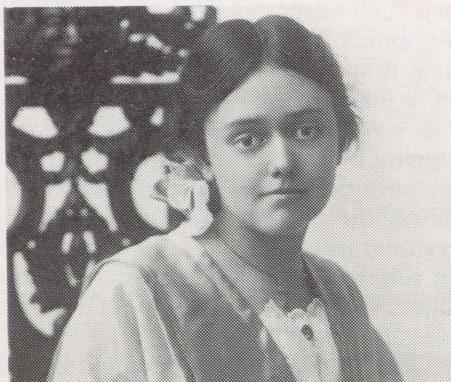


# Blue & Gold Triangle

April 1983



**MARY CONNOLLY  
LIVINGSTON  
(1894-1982)**

Sister Mary passed away on December 26, 1982 at the age of 88. She had been a member of Lambda Kappa Sigma for the entire history of our fraternity — over 69 years. During those 69 years, Mary watched Lambda Kappa Sigma grow from a small group of eight students and Miss Heath to over 12,000 sisters internationally. What a sense of

pride and satisfaction she must have had!

Mary was an enthusiastic and diligent pharmacist, too. Her father was a pharmacist. She married her classmate Urban Livingston, a pharmacist, and her son carries on the long lineage of professional practice. The Livingston Pharmacy of Orleans, Massachusetts, is one of those Cape Cod institutions — respected and trusted by all in the community. Mary helped to build that reputation and stayed actively involved with her store and profession until only recently when failing eyesight slowed her down.

This grand, well-loved woman held Lambda Kappa Sigma in special regard. Her interest in the fraternity was strong and enthusiastic. During my years as Grand Secretary, I was privileged to correspond with her and send Founders' Day flowers each October 14th. Her notes of response to me were always filled with that special quality of vitality

*Cont'd page 5*

## COME TO THE GEM OF THE WEST IN 1984

Do you remember back in May 1980 when the volcano Mount St. Helens erupted? Well, she is located right here in the state of Washington and still spouting steam today. Located just northwest of here is SEATTLE, WASHINGTON.

Seattle is nicknamed the "Emerald City" for its beauty, charm, and sparkle, like a gem. We are surrounded by mountains, the Olympics and Cascades, by the water, the Pacific Ocean and Lake Washington, and miles of evergreens. The Space Needle can be seen for miles, while Mount Rainier fills the Seattle skyline. This is also the location of the University of Washington School of Pharmacy.

In Seattle, the hostess chapter, Chi, is busy preparing for the 1984 — 28th Biennial Convention. The co-chairpersons of the convention committee are Rosemary Fox and Pat Landers. We are still in the process of finalizing our program, so stay tuned for more convention information to come.

Now is the time to start making plans to visit the Pacific Northwest and attend the 1984 Biennial Convention in Seattle! We welcome all of our sisters of LKS to come and see old friends, meet new ones and participate in the convention activities.

See you in Seattle in 1984.  
Respectfully submitted by,  
Joyce Y. Tsai  
Convention Publicity Committee  
Treasurer, Chi Alumnae Chapter of  
LKS.

—1—

## DIRECTORY QUESTIONNAIRES TO BE MAILED

Work on the Alumni Directory is well under way. Soon all alumni will receive a brief questionnaire with a follow-up request to be sent one month later. The prompt return of these questionnaires is essential so that the information in the directory will be current and complete. The completed questionnaires as well as a list of all alumni who do not respond to either mailing will be turned over to the publisher for telephone follow up.

Alumni will then be contacted directly by the Harris Publishing Company to verify information and to see whether they wish to purchase a directory. Alumni with current addresses who have not responded to the questionnaires and are not reached by phone by the Harris representatives, will appear in the directory with the information provided by alumni records.

Alumni will be listed alphabetically, geographically, and by chapter. Each listing will contain name, class year, chapter, residence address and phone number, and business or professional informational when available.

If you have not received your questionnaire by September or if you do not wish to be listed in the directory, please notify us in writing.

Susan E. Thompson  
Project Coordinator  
Bernard C. Harris Publishing Co., Inc.  
3 Barker Avenue  
White Plains, NY 10601  
(800) 431-2500  
(914) 946-7500 (New York State)



## **COLLEGIATE CHAPTER NEWS**

### **Alpha Chapter**

We've been busy during November and December with plans for pledging and Christmas celebrations. This year, we have attempted to maintain a pledge period which will benefit the pledges by fully educating them as to the many aspects of LKS as a professional fraternity for women in pharmacy. Although the sisters had made attempts in the past to have a truly professional pledge period, we've tried to improve on the period, for the benefit of the new pledges. So far, the pledges are keeping up with the information they are required to know and we believe that they will profit from this information as future sisters.

