SDAPT June 6th, 2009, SDPhA Business Meeting

Title of Resolution: DMEPOS Accreditation
Do Pass

Whereas, pharmacists have completed their professional degree, and

Whereas, pharmacists must be licensed in the state in which they are practicing, and

Whereas, pharmacists are taking care of their patients resulting in positive outcomes, and

Whereas, CMS has failed to exempt pharmacy from the required DME-POS accreditation, despite exempting several other professions from this requirement,

Therefore be it resolved, that we would like the SD Pharmacists Association to continue the fight for exemption of pharmacies from CMS DME-POS accreditation.

Submitted by: Rosebud District, Spring Meeting, 2009

WHAT YOU NEED TO KNOW AND DO IF YOU CHOOSE NOT TO BECOME ACCREDITED UNDER MEDICARE PART B!

For those suppliers who choose not to become accredited at this time, they will need to submit an amended CMS 855S application which reflects their voluntary termination. This will prevent the supplier from being revoked and subsequently barred from the Medicare program as cited in 42 CFR Section 424.535.

For pharmacists that choose not to become accredited but wish to remain a DMEPOS supplier in order to continue to bill Medicare for drugs and biologicals only, an amended CMS 855S application will have to completed. In addition to updating their application, the supplier must ensure that they have checked the appropriate boxes in Section 2 (c) to reflect which drugs and biologicals they will be providing to beneficiaries.

Providers and suppliers can find the latest version of the CMS 855S application form at http://www.cms.hhs.gov/cmsforms/downloads/cms855s.pdf

For a complete outline of this requirement, please click on the link below and it will take you to the latest CMS Medicare Learning Network update which provides the details as well.

See http://www.cms.hhs.gov/MLNMattersArticles/downloads/SE0903.pdf (this is a very informative piece)

We will continue to work on getting an exemption, but in the meantime, I wanted you all to see this…

Please let our office know if you have questions. Thanks and please fill out the form so you can continue to bill Medicare! Please share with others as well. Thanks.

AND THE LAW

By Done R McGuire Jr., R.PH., J.D

This series, Pharmacy and the Law, is presented by Pharmacists Mutual Insurance Company and your State Pharmacy Association through Pharmacy Marketing Group, Inc., a company dedicated to providing quality products and services to the pharmacy community.

Jurisdiction...

Because the United States has many different court systems, the law applied to your case can have a dramatic impact on the outcome. One important factor in any legal dispute is the jurisdiction. But what does that mean? Jurisdiction is defined as the power to hear and determine a case. Courts can have general jurisdiction or limited jurisdiction.

General jurisdiction courts can hear and decide almost all types of cases. An example would be the district or superior court in your county. In a typical situation where a pharmacist is sued by a patient, this would be the forum where the case would be heard. However, there are other situations where this would not be true.

Pharmacies that do a significant amount of business out of state and have registered as a non-resident pharmacy with that state's board of pharmacy are probably subject to the jurisdiction of that state's courts. Long Arm Statutes have been enacted in most states. These laws allow local courts to have jurisdiction over non-resident defendants in certain circumstances. If an error occurs on a prescription sent to another state and the patient is harmed, the pharmacy could have to defend the case in that patient's locale. This can be inconvenient and expensive for the pharmacy, but it is a potential price the pharmacy would pay for doing business in that state.

Pharmacists could also end up in another state's court due to a contract which they signed. Parties to a contract may agree to a particular jurisdiction in the contract. Then in the event of a breach of that contract, the parties do not have to contest the proper jurisdiction because it has been agreed upon in advance. Pharmacies may enter into contracts with many different vendors, each of which may stipulate to a different jurisdiction. This could result in the pharmacy defending a breach of contract claim in a far away state.

Courts of limited jurisdiction are limited to hearing only certain subject matters. Examples of these would be a small claims court or a probate court. Patients could bring cases against their pharmacist in small claims court, but their ultimate recovery would be limited by the jurisdictional limit of the small claims court.

Interestingly, Federal courts are courts of limited jurisdiction. The structure of the Federal court system parallels the structure of most state court systems. While the trial courts in state systems are courts of general jurisdiction, the Federal trial courts are not. Federal court jurisdiction is limited to two types of cases. Federal Question jurisdiction consists of cases involving disputes arising under the U.S. Constitution or the laws and treaties of the United States. The other Federal jurisdiction is Diversity jurisdiction. This occurs when the opposing parties come from different states. Therefore, it is possible that the case described above where the pharmacist sent prescriptions out of state could be brought in Federal court if the jurisdictional amount was met. Diversity jurisdiction requires the amount in controversy to exceed $75,000. Smaller cases will be relegated to the state courts even though the opponents are from different states.

In either a general or a limited jurisdictional court, the court must have both subject matter and personal jurisdiction. That is, the court must have jurisdiction over both the subject of the case and over the parties involved. Most often, courts of limited jurisdiction are limited because of the subject matter of the case. A court's jurisdiction over a person results from the person's physical presence in the state, but jurisdiction over a person can be expanded by the Long Arm Statutes previously mentioned.

If a party feels that the court doesn't have the power to hear and decide the case, the party should file a motion asserting the lack of personal or subject matter jurisdiction (or both) with the court. The judge can also rule on the subject of jurisdiction on their own initiative. If a court does not have jurisdiction, then the judge should dismiss the case from that court's docket. However, the plaintiff is then free to file the case in the proper court. A court without jurisdiction over a case cannot issue a valid decision in that case. Any judgment issued by a court without proper jurisdiction is void.

In summary, most cases involving pharmacists or pharmacies will typically be heard in their local courts. However, certain activities or contractual agreements could result in the pharmacist dealing with a case in a distant jurisdiction. The law in that jurisdiction may or may not have an impact on your case, but nonetheless the distance involved will make the case more bothersome.

Don R. McGuire Jr., R.Ph., J.D., is General Counsel at Pharmacists Mutual Insurance Company.

Pharmacy Time Capsules
2009 (Third Quarter)

1984—Twenty-five years ago:

- National Patient Counseling Competition for student pharmacists inaugurated.
- George C. Glenner discovered that a principal component of the plaque in the brains of Alzheimer patients was a peptide, now termed beta-amyloid peptide.

1959—Fifty years ago

- The independent Southern School of Pharmacy merged with Mercer University.
- All state boards but one require an applicant for registration to have completed one year of practical experience.

1934—Seventy-five year ago

- Arizona, Delaware, Massachusetts, Nevada, New Mexico, Tennessee, and Vermont did not require graduate forma college of pharmacy as a prerequisite to take the board of pharmacy licensing exam
- Annual dues for membership in the Conference of Pharmaceutical Association Secretaries was $5.00

1909—One hundred years ago

- Most states pay pharmacy board members $5 per day plus actual expenses
- Centennial of the birth of Charles Darwin.

By: Dennis B. Worthen Lloyd Scholar, Lloyd Library and Museum, Cincinnati, OH

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October is American Pharmacists Month...

What are you doing to Celebrate?

Redfield Native named Distinguished pharmacy grad at SDSU

Ashley Allcock Hansen just earned her doctor of pharmacy degree May 9 from South Dakota State University, but her curriculum vitae is already six pages long. And there's not an ounce of fluff in it.

"I've always been busy," she said. "I've always enjoyed being involved in all sorts of things. I have a hard time saying no."

SDSU College of Pharmacy Dean Dennis Hedge presents Ashley Allcock Hansen with her award as the college's distinguished graduate for 2009.

The most recent addition to her vitae is under the Awards and Recognitions category, where heading the list is Distinguished Graduate for the Class of 2009 for the SDSU College of Pharmacy.

"That was quite an honor, very unexpected," Hansen said. "I felt honored that my preceptors and faculty felt I was worthy of such an award. It's nice to be recognized when you try hard."

"Try hard" is an understatement, according to Joe Strain, who served as Hansen's preceptor at Rapid City Regional Hospital, where Strain says Hansen performed like a student at the end of her P4 year rather than the beginning.

"In the six years I have had P4 students, Ashley's write-ups were the most detailed that I have seen, especially in regard to specific drug therapy and monitoring," said Strain, clinical pharmacist and associate professor.

"She also pushed herself beyond the normal boundaries," he said.
"On a couple of occasions, there were drug levels being drawn in the evening, several hours after our typical day," Strain recalled. "Ashley's willingness to stay late enhanced her learning experience as well as decreased the work load of our pharmacists. This might sound like a simple task, but most students do not volunteer to do this."

Hansen says her husband, Rick, and his unwavering allegiance to her are no small part of her success.

"His support has been crucial," she said. "He is very understanding when I take up a new project, join another organization, or when I make him listen to me practice a presentation."