During December, the sisters enjoyed a dinner dance at the Lenox, as well as a school party with carolling to which we invited the entire student body. Both events went very well, and we are fortunate to have student government to help us with the planning of the school party. As a special Christmas fundraiser, we printed Christmas messages for the students and faculty at the College, all for a very minimal fee. This service is fast becoming a tradition at Alpha Chapter and we all have a lot of fun with the various messages sent "secretly" from person to person! Our earnings were supplemented by a subsale which went quite well.

We had an interesting fund raiser for Valentine's Day - chocolate heart shaped lollipops were sold at the school and I must admit they were quite a hit with the faculty and students. One of our "new" sisters, Debbie Notturno gave us this great idea and we were all impressed with her imagination in fund raising matters. The sisters are considering a joint venture with the brothers of Phi Delta Chi to sponsor a pub.

We will be working with our fraternity advisor, Mary McCormick, on a project concerning Reye's Syndrome. During the spring quarter, we'll be involved in the project.

Submitted by  
Louise Berube

### **Nu Chapter**

Greetings! Second semester has been active for Nu Chapter. We started January off earning some money by working during registration. We also added six great actives to our chapter. Lisa Cavin, Kelly Decker, Allison Martin, Elaine Nystrom, Diane Scanlon and Sheila Siefken. Nu Chapter wound up

January with a successful blood drive; a total of 108 pints were donated.

The first week of February found us busy with pledging and we would like to welcome our two pledges: Mary Gurney and Kathy Bradley. We also held two bake sales during evening classes and have found this to be a fun and easy way to raise money so we are going to continue to have one bake sale every month. Also, the first business meeting of every month has been declared "canned food night", where we donate non-perishable goods to the Des Moines Food Pantry. Members of the Nu Chapter also worked at the bi-annual Drake Alumini Telethon. This too, helped to increase our foods.

March 5th will find us at a Health Fair in one of our local shopping centers where we will present our demonstration of cough and cold medicines to the public. Later in March, we are holding a Faculty Tea for all staff members of Drake's College of Pharmacy. This is our way of showing our professors how much we appreciate them.

We have two social events planned for April. On the 2nd, the "old" actives are hosting a bowling party for the "new" actives because they won the pledge skip. April 15th is the Kappa Psi - Lambda Kappa Sigma Spring Semiformal. We will be dining and dancing the night away at the des Moines Hyperion Country Club. Last, but not least, we have rescheduled our fifth annual Hopscotch for H.O.P.E. for April 22nd. This year, we are hopping on campus in hopes of promoting our chapter's relations with other Drake students and staff.

Lucretia Bowen

### **Xi Chapter**

LKS, KY, and SAPhA had a Dinner-Dance on February 5th, at the Quonset Officers Club in North Kinstown. The dancing was provided by a Disc Jockey named Shane.

Xi chapter also started our Poison Prevention Program in January for the first and second graders in our area schools. The cookbook sales went well. We are also selling buttons with pharmacy sayings and will be having a multi-prize raffle during the spring semester.

Submitted by  
Elena Bablenfs

### **Tau Chapter**

Hello to all from Tau Chapter, Duquesne University. We hope all of our sisters are having as active and enjoyable spring semester as we are. We started the

semester with two successful rush parties and on January 30, we held our pledge acceptance ceremony for ten enthusiastic girls. Our pledging is five weeks long and pledge activities include interviewing each of our 62 active sisters, attending a professional program, pledge appreciation day, Big-Little day and general learning about our fraternity.

Our sisters have been working very hard on fund raisers this semester. Along with a hoagie sale which we have each semester, we have recently held pretzel and bake sales. We are trying a new fund raiser this semester — "Funds-a-poppin'" popping corn. Hopefully the new fund raiser will be a success. We have many plans for the money earned this semester. Besides our usual social activities and professional programs, we have decided to start a fund to help defray the cost for our sisters attending regional meetings and LKS convention. In this way we hope that more of our sisters will get the chance to attend these events.

Our "Project HOPE" committee is in the midst of planning a "Sock Hop for HOPE." The dance, which will feature Fifties' music and atmosphere as well as refreshments, will be open to the entire campus and all proceeds will be donated to "HOPE." If we find the "Sock Hop" to be a successful idea, we will make it an annual event.

On February 8, we held our annual Sweetheart elections. After the nomination of several deserving men and a runoff election, Frank McCree, a third year pharmacy major and Kappa Psi brother was elected. We are looking forward to a year with Frank as our sweetheart but we're all very sorry to say good-bye to our former sweetheart Tim "TJ" Jackson.

As we welcome Frank to our fraternity, we would also like to take this opportunity to welcome our new chapter advisors Jeanine Matsukas and Rita Modic. Rita and Jeanine are both Tau alumni as well as past officers of Tau. We are sure that they will be assets to our chapter and look forward to their guidance. Jeanine and Rita will be replacing Mary Meredith who resigned as our advisor upon becoming Mid-eastern Regional Supervisor this summer. We would like to thank Mary for all of her help and love over the past few years and we wish her the best of luck in her new position. We know she will do an excellent job.

We are expecting the second half of our semester to be even busier than the first half for Tau chapter. Socially, our sisters are looking forward to our dinner

### Tau - Cont'd

dance on March 12, our senior banquet and pledge initiation dinner, a tea honoring our alumni chapter which has been a tremendous help to us in the past, a square dance with other pharmacy fraternities here at Duquesne and also at the University of Pittsburgh and a party honoring our pledges. Along with social events, we will be doing some service work for our school of pharmacy by working at the canteen for the pharmacy school blood drive and acting as tour guides and serving refreshments at the school of pharmacy "Open House." Professionally, we have been presenting our programs more than ever and plan to continue doing so in the future. Our professional committee is also in the process of starting a new program on the subject of pharmacy as a career. The new program will be presented to high school students.

This semester promises to be one of the most enjoyable and professionally rewarding semesters in many years. We hope it is equally fun and rewarding for our sisters everywhere. Take care, sisters and good luck with all of your endeavors!

Lisa Coppolo,  
Tau Historian

### Alpha Epsilon

Alpha Epsilon Chapter says hello! Our chapter has been quite busy during the Fall and Winter quarters. Our Fall Rush was definitely a success, with the addition of 19 new pledges to our fraternity.

We began Fall Rush with a Welcome Back Party at the Phi Delta Chi house. Other events included a party with a "Let's Get Physical" theme in which everyone dressed in sweats, shorts, and other athletic clothing; a party with the dental fraternity, a cookout, and an ice cream social. Our Formal Rush Party/Fashion Show was held at Doeblin's Dock restaurant on the river.

As a small fund raiser, LKS held a raffle where students guessed the number of pills in a jar. The winner received two tickets to the Broadway Musical "Hello Dolly".

In mid-January, LKS joined all other pharmacy organizations in sponsoring an inter-fraternity banquet/dance which was a great success. Awards were presented to Lucy Rickman - best pledge; Maureen McDonough and Dwana Stevens - best actives; and our outgoing president - Sandra Finch.

Recently we gave a wine and cheese

farewell party to our graduating seniors in appreciation for all their hard work and encouragement.

Many of our sisters began doing blood pressure screenings at various sites around the city, which we plan to continue in the Spring Quarter. Other upcoming plans include a Yard Sale as well as various parties/socials.

Sincerely,  
Dwana Stevens  
Historian, Alpha Epsilon Chapter

### Alpha Zeta

The Alpha Zeta Chapter has been busy this new year with pledging and the initiation of our new members. The action began with our "Smoker" which acquaints prospective female students with our sisters of Alpha Zeta. This year's smoker was held on the Belle Angeline, a plush riverboat located on Lacledes Landing. One week following, nine girls signed up to be pledges of Lambda Kappa Sigma.

Our sisters were then busy with our famous bagel sales and our annual Carnation sale on Valentine's Day. Along with fund raisers we also had our annual Hopscotch for Hope, whose proceeds go towards Project Hope. This year our sisters raised over \$700 for this important project. At the end of February our pledges were initiated as sisters of Lambda Kappa Sigma and taken out to celebrate afterwards. Congratulations: Vicki, Mary, Karen R., Sharen, Sue, Jane, Tammy, Karen V., and Michelle!

March and April are our busy months with Hygeia Day, our Parent-Daughter Brunch, more bagel sales, a Hoagie Sale, and of course, lining up a date for our Spring Formal in April. We also continue to update monthly our Drug Information Board located in the college.