Among her long list of kudos, Hansen highlights several as personally noteworthy: being a winning team member of the 2008 South Dakota Clinical Skills Competition and Phi Lambda Sigma Member of the Year for 2007-08; serving as co-chair of the leadership challenge for the Phi Lambda Sigma Leadership Society in 2007; and attending a five-week seminar on palliative and end-of-life care in winter 2009 as an elective, final-year project.

The daughter of Arthur and Amanda Allcock of Redfield, Hansen has begun serving a year-long residency at Sanford Health in Sioux Falls. Her future aspirations are to work in a clinical position and, ideally, to teach.

SDAPT is offering Tech T-Shirts

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FINANCIAL FORUM

This series, Financial Forum, is presented by Pro Advantage Services, Inc., a subsidiary of Pharmacists Mutual Insurance Company, and your State Pharmacy Association through Pharmacy Marketing Group, Inc., a company dedicated to providing quality products and services to the pharmacy community.

Getting to Know the Economy

Prudent investing takes more than detailed knowledge about different types of investment strategies. It also requires a clear understanding of the economy and how it works. That said, here is a description of some of the more important economic reports that you as an investor need to know about:

Gross Domestic Product (GDP): Provided quarterly by the Bureau of Economic Analysis, GDP offers the proverbial "big picture" on the U.S. economy. It measures the value of all goods and services produced in the United States during a calendar year -- minus exports, government spending and products made by U.S. companies in foreign markets.

When GDP increases, the economy is said to be growing or expanding. When GDP declines, the economy is said to be slowing or decelerating. When GDP declines for two consecutive quarters, many economists consider the economy to be in recession.

Consumer Confidence Index: This index can give you a good idea of how Americans generally feel about the current economic environment and future expectations. The index is published monthly by the Consumer Research Center of the Conference Board and is based on a representative sample of 5,000 U.S. households.

When people are positive about these issues, the index tends to go up. When they are pessimistic, it tends to decline. A rise or decline in the Consumer Confidence Index can have a major effect on the way Americans spend money. This is important because consumers make up about two-thirds of U.S. economic activity.

Employment Cost Index: This index is used to monitor inflation by measuring changes in labor costs for money wages and salaries and non-cash fringe benefits in non-farm private industry and state and local governments for workers at all levels of responsibility. It is provided quarterly by the Bureau of Labor Statistics.

Index of Leading Economic Indicators (LEI or ILEI): The Conference Board provides this index every quarter. It consists of 11 economic reports, such as initial unemployment claims, stock-market activity, building permits, new orders for consumer goods, plant and equipment orders and sensitive material prices.

Since the LEI consists of so many varied economic reports, it is generally considered to be a helpful gauge of future economic activity. In fact, three consecutive increases in the LEI suggest that the economy may have begun a longer-term expansion.

Industrial Production: This index, provided each month by the U.S. Federal Reserve, offers an informed view on how key industries are faring. Specifically, it shows the change in output for three sectors: manufacturing, mining, and the gas and electric utility industries.

Consumer Price Index (CPI): This index tells you whether prices are rising or falling. It's published each month by the Bureau of Labor Statistics. The CPI tracks the price changes for a fixed basket of goods and services, from bread and milk to cars and energy.

Rising inflation is negative for the economy because consumers must spend more money to buy the same basket of goods and services. A decline in inflation is generally positive because consumers can spend less to buy the same basket of goods and services, leaving them more disposable income to help prop up the economy. However, negative inflation, or deflation, is unfavorable, because both people and businesses minimize spending in hopes of getting the same goods and services at lower prices later.

Unemployment Rate and First-Time Jobless Claims: The unemployment rate is the percentage of American workers who are out of work. “First-time jobless claims” is the number of people filing for unemployment benefits for the first time. These important indicators are provided by the Department of Labor.

When unemployment rises, fewer people are working and, therefore, fewer consumers are spending money -- a negative for the economy. When the job market shows strength, more people are working, so more consumers are spending money, which indicates economic growth.

A Final Word

All of these economic indicators can affect the stock and bond markets, but other factors also move prices -- such as short- and long-term interest rates, corporate earnings and earnings guidance from chief executives, geopolitical events and general investor sentiment.

When you confer with a financial professional, you can get a sense of how these factors may affect the financial markets. More importantly, your financial professional can help you understand the potential impact of these and other economic indicators on your investment portfolio.

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continuing education for pharmacists

Volume XXVI, No. 12

Hemorrhagic Stroke: Prevention and Treatment

Thomas A. Gossel, R.Ph., Ph.D., Professor Emeritus, Ohio Northern University, Ada, Ohio and
J. Richard Wuest, R.Ph., PharmD, Professor Emeritus, University of Cincinnati, Cincinnati, Ohio

Goal. The goal of this lesson is to discuss hemorrhagic stroke with focus on its clinical characteristics and treatment.

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

1. recognize epidemiologic information and clinical characteristics relevant to hemorrhagic stroke;
2. identify symptomatology that characterizes hemorrhagic stroke and the principles that govern clinical confirmation and management; and
3. select from a list specific therapeutic measures that are reported to modify signs and symptoms of hemorrhagic stroke.

Background

Every year in the United States, 700,000 persons suffer from stroke, and 200,000 of these events are recurrent. Approximately 270,000 persons die each year in the United States because of stroke, ranking it third in mortality behind heart disease and cancer. Hemorrhagic stroke (intracranial hemorrhage) accounts for approximately 13 percent of all strokes. Hemorrhagic stroke not only has a high case fatality, but also limited treatment options and a poor, most often disabling, outcome. Stroke leads to more long-term disability than any other disease process, and burdens the U.S. healthcare system by a reported $57.9 billion each year.

Gossel

Wuest

Subarachnoid Hemorrhage

Epidemiology. Subarachnoid hemorrhage (SAH) accounts for 21,000 to 22,000 strokes each year in the United States, affecting young adults predominantly. The risk for women is 1.6 times that of men, and the risk for African-Americans is 2.1 times that of whites. The average mortality rate is 51 percent. Approximately one-third of survivors require lifelong care. Most deaths occur within two weeks after the event, with 10 percent occurring before the patient reaches a medical facility and 25 percent within 24 hours after the stroke. Overall, SAH accounts for 5 percent of deaths from stroke, but for 27 percent of all stroke-related years of potential life lost before age 65. One-half to two-thirds of survivors report a decrease in their quality of life.

A number of risk factors for SAH have been identified. Hypertension, a well established risk factor for ischemic stroke, is less well characterized as a risk factor in SAH.

Pathogenesis. Nontraumatic SAH is a neurologic emergency characterized by bleeding into spaces surrounding the brain that are normally filled with cerebrospinal fluid (CSF). Recall that the brain and spinal cord are covered by three layers of connective tissue, termed the meninges, and encased in bone. The outer layer of the meninges is the *dura mater*, the middle layer the *arachnoid*, and the inner layer the *pia mater*. The arachnoid is a thin, delicate membrane. Separating the arachnoid from the pia mater is the subarachnoid space that contains CSF, which serves to cushion the brain and spinal cord. Bleeding into the subarachnoid space initiates a series of events that lead to spasms of the cerebral blood vessels. Spasm can significantly constrict these vessels, resulting in diminished cerebral blood flow. Blood flow is inversely proportional to the fourth power of the radius, so small changes in the vessel size can produce deleterious effects. If blood flow is reduced below the critical level needed to maintain membrane integrity, cerebral ischemia with edema formation and infarction may follow. Regional cerebral edema further compromises local blood flow causing further ischemia despite an overall normal intracranial pressure.

The principal causes of SAH are rupture of aneurysms and arteriovenous malformations (AV anomalies). Trauma can also cause subarachnoid bleeding. Ruptured aneurysms are the cause in 85 percent of patients.

Saccular Aneurysms. Saccular ("berry") aneurysms are thin-

walled outpouchings that protrude from arteries. They gradually enlarge and can ultimately rupture. Multiple aneurysms are found in about 15 percent of affected persons. Since the incidence of aneurysmal SAH is approximately one in 10,000, it is clear that most saccular aneurysms do not rupture. Surgical morbidity far exceeds these percentages. Following rupture, rebleeding is an early and devastating complication. Intracranial aneurysms, unless giant (greater than 1.5 cm in diameter), are usually asymptomatic. An estimated 5 to 15 percent of cases of stroke are related to ruptured intracranial aneurysms.

Clinical Characteristics and Confirmation. SAH should be suspected in persons complaining of a sudden onset of severe headache along with nausea and vomiting, neck pain or stiffness, photophobia and loss of consciousness. The classic symptom is a rapidly developing, severe headache. Patients typically describe it as the "worst headache of my life" or "like a hammer blow." In three out of four patients, onset occurs within a few seconds. It is the only symptom in about a third of patients. Headache from SAH is usually diffuse. Prodromal (warning) headaches may precede the actual SAH by several weeks in over 40 percent of cases. It is however, not the severity, but the suddenness of onset, which is the characteristic feature of SAH, a feature that patients may fail to mention because it is the severity of pain for which they seek medical attention. SAH is believed to be misdiagnosed in up to half of persons being evaluated for the first time. The most common incorrect diagnoses are migraine and tension-type headache.