Of course, don't forget sisters, that the Midwestern Regional Meeting for 1983 will be held in St. Louis on August 5-7th. We have been working diligently to ensure that a good time will be had by all. I hope to see a lot of you here in August!

Martha Endris, Historian

### Alpha Iota

Hello sisters! Winter term is finally over at Ferris State College and Alpha Iota joins the rest of the school in a sigh of relief. But despite the studying, we have taken part in many new projects and activities in the past few months. The most significant one being the coordination of our first Hopscotch for Hope. The committee worked hard in

preparation and the chapter showed its appreciation and enthusiasm by raising nearly \$700 in pledges. The hopscotch was held in January at a mall in Grand Rapids, Michigan. We all enjoyed the Saturday of hopping and shopping. Local newspapers and radio stations supported the event with coverage and advertising. We even made the television evening news! The experience not only proved to be beneficial for Project Hope but also good for our fraternity.

Other events for winter term included Christmas parties, our annual Winter Formal, and many professional projects. We always start the Christmas season off with a tree and house decorating party with men of Kappa Psi. We also have our own pot luck Christmas dinners which this year included a surprise caroling visit by the men of Phi Delta Chi. We also worked with the Phi Deltas on a Christmas party for underprivileged children in the community.

Winter Formal was in Traverse City again this year. We included a tour through a local winery that ended in a wine tasting session which proved to be very "enlightening". Also for the first time at our banquet we had a guest speaker and presentation of chapter awards. Congratulations this year go out to Sally Brandt as Pledge of the Year and again to Denise Dupras as the Lamb of the Year for the third year in a row!

Professional projects consisted of our quarterly blood drive with the Phi Deltas, hypertension screening at local pharmacies in coordination with SAPhA, and various programs for the senior citizens center. We presented a program on exercise for the elderly and also provided an opportunity for them to bring in their medications for consultation.

Fund raising consisted mainly of selling cookbooks and Kodak coupon books. Sports included intramural women's basketball and co-ed volleyball with the KY's.

With spring term comes the election of new officers. The new Executive Board members are:

Karen Grise, President  
Jaci White, Vice President  
Sally Brandt, Treasurer  
Linda Weaver, Secretary  
Jackie White, Sergeant at Arms  
Cherly Bicanich, Editor

A movie on Home Hospice and a guest speaker are planned for Hygeia Day. We are also planning skits and songs for Pharmacy Phun Night. Parents Day is set for April 16th with a

Cont'd Page 4

*Collegiate News Cont'd  
Alpha Iota - Cont'd*

tour through the pharmacy building and a dinner for all of our parents planned.

We are happy to announce that Barb Seaver, an instructor here, is interested in becoming a patron and we are all looking forward to working with her.

Sports planned for spring term include a Panhel Bowling Tournament and intramural softball and volleyball. We are also planning our usual canoe trip for the day after school gets out for summer break and hopefully a spring barbecue.

Many girls hope to attend the Regional Meeting in St. Louis and are looking forward to meeting other Lambs from the Midwest Region. Good luck the rest of the year and have a great summer!

Cheryl Bicanich, Editor

### **Alpha Kappa Chapter**

Alpha Kappa Chapter has been very busy this quarter. Just recently we elected officers for the upcoming year. They are: President: Jenny Neel; Vice-President: Fran Harrison; Treasurer: Donna Moires; Corr. Secretary: Marsha Kapiloff; Rec. Secretary: Sadie Shaw; Historian: Leisa Marshall; Chaplain: Beth Black; Pledge Trainer: Beth Magan; and Social Chairman: Tuaci Mallon.

For Valentine's Day we entertained the nursing home patients at Cedar Hills Nursing Home in Athens. Refreshments and party favors were enjoyed by everyone. We also sold 'Val-O-Grams'. For a quarter you could send a Val-O-Gram attached with a lollipop to your favorite Valentine. It was a lot of fun for everyone.

In the spring, May 21st, our Mother-Daughter Banquet will be held. This is an annual event where all the mothers are invited to a luncheon. At this time special awards and recognitions are awarded to outstanding sisters. This is a special time for all of us.

This has been a busy and exciting quarter. We are looking forward to another one just as great as this one. Take care sisters and best of luck to all. Submitted by Paula Bowers.

### **Alpha Nu**

Since November, the Alpha Nu Chapter and its members have been very active. In December, the fraternity sponsored the Annual Christmas Formal for the College of Pharmacy. This year the dance was held at Spindletop Hall, a

million dollar mansion built in 1935, and the featured band was Good 'Nuff. After returning from Christmas vacation, the 28 new members rushed in the fall were initiated and officers elected on Feb. 1. The Initiation Banquet was held the next evening at Columbia Steak House. Myra Miller received a plaque for Most Outstanding Pledge. Linda and Lisa Hardy were recognized for their contribution to the fraternity, and our former President, Robin Hull, received the "Lamb Award" for all her hard work and dedication.

On Feb. 11, the former Pledge class sponsored a Valentine Day Party for the College of Pharmacy. This was a charitable event because canned goods and donations were collected and donated to the Community Kitchen in Lexington. Becky Hunter, our Southern Regional Supervisor, visited us on Feb. 19. After a very informative meeting with old and new officers, everyone enjoyed a breakfast of croissants and orange juice overviewing Lexington on the 20th floor of the Patterson Office Tower. Our Hygeia Day program was held as part of National Women's History Week Calendar of Events in Lexington. The chapter sponsored a Brown Bag Forum entitled, "Women, Health and Drugs," which consisted of a panel of four members discussing past and current uses of drugs by women. Emphasis was given to oral contraceptives, analgesics, and minor tranquilizers. This program was coordinated by our Treasurer, Karen Boll.

In March, a new activity was started, as "Spring Fever" hit our members. An aerobics and exercise class is now being held twice weekly in the Pharmacy lounge. Another program still in the planning stages is the "Breast Self Exam Program," that our fraternity hopes to present to other sororities on campus.

In addition to our activities as a fraternity, several of our members have received honors. In the fall semester, 18 of our sisters made the Dean's List. Our current President, Leanne Pullins, was crowned Miss Kentucky Valentine in February. Leanne was sponsored by Kappa Psi, and received a plaque and roses. Linda Hardy, a fourth year member, was named Kappa Psi Sweetheart this year at their banquet in March. Elizabeth Russell, a fourth year member, was elected President of the Rho Chi Honor Society. The members of the Alpha Nu Chapter are very proud of our chapter accomplishments and will continue to work hard and be active in the field of Pharmacy.

### **MEET YOUR GRAND COUNCIL**



**PRESIDENT**

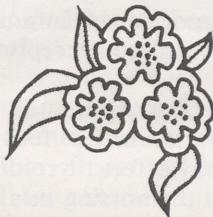
Mary Grear is a 1972 graduate of the St. Louis College of Pharmacy. She was initiated into Alpha Zeta Chapter in 1968 and was a charter member of Alpha Zeta Alumnae Chapter in 1972. After three years experience as Chapter Treasurer, Mary was elected Southern Regional Supervisor from 1974-76 and served as Grand Treasurer from 1976-82. This is her first term as Grand President.

A native of Illinois, in 1975 Mary received the Ed Barcus Memorial leadership Award from the Illinois Pharmacists Association for outstanding leadership and service in pharmacy and in the community. In the same year she received an Outstanding Volunteer Service Award from the Illinois Heart Association and was listed as one of the Outstanding Young Women of America. In 1977, Mary received a Central Illinois Pharmaceutical Association "Meritorious Service Award" in special recognition and appreciation for outstanding performance of "Service Before Self" rendered in the highest professional standards to the Pharmaceutical and Medical Community. She continues to be active in her local county pharmaceutical organization. Mary has many years of service on both the Cape Girardeau Pharmaceutical Association and the Central Illinois Pharmaceutical Association Board of Directors and has been a member of the Illinois Pharmacists Association House of Delegates.

In addition to her Lambda Kappa Sigma duties as Grand President and Director of our International Office, she has become very active with the Professional Fraternity Association. In 1981-82 she was elected to the Board of Directors and for the 1982-83 year has been elected PFA Secretary. Mary also is chairing the PFA Survey Committee for the second year.

Mary is employed in both retail and hospital pharmacies in about a 60 mile radius of Cape Girardeau. Doing relief work as needed, she has developed a nearly full time schedule. She finds the experience of working in as many as four different pharmacy settings in one week exciting and challenging.