Arterial pressure is often elevated and body temperature increased, especially during the first few days after bleeding since subarachnoid blood products produce chemical meningitis. Nearly half of all victims experience transient changes in mental status.

A number of neurologic complications can occur if a patient does not die immediately after a SAH. Some result from blood in the subarachnoid space. Other complications include rebleeding from the same aneurysm, cerebral vasospasm and its resulting ischemia leading to reduced blood supply, hydrocephalus (excessive accumulation of fluid in the cerebral area) from blockage of CSF outflow, and seizures. Non-neurologic complications include cardiac and electrolyte abnormalities.

Survivors of SAH may experience chronically disabling problems. More than half report problems with memory, mood or neuropsychological function. These deficits result in impairment of social roles, even in an absence of apparent physical disability. Up to two-thirds of survivors return to work by one year after a SAH.

Treatment. Patients with SAH should be evaluated and treated on an emergency basis. Following stabilization, they should ideally be transferred to a center with a dedicated neurologic critical care unit to optimize care. The primary goals of treatment are prevention of rebleeding, prevention and management of vasospasm, and treatment of accompanying medical and neurologic complications.

Medical management of a ruptured aneurysm is intended to reduce the risk of rebleeding and cerebral vasospasm and to prevent other medical complications before and after surgical intervention. The patient is provided general support including bed rest, gentle sedation as needed, analgesics for headache and stool softeners to minimize straining. Glucocorticoids may help reduce the headache and neck stiffness and/or pain caused by blood in the subarachnoid space. There is no solid evidence that they reduce cerebral edema, are neuroprotective or reduce vascular injury in SAH; their routine use is therefore not recommended. Hypertension, if present, should be treated but not aggressively since elevated blood pressure may be a normal compensatory mechanism, especially in a chronically hypertensive patient. At present, there is no conclusive evidence whether modifying blood pressure in acute SAH benefits the patient.

The calcium channel antagonist nimodipine (Nimotop) has an established role in decreasing vasospasm in all grades of SAH. A review concluded that calcium channel antagonists decrease the proportion of patients with poor outcome and ischemic neurological deficits after aneurysmal SAH. The results relating to poor outcome depend on one large trial, but against the background of the potentially devastating consequences of vasospasm, the use of nimodipine is indicated in all patients with non-traumatic SAH and should be started as soon as the diagnosis is made. A dose of 60 mg should be given every four hours orally or via a nasogastric tube. Nimotop carries a boxed warning to not administer the drug intravenously or by other parenteral routes because deaths and serious life threatening adverse events have occurred when the contents of the capsules have been injected parenterally. Blood pressure should be kept in the "high-normal" range in attempt to maintain cerebral perfusion pressure. If hypotension occurs, the dosage regimen may be changed to 30 mg every two hours.

Primary Intracerebral Hemorrhage

Nontraumatic intracerebral hemorrhage (ICH; within the brain substance) occurs mainly as a result of chronic, poorly controlled hypertension; spontaneous ICH refers to those cases that occur in the absence of trauma. A ruptured vascular malformation is responsible less often. Despite evidence that ICH is more than twice as deadly as SAH, clinical and laboratory research continues to focus primarily on SAH. Unlike the declining mortality with SAH due to improvements in surgical and critical care techniques, morbidity and mortality with ICH have remained

relatively unchanged over the past several decades.

Epidemiology. Primary ICH is one of the most devastating forms of stroke, and is responsible for about 80 percent of all intracranial hemorrhages in the United States, affecting approximately 67,000 Americans each year. ICH has the distinction of having the highest mortality rate of all types of stroke. Morbidity and mortality associated with ICH are dismal, with 30-day mortality ranging between 30 and 40 percent in hospital-based studies to as high as 52 percent in community-based studies. The annual mortality rate following 30-day survival was 8 percent per year for five years in one community-based study with almost half of all later deaths attributed to complications of the original hemorrhage. Only 21 to 28 percent of patients with ICH could live independently after six months.

The risk for primary ICH is estimated to be about twice as high in African-American, Hispanic and Japanese populations than in Caucasians. The reason for the large discrepancy among populations is unclear. Alcohol consumption and low serum cholesterol levels have been theorized to account for some differences in the Japanese population. There is a slight predominance of men with ICH versus women.

Pathogenesis. ICH is bleeding that occurs directly into the brain parenchyma (the functional tissue, as opposed to connective tissue). It is differentiated from intraventricular hemorrhage and SAH, which involve bleeding into the brain's ventricular system and subarachnoid space, respectively. ICH is classified as primary (unrelated to congenital or acquired lesions), secondary (directly related to congenital or acquired conditions), and/or spontaneous (not secondary to trauma or surgery). ICH typically consists of a large area of hemorrhaged blood that clots. Most hemorrhages occur at or near bifurcations of arteries (the point at which a vessel divides into two branches). The blood is slowly removed over the next several weeks by phagocytosis, and after several months, only a small collapsed cavity may remain. Large hemorrhages typically rupture into the ventricles with bleeding into the subarachnoid space.

It is believed that the initial hemorrhage encircles intact neural tissue, which causes neurologic deterioration attributed to the development of cerebral edema. This appears within hours secondary to the clot releasing plasma proteins into the underlying white matter. Later, delayed thrombin formation may contribute to neural toxicity directly or through damage to the blood-brain-barrier indirectly with subsequent worsening of edema. Peak edema occurs three to seven days following the hemorrhage along with lysis of erythrocytes. Both hemoglobin and its degradation products have been implicated in neural toxicity. The importance of cerebral edema in ICH has been supported by evidence suggesting that patients with a larger amount of cerebral edema relative to the initial hemorrhage volume have a very poor prognosis. Evidence from serial contrast computed tomography (CT) scans show that hematomas can continue to expand over many hours and is the natural course of disease progression. Bleeding may cease when the lesion gets to a size sufficient to produce increased tissue compression (tamponade).

Hypertension is the most important risk factor for ICH especially in persons younger than 55 years of age. It is estimated that approximately 25 percent of ICH events would be prevented if all hypertensive patients received adequate antihypertensive therapy to maintain normal pressure. Smoking, excessive chronic alcohol consumption (more than two drinks/day), and cocaine use (especially in persons older than 45 years) also increases the risk. It is unknown why cholesterol levels less than 160 mg/dL increase the risk.

Warfarin anticoagulation remains a highly effective therapy for prevention of thromboembolic stroke in persons with atrial fibrillation. Anticoagulation to an International Normalized Ratio (INR) of 2.5 to 4.5 has been associated with risk of ICH of approximately 1 percent per year for stroke-prone patients. On the other hand, this rate is nearly 10 times greater than the risk of hemorrhage in a matched group of persons who have not undergone anticoagulation. When such hemorrhages occur, the fatality rate averages 60 percent. Predictors are advanced age, prior ischemic stroke, hypertension, and intensity of anticoagulation therapy.

ICH is the most feared complication of thrombolytic therapy used in acute myocardial infarction or stroke. When a recombinant tissue plasminogen activator (rt-PA) (e.g., alteplase/Activase) is administered within three hours after onset of ischemic stroke symptoms, the ICH rate is 6.5 percent, compared with 0.5 percent in placebo patients. Half of the individuals who sustain these hemorrhages die. The overall benefit of rt-PA therapy in appropriate patients with ischemic stroke is more than counterbalanced by the risk of hemorrhage.

Clinical Manifestations and Confirmation. Although not associated with exertion, ICH usually occurs when the patient is awake and sometimes when stressed. The classic presentation is sudden onset of a focal neurologic deficit that progresses over minutes to hours with accompanying headache, nausea and vomiting, elevated blood pressure and decreased consciousness. The neurologic abnormalities are similar to those caused by ischemic stroke since destruction of neural tissue is the root cause of the dysfunction that results from either entity. Specific signs and symptoms are determined by the location of the lesion. Since the site of ICH often differs from ischemic stroke, characteristic patterns of neurologic loss may be more frequently associated with ICH

Table 1
Clinical features of intracerebral hemorrhage

	Site of Hemorrhage			
Symptom	**Putamen**	**Thalamus**	**Pons**	**Cerebellum**
Unconsciousness	Later	Later	Early	Late
Sensory change	Yes	Yes	Yes	Late
Pupils				
Size	Normal	Small	Small	Normal
Reaction	Yes	Yes or No	Yes or No	Yes
Response to nutrition	Yes	Yes	No	Yes or No
Ocular bobbing	No	No	Sometimes	Sometimes
Gait lost	No	No	Yes	Yes
Vomiting	Occasional	Occasional	Often	Severe

Adapted from Zivin JA. *Textbook of Medicine*, 22 ed. Philadelphia:Saunders;2004:2298-2305.

than with ischemic stroke. Hemorrhages may continue to enlarge over several hours as bleeding continues. Ischemic lesions, on the other hand, usually do not change in size following vascular occlusion. As a result, hemorrhages characteristically cause increasing loss of neurologic function with time until a plateau is reached, whereas ischemic strokes may remain static or fluctuate after the early phases of the stroke. About one-fourth of patients who initially are alert may show subsequent deterioration in their level of consciousness after an ICH. ICH in each of the four typical locations within the brain produces characteristic findings (Table 1).