Her husband, Sam, is also a pharmacist. He is Director of Pharmacy Services at Pemiscot County Hospital in Hayti, Missouri. They have two daughters, Emily, 4 years old and Sarah Jo, born September 3, 1982. The Grears enjoy hiking and canoeing the national riverways. In June of 1983 they will be attempting a raft trip down one of Colorado's rated Whitewater rivers. Mary's interest in crafts and needlework has been set aside for the time being, but she hopes to revive that interest when time once again permits.



#### GRAND TREASURER

Nancy Horst, Grand Treasurer, graduated from the University of Washington School of Pharmacy in 1962. She was initiated into Chi Chapter in 1959, and held several chapter offices. She has also held every office in Chi Alumnae Chapter, and has just completed a term as president. She is on the hotel and registration committees for the 1984 Seattle Biennial Convention.

Professionally, Nancy has worked at General Hospital of Everett, a 225-bed community hospital, since 1962. She has been Unit Dose Coordinator since 1977, and recently supervised implementation of decentralized pharmacist service using master medication carts. She is a member of the American Society of Hospital Pharmacists, Washington State Society of Hospital Pharmacists, Washington State Pharmaceutical Association, and Girl Scouts of America.

Another interest of Nancy's is assisting at the Northwest Program Development Center, based at Highline Community College, which develops and presents continuing education workshops for educators, and for managers in various health service fields.

Nancy's husband, Gene, graduated in the same class in Pharmacy. He is Director of Pharmacy and Central Services at Fircrest School in Seattle, an institution for the developmentally disabled. They have three daughters, Anita, 16, Karen, 13, and Laura, 10, who are active in Scouts and various music groups. The family enjoys traveling and camping in the scenic Northwest.

Nancy's hobbies include reading, needlework, and home computers. She recently bought a Kaypro personal computer, and expects it to be of great help in record keeping for the Treasurer's Office.



#### LKS - ASHP BREAKFAST

Lambda Kappa Sigma was well represented at the American Society of Hospital Pharmacists Clinical Midyear in December, 1982. The sisters took time out from the rigorous Los Angeles schedule to share breakfast, trade pharmacy experiences and problem solving techniques as well as swapping tourist information.

The next ASHP Annual Meeting will be held in Detroit, Monday, June 6th thru Friday, June 10th. Make plans now to join us and visit with many other Lambs in celebrating Pharmacy's 100th birthday in Michigan.

Des Montgomery  
Alpha Iota Collegiate,  
Omnicon Alum

#### THE RISKS INVOLVED IN USING DEPO PROVERA AS A PREVENTATIVE MEASURE AGAINST PREGNANCY

Depo Provera, commonly known as medroxyprogesterone acetate or (DMPA), is a progestin that is highly effective in preventing pregnancy. However, there are some risk factors and side effects from taking the drug.

Depo provera is given in two dosages. A dosage of 150 milligrams is given to those individuals with the knowledge that the drug will stay in effect for three months only. Depo provera is injected into the patient intramuscularly. On the other hand, 300 milligrams which is double the first dosage, lasts for an average of six to seven months. Depo provera is so high in estrogen that it has not been passed by the Food and Drug Administration as being a sufficiently long-term, usable drug. The F.D.A. has approved DMPA for use in endometrium cancer in the United States. However, this drug is in effect in 64 countries. It is indeterminate that depo provera will ever be used as a long term contraceptive in the U.S. Once depo provera is injected into the skin, there is no turning back. Therefore, if any problems arise while under the influence of this drug, the only cure is giving the drug time enough to wear off. The reason, as stated before, is because of the high dosages of estrogen. Doctors and scientists are in the process of developing a better method of taking DMPA out of the body. Currently, there have been no discoveries.

The age groups best suited for DMPA are between 21 and 35. The reproduction times are greater during these years than others. At age 21, the body should be mature enough to handle certain body conditions better than younger women.

The age limit is set at 35 because of the risk barriers involved. Some women begin to go into menopause after 35. The use of this drug could cause more harm to the patient than good. This does not mean that there are no women under the age of 20 or over 35 who are using this drug. But as an advisory, this is the best age range to prevent complications later.

Denise Michelle Rison  
Alpha Sigma Chapter,  
Texas Southern University



# Drugs in Breast Milk

by

Ann B. Amerson, Pharm.D.

Ann B. Amerson, a member of Lambda Kappa Sigma, is Associate Professor, director of the Drug Information Center, Albert B. Chandler Medical Center, University of Kentucky. We wish to extend our thanks to the KENTUCKY PHARMACIST, Paul Davis, Editor, for reproduction of this article.