ICH often cannot be confirmed based on clinical findings alone. The test of choice for assessing the type of stroke is CT. Head CT provides substantial information including the size and location of the hemorrhage, and the presence of intraventricular, subarachnoid or subdural blood. It differentiates ICH from nonhemorrhagic cerebral infarctions and may reveal underlying structural abnormality. Magnetic resonance imaging (MRI) is sensitive for ICH; it is useful for dating hemorrhages and identifying small vascular lesions that may be missed with conventional CT. MRI is limited in early detection of ICH, time required to obtain imaging and by the limited ability to monitor patients while in the scanner.

Treatment. No surgical or medical treatment has proved effective, although an estimated 7,000 surgeries to remove hemorrhaged blood are performed in the United States each year. Supportive treatment is the usual means to manage acute ICH, with early care given to maintenance of airway, oxygenation and nutrition, and treatment of secondary complications. Clinical trials of corticosteroids, glycerol and hemodilution (increasing plasma volume in relation to erythrocytes), have not demonstrated benefit. Corticosteroids, in fact, may increase the risk of infectious complications. There is no accepted means for management of increased intracranial pressure. Hyperventilation, neuromuscular paralysis and osmotherapy (treatment by the intravenous injection of hypertonic solutions to produce dehydration) are without significant benefit. Fluid management should maintain a normal volume (euvolemia). Seizures should be treated despite a lack of data from randomized trials, since they can be particularly harmful for critically ill patients. Maintenance of normal body temperature is desirable and fever should be aggressively treated with acetaminophen or cooling blankets since fever may accelerate tissue destruction.

Prognosis. Most early deaths result from the direct neurologic consequences of the hemorrhage. The severity of bleeding (e.g., size, extension into ventricles) and level of neurologic function are the best predictors of poor outcomes. Long-term prognosis for various degrees of recovery is similar or better than that of cerebral infarctions of comparable severity. The risk of recurrent ICH has not been well studied, but the risk of at least one rebleed may be as high as 25 percent over the next several years. The risk of ICH can be reduced by appropriate treatment although there is no specific therapy. Control of mild to moderate hypertension decreases the risk of hemorrhagic stroke by one-third to one-half.

Summary and Conclusions

All patients with suspected stroke require rapid assessment and intervention. Assessment aims to establish the diagnosis of stroke and its etiological subtypes, and to estimate the prognosis for complications, recurrent events, survival and handicap. Intervention strives to reverse any ongoing brain hemorrhage or ischemia, lessen the risk of complications and recurrent stroke, and optimize physiological homeostasis and rehabilitation.

The content of this lesson was developed by the Ohio Pharmacists Foundation, UPN: 129-000-08-012-H01-P. Participants should not seek credit for duplicate content.

Continuing Education Quiz

"Hemorrhagic Stroke: Prevention And Treatment"

1. Most deaths from subarachnoid hemorrhage (SAH) occur within:
   a. two minutes. b. two hours.
   c. two days. d. two weeks.

2. The arachnoid is the thin, delicate membrane that constitutes which of the following layers of the meninges?
   a. Inner b. Middle c. Outer

3. The principal causes of SAH are arteriovenous malformations and rupture of:
   a. aneurysms. b. plaque
   c. arterioles. d. granulomas.

4. The classic symptom of SAH is severe:
   a. cramping. b. depression.
   c. headache. d. syncope.

5. General support for patients experiencing an SAH include all of the following EXCEPT:
   a. antiemetics. b. analgesics.
   c. sedatives. d. stool softeners

6. Spontaneous intracerebral hemorrhage (ICH) refers to those cases that occur in the absence of:
   a. syncope. b. symptoms
   c. thromboembolism. . d. trauma.

7. The bleeding associated with ICH occurs directly into the brain parenchyma which is:
   a. connective tissue. b. functional tissue.
   c. interstitial tissue. d. mesenteric tissue.

8. The most important risk factor for ICH, especially in persons younger than 55 years of age, is:
   a. hyperkalemia. b. hyperlipidemia.
   c. hypertension. d. hyperthrombosis.

9. The root cause of the dysfunction that results from either ICH or ischemic stroke is:
   a. destruction of neural tissue.
   b. initiation of arterial fibrillation.
   c. precipitation of ventricular tachycardia.
   d. rupture of atherosclerotic plaque.

10. Which of the following has been proven to be effective in treating ICH?
   a. Medical treatment only
   b. Surgical treatment only
   c. Both medical and surgical treatment
   d. Neither medical nor surgical treatment

This course expires on: June 30, 2012
Target audience: Pharmacists and Technicians

The South Dakota State University College of Pharmacy is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. The Universal Program Identification numbers for this program are: #063-999-09-024-H01-P, #063-999-09-024-H01-T.

To receive 1.5 Contact Hours (0.15 CEUs of continuing education credit, read the attached article and answer the 10 questions by circling the appropriate letter on the answer form below.

A test score of 70% or better will earn a Statement of Credit for 1.5 Contact Hours (0.15 CEUs) of continuing pharmaceutical education credit. If a score of 70% is not achieved on the first attempt, another answer sheet will be sent for one retest at no additional charge.

Learning Objectives - Pharmacists: 1. Recognize epidemiologic information and clinical characteristics relevant to hemorrhagic stroke; 2. Identify symptomatology that characterizes hemorrhagic stroke and the principles that govern clinical confirmation and management; and 3. Select from a list specific therapeutic measures that are reported to modify signs and symptoms of hemorrhagic stroke.

Learning Objectives – Technicians: 1. Identify the classical symptom of Subarachnoid Hemorrhage (SAH); 2. Identify the risk factors for Intracerebral Hemorrhage (ICH); 3. Identify the root cause of the dysfunction that results from either ICH or ischemic stroke;

"Hemorrhagic Stroke: Prevention and Treatment"

(Knowledge-based CPE)

Circle the correct answer below:

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	C	D
4.	A	B	C	D	9.	A	B	C	D
5.	A	B	C	D	10.	A	B	C	D

Course Evaluation – must be completed for credit.

	1 Disagree			-			**7 Agree**
Material was well organized and clear:	1	2	3	4	5	6	7
Content sufficiently covered the topic:	1	2	3	4	5	6	7
The learning objectives were satisfied:	1	2	3	4	5	6	7

List any learning objectives above not met in this course:

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Continuing Education for Pharmacy Technicians

Calculations in Pharmacy Practice

D.L. Parsons, Ph.D.
Professor
Auburn University Harrison School of Pharmacy

and

Jared Johnson, Pharm.D.
Assistant Clinical Professor
Auburn University Harrison School of Pharmacy

OBJECTIVES

After reading this article and working the sample problems the reader will be able to:

1. Apply a method of performing pharmacy calculations that minimizes errors.
2. Interpret common Roman numerals in prescriptions.
3. Define percentage strength for various mixtures and solve problems involving percentage strength.
4. Define ratio strength for pharmaceutical products and solve problems involving ratio strength.
5. Perform the calculations necessary to determine quantity dispensed, dosage, and days' supply for prescriptions.
6. Solve math problems encountered with parenteral products including the flow rate of intravenous fluids.

INTRODUCTION

Pharmaceutical math is not a unique math subject since the vast majority of problems can be solved by simply using multiplication and division. What is unique in pharmacy practice calculations is the medical and pharmaceutical definitions and abbreviations used in this subject. While only a few of these definitions and abbreviations will be covered here, others may already be known by the reader or may be found when needed.

The primary objective of this article is to teach a method of problem solving that can be applied to almost every math problem encountered in the practice of pharmacy, even the most complicated ones. Exceptions include problems where two different strength products of a drug (e.g., 20 percent and 70 percent) must be mixed to obtain an intermediate strength preparation (e.g., 50 percent), and problems involving the preparation of isotonic solutions. These latter problem types are uncommon in most pharmacy practice settings. Once this method is mastered, accurate answers are essentially guaranteed as long as one is careful in the final calculation. This is especially important in pharmaceutical calculations since a simple math error can result in the serious injury or even death of a patient. For this reason, even though the method essentially guarantees an accurate answer when used properly, it is still important that you verify your final answer. This is best accomplished by having someone else solve the problem independently rather than having them check your solution.

PROBLEM-SOLVING METHOD

The method of problem solving presented here (sometimes referred to as dimensional analysis) is based on the collection and use of facts in "extended unit" format. The use of only simple units such as g or mL can often lead to incorrect answers. However, the use of complete or extended units such as "g of drug" vs "g of powder" or "mL of concentrated solution" vs "mL of final solution" can eliminate errors in problem solving. Especially at first, the use of extended units may seem very slow, tedious and unnecessary, especially for simple problems. However, they are necessary if you wish to ensure accurate answers for the more complex problems you may eventually encounter. This method also allows complex problems to be solved in a single step. With practice, the use of extended units becomes much faster and easier.

The facts you will gather to solve any problem will usually be in the "per" or "equals" format. For example, 500 mL of solution per bottle or 1000 mg = 1 g. Such facts should be converted to the following format:

$$\frac{500\ mL\ sol}{bottle},\quad \frac{1000\ mg}{g}.$$

For use in **calculations only,** times per day abbreviations are best converted into doses per day. For example, BID (twice a day) and QID (four times a day) are best converted to:

$$\frac{2\ doses}{day}\ and\ \frac{4\ doses}{day}.$$

To solve a problem, first list all of the facts from the problem using the "per" format and extended units as described above. No fact will be used more than once. Some people even cross out the fact once it is used. With sufficient practice you may find that you can skip this first step. Next, choose the fact that has the correct answer unit. For example, if you are calculating the grams of drug needed, find the fact with units of "g drug". Write this fact down first with the correct answer unit on top (in the numerator). Next, multiply by the fact that has the same units as the bottom (denominator) of the first used fact. This will cancel out the unwanted unit of the first fact. Continue to multiply by the rest of the facts as needed to cancel out any remaining units until only the correct answer unit remains. You may need to add facts that are not in the problem such as 1000 mg = 1 g. While this method may seem confusing in written format, a few examples should show how easy it is to apply to actual problems.

A. You are having a birthday party for 24 children. Party hats are sold in packs of 8. How many packs should you buy?

1. List the facts:

$$24\ children,\ \frac{1\ hat}{child},\ \frac{8\ hats}{pack},\ answer\ unit\ is\ packs$$

2. Choose the fact that has the correct answer unit. Write this fact down first with the correct answer unit on top.

$$\frac{pack}{8\ hats}$$

3. Next, multiply by the fact that has the same units as the bottom (denominator) of the first used fact.

$$\frac{pack}{8\ hats}\ X\ \frac{1\ hat}{child}$$

4. Continue to multiply by the rest of the facts as needed to cancel out any remaining units until only the correct answer unit remains.

$$\frac{pack}{8\ hats}\ X\ \frac{1\ hat}{child}\ X\ 24\ children = 3\ packs$$

B. A six month old patient will be traveling out of the country and has been prescribed 1/4 of a mefloquine tablet every week for 25 weeks. How many tablets should be dispensed?

1. List the facts:

$$6\ months\ old,\ \frac{¼\ tablet}{week},\ 25\ weeks,\ answer\ unit\ is\ tablets$$

2. Choose the fact that has the correct answer unit. Write this fact down first with the correct answer unit on top.

$$\frac{¼\ tablet}{week}$$

3. Next, multiply by the fact that has the same units as the bottom of the first used fact.

$$\frac{¼\ tablet}{week} X\ 25\ weeks$$

At this point all units other than the answer unit have been cancelled and no additional facts are needed. Thus, the answer is:

$$\frac{¼\ tablet}{week} X\ 25\ weeks = 6.25\ tablets\ so\ 7\ tablets$$

Try to apply the method to the next example before viewing the solution.

C. A patient is to take two tablets of a drug TID. A bottle of 500 of these tablets cost $28.73. What is the cost of 30 days of therapy?

1. List the facts:

$$\frac{2\ tablets}{dose}, \frac{3\ doses}{day}, \frac{500\ tablets}{\$28.73}\ 30\ days,\ answer\ unit\ is\ \$$$

2. Choose the fact that has the correct answer unit. Write this fact down first with the correct answer unit on top.

$$\frac{\$28.73}{500\ tablets}$$

3. Next, multiply by the fact that has the same units as the bottom (denominator) of the first used fact.

$$\frac{\$28.73}{500\ tablets} X \frac{2\ tablets}{dose}$$

4. Continue to multiply by the rest of the facts as needed to cancel out any remaining units until only the correct answer unit remains.

$$\frac{\$28.73}{500\ tablets} X \frac{2\ tablets}{dose} X \frac{3\ doses}{day} X\ 30\ days = \$10.34$$

The method described is especially useful for more complicated problems. As you can see, once you have correctly established the facts of a problem, the actual set-up of the solution becomes quite simple. At times you may have problems in which you must first find the meaning of unknown definitions in reference texts. For example, in the following problem, which is generally considered a fairly complicated pharmacy math problem, you may have to consult a reference to find the definition of 1:5000. This means 1 g of drug per 5000 mL of solution. Try to apply each step of the method before viewing the solution, but remember this is a fairly complex problem. Be sure to use extended units.

D. How many grams of a drug should be used to make 60 mL of a concentrated solution such that a tablespoonful of the concentrated solution diluted with water to a pint yields a 1:5000 solution?

1. List the facts:

$$60\ mL\ concentrate, \frac{tablespoonful\ concentrate}{pint\ solution}, \frac{1\ g\ drug}{500\ mL\ solution}, answer\ unit\ is\ g\ drug$$

2. Choose the fact that has the correct answer unit. Write this fact down first with the correct answer unit on top.

$$\frac{1\ g\ drug}{5000\ mL\ solution}$$

3. Multiply by the fact that has the same units as the bottom (denominator) of the first used fact.

There is no listed fact with “mL solution” units. This demonstrates the importance of extended units. If we had only listed “mL” rather than “mL concentrate” and “mL solution” we may have incorrectly chosen 30 mL as the next fact to use. Instead, we must convert from “mL solution” to “pint solution” using 473 mL = 1 pint.

$$\frac{1\ g\ drug}{5000\ mL\ solution} X \frac{473\ mL\ solution}{pint\ solution}$$

4. Continue to multiply by the rest of the facts as needed to cancel out any remaining units until only the correct answer unit remains.

$$\frac{1\ g\ drug}{5000\ mL\ solution} X \frac{473\ mL\ solution}{pint\ solution} X \frac{pint\ solution}{tablespoonful\ concentrate}$$

Similar to before, we have no listed fact with units of “tablespoonful concentrate”. We must convert from “tablespoonful concentrate” to “mL concentrate” using the fact that 1 tablespoonful = 15 mL.

$$\frac{1\ g\ drug}{5000\ mL\ solution} X \frac{473\ mL\ solution}{pint\ solution} X \frac{pint\ solution}{tablespoonful\ concentrate} X \frac{tablespoonful\ concentrate}{15\ mL\ concentrate} X\ 60\ mL\ concentrate = 0.378\ g\ drug$$

ROMAN NUMERALS

Some physicians still use roman numerals in prescription writing. This use may be most common for stating the number of tablets or capsules of a controlled substance to be dispensed. It would be more difficult for a patient to alter a roman numeral. Roman numerals may be written in small or capital letters. The five most commonly used letters and their values are:

I = 1 X = 10 C = 100

V = 5 L = 50

When the roman numerals are written from largest value to smallest value they are simply added. For example:

xxxii = 10 + 10 + 10 + 1 + 1 = 32 and

CLXV = 100 + 50 + 10 + 5 = 165.

If, instead, a roman numeral of a smaller number is written before one of larger value (e.g., iv or XC) the smaller number is subtracted from the larger number. Thus, iv equals 4 and XC equals 90. As further examples:

xxix = 10 + 10 + (10 - 1) = 29 and

XLVI = (50 - 10) + 5 + 1 = 46 and VL = 50 - 5 = 45.

Interpret the following before viewing the answers.

a) XIV b) xc c) xxx d) LX e) vii f) iv g) XXVIII

Answers:

a) 14 b) 90 c) 30 d) 60 e) 7 f) 4 g) 28

PERCENTAGE STRENGTH

The concentration of a drug or other ingredient in a pharmaceutical product is often expressed as a percent. As with any other percent, this is the parts of drug per 100 parts of product. There are actually three types of percent used in pharmacy practice. These are percent volume-in-volume (% v/v), percent weight-in-weight (% w/w), and percent weight-in-volume (% w/v). These are defined below.

% v/v is generally used when a liquid ingredient is dispersed in a liquid product. It is the number of **milliliters** of the ingredient in 100 **milliliters** of the product. For example, 70% v/v isopropyl alcohol means that 100 mL of the product contains 70 mL of isopropyl alcohol. This is the least commonly used type of percent since most ingredients in pharmaceutical products are solids, not liquids.