The renewed popularity of breast feeding increasingly generates questions from patients or health professionals about drug effects during lactation. The pharmacist may be asked: Which drugs are found in breast milk? What effect do they have on the infant? Does the child receive a therapeutic dose of a particular drug? Definite answers are difficult to find because the many articles and case reports available sometimes conflict. Often, a report of an adverse effect does not document the presence of the drug in milk or the body's serum. In other gapers, the absence of drug in breast milk is reported without any consideration of absorption and elimination kinetics of the drug. Single dose studies also give questionable results.

Some knowledge of the factors influencing the secretion of a drug into milk is necessary. First, molecular size is an important variable. Small molecules may enter milk by passive diffusion across cell membranes. Occasionally a "carrier" exists in the cell membrane which can transport larger molecules. An example of such facilitated diffusion is seen with molecules resembling fructose. The lipid-water solubility coefficient is another important factor. Water soluble drugs enter milk more readily than do lipid soluble drugs. Since the pH of milk is lower than that of blood, milk may act as an ion sink for weak bases. Of course, all of these factors are tempered by the concentration of the drug in the mother's serum at a given time. Decreased elimination, as seen in hepatic or renal insufficiency, may cause a significant increase in the breast milk concentration of some drug.

## Anti-Infectives

The need for anti-infective agents may arise with some frequency in nursing mothers. Penicillins<sup>1</sup> and cephalosporins<sup>6</sup> are found only in small quantities in breast milk. Although the concentration of these drugs is too small to alter gut flora in the exposed infant, allergic sensitization to the penicillins is a point of some concern.<sup>1</sup> Sulfa drugs

have widely varying pKa's. Thus, they tend to enter breast milk to different degrees. Sulfapyridine and sulfanilamide have been reported to cause displacement of bilirubin and hemolytic anemia.<sup>4</sup> Some authors feel that tetracyclines are so tightly bound to the calcium in milk that the baby absorbs none of the drug. this may protect the forming teeth from discoloration.<sup>1,4</sup> Aminoglycosides appear in breast milk with concentrations sometimes exceeding those of the serum.<sup>1</sup> Streptomycin is a potential cause of eighth cranial nerve damage.<sup>4</sup> Chloramphenicol is found in concentrations high enough to suppress bone marrow, but not high enough to produce grey baby syndrome.<sup>1</sup> Nalidixic acid and nitrofurantoin have been associated with hemolytic anemia in G6PD deficient infants.<sup>1</sup> Metronidazole should not be used in lactating women because it is potentially carcinogenic.<sup>1,7</sup> The antimalarial, pyrimethamine, achieves therapeutic concentration in breast-fed infants up to six months of age.<sup>1,7</sup>

## Cardiovascular Drugs

The drug induced dehydration produced by diuretics decreases the volume of milk produced. Most manufacturers recommend that these drugs be discontinued in nursing mothers. However, thiazides, along with other anti-hypertension agents such as propanolol, methyldopa, and guanethidine, do not reach concentrations high enough to adversely affect the infant.<sup>4</sup> Chlorothalidone is secreted in significant quantities and should not be used.<sup>7</sup>

Digoxin may be safely administered to lactating mothers. Quinidine milk concentrations equal serum concentrations. Women requiring quinidine should not breast feed.<sup>5</sup>

## Narcotic and Other Analgesics

Contrary to popular opinion, most narcotic analgesics are not excreted in milk when administered to the lactation woman in usual therapeutic doses. However, mothers who are addicted and take very large doses of these drugs may develop milk concentrations high enough to be harmful to the child. Neonatal addiction has been treated by nursing when the mother is maintained on methadone, but results are unpredictable.<sup>7</sup> Infants may receive a significant dose of propoxyphene if the mother takes maximal therapeutic doses.<sup>7</sup> Occasional doses probably can be used safely.

Chronic aspirin use has been associated with infant bleeding, but occasional aspirin use is considered to be safe.<sup>1</sup>

## Anticonvulsants

Most anticonvulsant, including carbamazepine, phenytoin, valproic acid,<sup>2</sup> and barbiturates are considered to be safe for use during lactation. Enzyme induction has been reported with barbiturate use. One case of methemoglobinemia has been reported when a mother took both phenytoin and phenobarbital.<sup>7</sup> The manufacturer recommends that primidone not be used in lactation.