% w/w is generally used when a powder ingredient is dispersed in a powder product or in an ointment or cream. It is the number of **grams** of the ingredient in 100 **grams** of the product. For example, if a foot powder contains 0.5% w/w boric acid, this means that 100 g of the foot powder will contain 0.5 g of boric acid. As another example, a 20% w/w urea ointment contains 20 g of urea in 100 g of the ointment.

% w/v is generally used when a powder ingredient is dispersed in a liquid product such as a lotion or oral solution. It is the number of **grams** of the ingredient in 100 **milliliters** of the product. For example, 85% w/v sucrose solution means that 100 mL of the solution contains 85 g of sucrose.

The strength of a product is often just designated as a percent without designating whether the percent is v/v, w/w, or w/v. In this case it is understood that a liquid ingredient or product is a volume (v) designation and everything else is a weight (w) designation. For example, if a liquid product contains 10% orange oil, it is understood that the percent is % v/v and that 100 mL of the product contains 10 mL of orange oil. However, if a liquid product contains 10% sucrose, it is understood that the percent is % w/v and that 100 mL of the product contains 10 g of sucrose. Finally, if a powder contains 10% sucrose, it is understood that the percent is % w/w and that 100 g of the powder contains 10 g of sucrose.

Try to solve the following problems before viewing the solutions.

A. How many grams of erythromycin (a solid) should be used to prepare 60 mL of a 2% topical solution?

Facts:

$$60\ mL\ solution, \frac{2\ g\ erythromycin}{100\ mL\ solution},\ answer\ unit\ is\ g\ erythromycin$$

Solution:

$$\frac{2\ g\ erythromycin}{100\ mL\ solution}\ X\ 60\ mL\ solution = 1.2\ g\ erythromycin$$

B. How many grams of potassium chloride (KCl) will a patient receive from 30 mL of a 10% KCl solution?

Facts:

$$30\ mL\ KCl\ solution, \frac{10\ g\ KCl}{100\ mL\ KCl\ solution},\ answer\ unit\ is\ g\ KCl$$

Solution:

$$\frac{10\ g\ KCl}{100\ mL\ KCl\ solution}\ X\ 30\ mL\ KCl\ solution = 3\ g\ KCl$$

C. How many mL of Alcohol, USP (95% ethanol) should be used to prepare 120 mL of 20% ethanol in water?

Facts:

$$\frac{95\ mL\ ethanol}{100\ mL\ Alcohol,\ USP},\ 120\ mL\ 20\%,\ \frac{20\ mL\ ethanol}{100\ mL\ 20\%},$$

answer unit is mL of Alcohol, USP

Solution:

$$\frac{100\ mL\ Alcohol,\ USP}{95\ mL\ ethanol}\ X\ \frac{20\ mL\ ethanol}{100\ mL\ 20\%}\ X\ 120\ mL\ 20\% = 25.3\ mL\ Alcohol,\ USP$$

D. If a patient is given 1 liter of a 5% dextrose solution, how many grams of dextrose will the patient receive?

Facts:

$$1\ liter\ 5\%\ dextrose, \frac{5\ g\ dextrose}{100\ mL\ 5\%\ dextrose},\ answer\ unit\ is\ g\ dextrose$$

Solution:

$$\frac{5\ g\ dextrose}{100\ mL\ 5\%\ dextrose}\ X\ \frac{1000\ mL\ 5\%\ dextrose}{liter\ 5\%\ dextrose}\ X\ 1\ liter\ 5\%\ dextrose = 50\ g\ dextrose$$

RATIO STRENGTH

Another method of expressing the strength of a drug product is ratio strength (e.g., 1:500 or 1:1000). It is not as common as percent strength, but is used to describe relatively dilute solutions. The ratio strength is the milliliters or grams of **product** that contain one gram or one mL of the ingredient. Thus, the amount of ingredient is always one. Since ratio strength is most commonly used to describe relatively dilute solutions, the amount of product that contains one gram or one mL of ingredient is normally in the hundreds, thousands, or even tens of thousands. As with percent strength, liquids are understood to be milliliters and solids and semisolids are understood to be grams. Thus, a ratio strength of 1:2000 for a powder ingredient in a liquid product means that 2000 mL of product will contain 1 g of the ingredient. If the product is a liquid containing a liquid ingredient, 1:2000 means that 2000 mL of product will contain 1 mL of the ingredient. Finally, if both the product and ingredient are solids or semisolids, 1:2000 means that 2000 g of product will contain 1 g of the ingredient. Answer the following questions before viewing the solutions.

A. A liquid product of a solid drug is listed as being 1:5000. What does this mean?

It means that 5000 mL of that product will contain 1 g of the drug.

B. How much of the 1:5000 product above would be needed to supply 1 **milligram** of the drug?

Facts:

$$\frac{1\ g\ drug}{5000\ mL\ product},\ need\ 1\ mg\ drug,\ answer\ unit\ is\ mL\ product$$

Solution:

$$\frac{5000\ mL\ product}{1\ g\ drug}\ X\ \frac{1\ g\ drug}{1000\ mg\ drug}\ X\ 1\ mg\ drug = 5\ mL\ product$$

C. If a patient receives a 0.5 mL injection of a solution of 1:10,000 epinephrine (a solid), how many **milligrams** of epinephrine are administered?

Facts:

$$0.5\ mL\ solution, \frac{1\ g\ epinephrine}{10{,}000\ mL\ solution},\ answer\ unit\ is\ mg\ epinephrine$$

Solution:

$$\frac{1000\ mg\ epinephrine}{1\ g\ epinephrine}\ X\ \frac{1\ g\ epinephrine}{10{,}000\ mL\ solution}\ X\ 0.5\ mL\ solution = 0.05\ mg\ epinephrine$$

D. If 200 mg of potassium permanganate (KMnO4, a solid) are added to water to make 500 mL of a solution, what is the ratio strength of the preparation?

Facts:

$$\frac{200\ mg\ KMnO_4}{500\ mL\ preparation},\ answer\ unit\ is\ \frac{mL\ preparation}{1\ g\ KMnO_4}$$

Solution:

$$\frac{500\ mL\ preparation}{200\ mg\ KMnO_4}\ X\ \frac{1000\ mg\ KMnO_4}{1\ g\ KMnO_4} = \frac{2500\ mL\ preparation}{1\ g\ KMnO_4}\ so\ it\ is\ 1{:}2500$$

QUANTITY DISPENSED, DOSAGE, AND DAYS' SUPPLY

Every prescription must have a quantity dispensed, a correct dosage, and a days' supply (i.e., how many days the amount dispensed will last). Most technician calculations in community pharmacy practice involve one of these three things. For many of these calculations it is important to know that 1 teaspoonful = 5 mL and that 1 tablespoonful = 15 mL. Again, **for calculations only**, dosing frequency such as BID should be interpreted as two doses per day rather than two times per day. There are also technician calculations that have to do with compounding. A different ratio than the one described earlier may be used in the compounding of some prescriptions. The two types of ratios may seem confusing at first, but are easily distinguished. In the ratio discussed earlier, there are never more than two numbers and the second number is always larger than the first number, e.g., 1:2000. For the second type of ratio, there may be more than two numbers and the second and any subsequent numbers are the same or smaller than the first number. For example, if you are to compound a mixture of liquids A, B, and C in a ratio of 2:1:1, this means that 2 mL of A, 1 mL of B, and 1 mL of C are to be mixed to obtain 4 mL of preparation. Some examples of prescriptions with all of these calculations are given below. Try to work these problems before viewing the solutions.

A. Augmentin ES 600 mg/5 mL; Sig: 5 mL TID for 7 days. This product is available in 75mL, 125mL, and 200mL bottles only. How much should you dispense?

Facts:

$$\frac{5\ mL}{dose}, \frac{3\ doses}{day}\ , 7\ days, answer\ unit\ is\ mL$$

Solution:

$$\frac{5\ mL}{dose} X \frac{3\ doses}{day}\ X\ 7\ days = 105\ mL$$

Answer: Since the total quantity needed would be 105mL the 125mL bottle would have to be dispensed. The patient should be told to discard the remainder of the suspension when seven days have passed.

B. Amoxicillin suspension 250mg/5mL; Sig: 5 mL TID. Dispense 100 mL. What would the days' supply be?

Facts:

$$\frac{5\ mL}{dose}, \frac{3\ doses}{day}\ , 100\ mL, answer\ unit\ is\ days$$

Solution:

$$\frac{day}{3\ doses} X \frac{dose}{5\ mL}\ X\ 100\ mL = 6.67\ days$$

Answer: The 6.67 days would be entered as six days for insurance billing purposes.

C. 1. Amoxicillin suspension, 75 mg BID for 10 days. The lowest strength available is 125 mg/5 mL. It comes in quantities of 80 mL, 100 mL, and 150 mL. How much should you dispense?

Facts:

$$\frac{75\ mg}{dose}, \frac{2\ doses}{day} 10\ days\ \frac{125\ mg}{5\ mL}\ , answer\ unit\ is\ mL$$

Solution:

$$\frac{5\ mL}{125\ mg} X \frac{75\ mg}{dose} X \frac{2\ doses}{day}\ X\ 10\ days = 60\ mL$$

Answer: Since the quantity needed is 60 mL, the 80mL bottle should be dispensed. The patient should be instructed to discard the remainder after the ten days.

2. What dose, in mL, should be administered?

Solution (using the previously listed facts):

$$\frac{5\ mL}{125\ mg} X \frac{75\ mg}{dose} = \frac{3\ mL}{dose}$$

Answer: To give the patient 75 mg, the dose would be 3 mL.

D. Zithromax tablets, 2 g one-time dose. The tablets are available in 250 mg, 500 mg, and 600 mg tablets. How much should you dispense?

Facts for each choice:

$$2\ g = 2000\ mg\ needed, \frac{250\ mg}{tablet}, \frac{500\ mg}{tablet}, \frac{600\ mg}{tablet}, answer\ unit\ is\ tablets$$

Solutions for each choice:

$$For\ 250\ mg\ tablet: \frac{tablet}{250\ mg} X\ 2000\ mg = 8\ tablets$$

$$For\ 500\ mg\ tablet: \frac{tablet}{500\ mg} X\ 2000\ mg = 4\ tablets$$

$$For\ 600\ mg\ tablet: \frac{tablet}{600\ mg} X\ 2000\ mg = 3.33\ tablets$$

Answer: Four 500 mg tablets to be taken all at one time.

E. Xalatan eye drops, dispense 1 bottle; Sig: One drop in each eye every night at bedtime. Xalatan is available in a 2.5 mL bottle. There are approximately 20 drops in 1 mL. What would the days' supply be?

Facts:

$$1\ bottle, \frac{2\ drops}{day}, \frac{2.5\ mL}{bottle}, \frac{20\ drops}{mL}, answer\ unit\ is\ days$$

Solution:

$$\frac{day}{2\ drops} X \frac{20\ drops}{mL} X \frac{2.5\ mL}{bottle}\ X\ 1\ bottle = 25\ days$$

F. Magic Mouthwash (a mixture of diphenhydramine, viscous lidocaine, and Mylanta in a 1:1:1 ratio), dispense 120 mL. How much of each ingredient should be used in the compound?

Facts:

$$\frac{1\ mL\ each\ ingredient}{3\ mL\ preparation}, need\ 120\ mL\ preparation,$$

$$answer\ unit\ is\ mL\ of\ each\ ingredient$$

Solution:

$$\frac{1\ mL\ each\ ingredient}{3\ mL\ preparation} X\ 120\ mL\ preparation = 40\ mL\ of\ each\ ingredient$$

G. Synalar ointment compound. Dispense 160 g. Your recipe is for 240 g of compound which contains 180 g white petrolatum and 60 g fluocinolone ointment. How much of each ingredient do you need to make the compound?

Facts:

$$need\ 160\ g\ compound, \frac{180\ g\ white\ pet.}{240\ g\ compound}, \frac{60\ g\ fluocinolone\ oint.}{240\ g\ compound},$$

$$answer\ units\ are\ g\ white\ pet.\ and\ g\ fluocinolone\ oint.$$

Solutions:

$$\frac{180\ g\ white\ pet.}{240\ g\ compound} X\ 160\ g\ compound = 120\ g\ white\ pet.$$

$$\frac{60\ g\ fluocinolone\ oint.}{240\ g\ compound} X\ 160\ g\ compound = 40\ g\ fluocinolone\ oint.$$

H. 1. Reglan suspension 5 mg/5 mL, 0.28 mg every six hours. Dispense 30-day supply. What would the dosage be in mL?

Facts:

$$\frac{5\ mg\ drug}{5\ mL\ suspension}, \frac{0.28\ mg\ drug}{dose}, \frac{dose}{6\ hrs}\ , 30\ days,$$

$$answer\ units\ of\ \frac{mL\ suspension}{dose}$$

Solution:

$$\frac{5\ mL\ suspension}{5\ mg\ drug} X \frac{0.28\ mg\ drug}{dose} = \frac{0.28\ mL\ suspension}{dose}$$

Answer: The dose would be 0.28 mL every six hours.

2. How much should you dispense?

Solution (using the facts listed earlier):

$$\frac{5\ mL\ suspension}{5\ mg\ drug} X \frac{0.28\ mg\ drug}{dose} X \frac{dose}{6\ hrs} X \frac{24\ hrs}{day}\ X\ 30\ days = 33.6\ mL\ suspension$$

Answer: This would require 33.6 mL for a 30-day supply, which would normally be rounded up to the nearest 5mL, and 35 mL would be dispensed.

PARENTERAL PRODUCTS

Calculations are often involved in the use of parenteral products. The volume of a product that contains the correct amount of active ingredient either for an injection or for addition to an intravenous admixture may need to be determined. Dosing may be based on the weight of the patient, especially for pediatric patients, but on a kilogram (kg) rather than a pound (lb) basis. In these cases the kg weight of the patient may need to be calculated using the fact that 1 kg = 2.2 lb. In the administration of large volumes of intravenous fluids over long periods of time the flow rate of the fluid in drops per minute may need to be calculated.

Solve the following problems before viewing the solutions.

A. A patient is to receive 10 mg of diazepam by injection. How many milliliters of diazepam, USP should be administered? Each mL of this product contains 5 mg of diazepam.

Facts:

$$\frac{5\ mg\ diazepam}{mL\ product}\ ,\ need\ 10\ mg\ diazepam,\ answer\ unit\ is\ mL\ product$$

Solution:

$$\frac{mL\ product}{5\ mg\ diazepam}\ X\ 10\ mg\ diazepam = 2\ mL\ product$$

B. You need to add 400 mg of a drug to 500 mL of an intravenous fluid. The drug is available as a sterile solution containing 1 gram of drug in 5 mL of product. How many mL of this drug product should be used?

Facts:

$$need\ 400\ mg,\ 500\ mL\ IV,\ \frac{1\ g\ drug}{5\ mL\ product}\ ,\ answer\ unit\ is\ mL\ product$$

Solution:

$$\frac{5\ mL\ product}{1\ g\ drug}\ X\ \frac{1\ g\ drug}{1000\ mg\ drug}\ X\ 400\ mg\ drug = 2\ mL\ product$$

C. You are to prepare 500 mL of an intravenous solution that contains 35 mEq of potassium (K) per liter as one of the ingredients. How many mL of a concentrated solution containing 2 mEq of potassium per milliliter should be used?

Facts:

$$500\ mL\ IV,\ \frac{35\ mEq\ K}{liter\ IV}\ ,\ \frac{2\ mEq\ K}{mL\ concentrate}\ ,\ answer\ unit\ is\ mL\ concentrate$$

Solution:

$$\frac{mL\ concentrate}{2\ mEq\ K}\ X\ \frac{35\ mEq\ K}{liter\ IV}\ X\ \frac{liter\ IV}{1000\ mL\ IV}\ X\ 500\ mL\ IV = 8.75\ mL$$

D. A 172 pound patient is to receive a bolus intravenous dose of heparin at a dose of 80 units (U) per kilogram of body weight. How many milliliters of a solution containing 5,000 units of heparin per milliliter should be administered?

Facts:

$$172\ lb,\ \frac{80\ U}{kg}\ ,\ \frac{5000\ U}{mL\ heparin\ solution}\ ,\ answer\ units\ is\ mL\ heparin\ solution$$

Solution:

$$\frac{mL\ heparin\ solution}{5000\ U}\ X\ \frac{80\ U}{kg}\ X\ \frac{kg}{2.2\ lb}\ X\ 172\ lb = 1.25\ mL\ heparin\ solution$$

E. If 1000 mL of an intravenous (IV) solution is to be administered over eight hours, what flow rate (in drops per minute) should be used if the infusion set delivers 15 drops per milliliter?

Facts:

$$\frac{1000\ mL\ solution}{8\ hr}\ ,\ \frac{15\ drops}{mL\ solution}\ ,\ answer\ units\ is\ \frac{drops}{min}$$

Solution:

$$\frac{15\ drops}{mL\ solution}\ X\ \frac{1000\ mL\ solution}{8\ hr}\ X\ \frac{hr}{60\ min} = \frac{31\ drops}{min}$$

F. One liter of an IV solution contains 100 mg of a drug that is to be administered at a rate of 2.5 milligrams per hour. If the infusion set delivers 20 drops per milliliter, what should the flow rate be in drops per minute?

Facts:

$$\frac{100\ mg\ drug}{liter}\ ,\ \frac{2.5\ mg\ drug}{hr}\ ,\ \frac{20\ drops}{mL}\ ,\ answer\ units\ is\ \frac{drops}{min}$$

Solution:

$$\frac{20\ drops}{mL}\ X\ \frac{1000\ mL}{liter}\ X\ \frac{liter}{100\ mg\ drug}\ X\ \frac{2.5\ mg\ drug}{hr}\ X\ \frac{hr}{60\ min} = \frac{8\ drops}{min}$$

The content of this lesson was developed by the Alabama Pharmacy Association,

UPN: 178-000-09-207-H04-T. This lesson is a knowledge-based CE activity and is targeted to pharmacy technicians. This lesson is approved for 1.25 contact hours of continuing education credit. Participants should not seek credit for duplicate content.

Continuing Education Quiz

"Calculations for Pharmacy Practice"

1. Interpret XLVI.

2. A 2% topical solution of erythromycin (a solid) in alcohol is to be prepared. How many grams of erythromycin (a solid) should be used to prepare 90 mL of the solution?

3. If a topical gel contains 12.5% promethazine, how many milliliters should be applied to the wrist for a 12.5 mg dose?

4. If a patient is given a 1 mL injection of a 1:2500 solution of a solid drug, how many milligrams of the drug will the patient receive?

5. Cleocin suspension, 150 mg TID for ten days. This suspension is only available in a concentration of 75 mg/5 ml, and the only available quantity is 100 ml bottles. How many bottles should you dispense?

6. Lortab liquid, 5 mg hydrocodone every 4-6 hours. Dispense 120ml. Lortab liquid is available in a concentration of 7.5 mg hydrocodone/15 ml. What would the dosage be in teaspoonfuls

7. Tramadol, 50 mg tablets, 2 every 6 hours. Dispense 96 tablets. What would the days' supply be?

8. A patient weighing 110 lb is to receive an IM injection of midazolam at a dose of 0.05 mg/kg. What volume of a 5 mg/mL solution should be administered?

9. How many milliliters of a solution containing 4 mEq/mL of sodium should be used to prepare 2 L of a TPN that contains 40 mEq/L of sodium?

10. What flow rate, in drops/min, should be used to administer 1800 mL of an IV fluid over 24 hours if the administration set delivers 20 drops/mL?

This course expires on: June 30, 2012
Target audience: Technicians

The South Dakota State University College of Pharmacy is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. The Universal Program Identification number for this program are: #063-999-09-023-H04-T.

To receive 1.0 Contact Hours (0.1 CEUs of continuing pharmacy education credit, read the attached article and answer the 10 questions by circling the appropriate letter on the answer form below.

A test score of 70% or better will earn a Statement of Credit for 1.0 Contact Hours (0.10 CEUs) of continuing pharmacy education credit. If a score of 70% is not achieved on the first attempt, another answer sheet will be sent for one retest at no additional charge.

Learning Objectives – Technicians: 1. Apply a method of performing pharmacy calculations that minimizes errors; 2. Interpret common Roman numerals in prescriptions; 3. Define percentage strength for various mixtures and solve problems involving percentage strength; 4. Define ratio strength for pharmaceutical products and solve problems involving ratio strength; 5. Perform the calculations necessary to determine quantity dispenses, dosage, and days' supply for prescriptions; 6. Solve math problems encountered with parenteral products including the flow rate for intravenous fluids.

Fill in the blank with the correct answer for each question:

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

Course Evaluation – must be completed for credit.

1 Disagree - 7 Agree

Material was effectively organized for learning: 1 2 3 4 5 6 7
Content was applicable / useful in practice: 1 2 3 4 5 6 7
Each of the stated learning objectives was satisfied: 1 2 3 4 5 6 7
List any learning objectives above not met in this course:

_____

Course material was balanced, noncommercial: 1 2 3 4 5 6 7
Learning assessment questions were appropriate: 1 2 3 4 5 6 7
Length of time to complete course was reasonable for credit assigned 1 2 3 4 5 6 7

Approximate amount of time to preview, study, complete and review this course: _____)

Comments:

Name:_____

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States for which you require CE credit:

_____

Would you like receive additional CE courses? If so, please list email address:_____

This course expires on: June 30, 2012
Please mail this completed answer sheet with your check of $4.00 to:

SDSU College of Pharmacy – C.E.,
Box 2202C
Brookings, SD 57007

OBITUARIES

Leslie W Krumm

January 27, 1929 - April 7, 2009

Leslie W. Krumm, son of William and Ruth (Laughlin) Krumm, was born January 27, 1929 in Sioux Falls, SD. He passed away on April 7, 2009 due to a heart attack.

Les grew up in Sioux Falls and graduated from Washington Senior High School in 1947. He won a full ride scholarship from Pepsi to attend a college of his choice. He chose to remain close to home, earning a degree in pharmacy at South Dakota State University in Brookings, SD in 1951. He entered the U.S. Army that year and served as a pharmacist in Japan. Following his honorable discharge, he returned to Sioux Falls and worked as a pharmacist at Kreiser's Pharmacy. He later worked at Loop Pharmacy in downtown Minneapolis, MN before returning to Sioux Falls and completing his pharmacy career with Lewis Drug.

Les married Hildegarde Skage on May 24, 1958 in Toronto, SD.

He had passions for gardening, cars, and writing. Along with Hildegarde, he maintained a large garden in a vacant lot they bought behind their house on south Garfield Avenue near the Western Mall in Sioux Falls. Les could tell you the make, model, and year of almost any car on the road. One of the few extravagances he allowed himself was a hot water faucet on the side of the house so he could get warm water in a bucket to wash cars in the driveway. Even before it was considered environmentally friendly, he owned two Volkswagen Beetles and rode his bike to work when the weather allowed. He enjoyed writing. While at Lewis Drug, he wrote short essays for their pharmacy ads in the Argus Leader newspaper. After he retired to live at Dow Rummel Village in Sioux Falls, he contributed a column on health to their weekly newsletter.

Les' advice to people new at their job was to always look for something useful to do, even if you finish what you were hired to do. He and Hildegarde worked hard at their pharmacy jobs and put their two sons through college.

Les' later years fluctuated between happy and not. In his happy times, he kept up active correspondence via letters to his sons and the local newspaper. He continued to ride his bike all over Sioux Falls, and he had a knack for finding loose change on the ground during his rides. He enjoyed drinking milkshakes and buying gifts for his three granddaughters.

Grateful for having shared his life are two sons, John Krumm and his wife, Ellen, Redmond, WA; Blair Krumm and his wife, Gretchen, Helena, MT; three granddaughters, Ella, Kora and Kiersten; his former wife, Hildegarde Krumm, Helena, MT; and a host of other relatives and friends.

Les was preceded in death by his parents, William and Ruth Krumm.

We will remember him from his happy times as friendly, hard-working, articulate, and funny. We look forward to meeting him again in Heaven, where we'll get reacquainted with this nice man and take another spin in the Volkswagen.

CLASSIFIED

To Place a Classified Ad in the Journal:
Call, write, fax or email the ad to:

South Dakota Pharmacist Classifieds
P.O. Box 518, Pierre, SD 57501
e-mail: sdpha@sdpha.org
phone: (605)224-2338 fax: (605)224-1280 Fax

Classified Rates

Classified ads are $25.00 per five line ad/per issue. Additional lines will be billed at $1.00 per line. Including your company logo will be an extra $5.00 charge.

Wal-Mart in Rapid City has an opening for a full-time Pharmacy Manager.

Must be a licensed professional (Pharm.D or BS/Pharmacy) in South Dakota. This position does not require travel.

Duties include, but are not limited to: Dispenses prescriptions by following standard operating procedures; follows Medication Guidelines for receiving, filling, dispensing, logging, and maintaining loss prevention controls; ensures that Wal-Mart policies and Federal and State laws and regulations in all prescription-related issues, including HIPAA, SOP, and QA, are followed; provides counseling on both prescription medications and over the counter medications per Company policy and as required by State and Federal law; ensures that all control drug policies and procedures as required by State, Federal, and Wal-Mart guidelines are followed; performs trouble shooting functions for third party discrepancies and other prescription filling issues; verifies that all required pharmacy, Pharmacist and Technician licenses/registrations are current and valid as required by State, Federal, and Wal-Mart guidelines.

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Wanted - Full-time Pharmacist-in-Charge who is interested in management. Great flexible hours, no evenings, no Sundays and few Saturdays. Great pay and benefits plus profit bonus. Great opportunity in Huron, SD. Contact Shane at (605) 222-7559.

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