## Hormones

Estrogen and other sex hormones are used to suppress lactation in women not wishing to breast feed. It therefore follows that oral contraceptives decrease milk production. This effect seems to diminish in women who have well established lactation.<sup>1</sup> Gynecomastia<sup>7</sup> and proliferation of vaginal epithelium<sup>1</sup> have been reported in infants whose mothers took oral contraceptions while nursing.

Women who require anti-thyroid drugs should not breast feed because these drugs may affect thyroid synthesis and release in the nursing infant.<sup>8</sup>

## Hypnotics

Barbiturates have previously been discussed under the anticonvulsant section. If barbiturates are used for hypnotic purposes, a short-acting compound is preferable to a long-acting one.<sup>1</sup> Chloral hydrate may reach milk concentrations high enough to provide a sedative dose to a nursing infant as one case of drowsiness has been reported.<sup>1,2</sup> When the lipid solubility of glutethimide is considered, it seems wise to avoid this drug. Peak milk concentrations are not reached until 8-12 hours after maternal ingestion.<sup>1</sup> Drowsiness is a potential problem with this drug.

## Anti-anxiety Agents

Chlorazepate, chlordiazepoxide and diazepam are known to partition into breast milk.<sup>7</sup> Diazepam and its metabolites have been implicated as the cause of lethargy, failure to thrive and neonatal jaundice.<sup>1,7</sup> Caution is advisable when using benzodiazepines during lactation. Milk levels of meprobamate exceed those of maternal plasma by 2-4 times.<sup>2</sup> In spite of the occasional reports of problems, benzodiazepines are a better choice if an anti-anxiety agent must be used in nursing women.

### **Anti-psychotics**

Although all phenothiazines are excreted in milk, these drugs cause few problems. Rarely, drowsiness, jaundice and gynecomastia<sup>2,7</sup> have been reported in exposed infants. Extrapyramidal symptoms have occurred in a nursing infant whose mother took high doses of a butyrophenone.<sup>8</sup>

### **Mood-altering Drugs**

Lithium poses a serious threat of toxicity which may be manifested by hypothermia, cyanosis and EKG changes in the infant.<sup>7</sup> Mothers who require lithium should not breast feed.

Tricyclic antidepressants, specifically imipramine and amitriptyline, are excreted in small quantities and are generally considered safe during lactation.<sup>8</sup>

### **Anti-coagulants**

Infants exposed to the anticoagulants, phenindione and ethyl biscoumarate, have developed hemorrhagic problems. Intracranial, post-surgical and umbilical stump bleeding have been reported.<sup>1,4</sup> Alterations in maternal serum levels have been noted during lactation, with resultant loss of control.<sup>4</sup> Warfarin and dicumarol are excreted in small quantities and have been used without adverse effects.<sup>1,7</sup> The oral anticoagulant of choice in the nursing woman is warfarin. Heparin does not enter breast milk.

### **Bronchodilators**

Theophylline is readily excreted into breast milk. Milk concentrations reach peak levels between 1 and 3 hours after the maternal dose is ingested.<sup>9</sup> Toxicity should be suspected if irritability, vomiting and other common side effects of xanthines occur.

### **Hypoglycemic Agents**

Oral hypoglycemic agents are found in milk. There has been some concern that hypoglycemia may result in infants exposed to these drugs. However, at usual therapeutic doses chlorpropamide and tolbutamide produce no adverse effects in the infant.<sup>2</sup> Acid hydrolysis of insulin in the infant gastrointestinal tract prohibits absorption and pharmacologic activity.

### **Anti-cholinergic Drugs**

Atropine and scopolamine are frequently available to nursing mothers in OTC cold preparations. These drugs and hyoscine are excreted in breast milk. Atropine may cause a decrease in milk production as well as causing infant tox-

icity.<sup>2,4</sup> Quaternary anticholinergic agents are ionized at the pH of serum and do not appear in milk.<sup>4</sup>

### **Conclusion**

When a nursing mother must be medicated, several important points should be considered. Protein bound or lipid soluble drugs enter milk slowly, but may accumulate in the infant after multiple doses. Alterations in enzyme activity due to pharmacological agents may change rates of metabolism of drugs and endogenous substances. How this affects growth and development is unknown. Some infants may be extremely sensitive to small quantities of drugs secondary to genetic defects.

Consideration of factors such as pKa, lipid solubility, protein binding and pharmacokinetics may help in making judgments about drugs where definitive data does not exist. In some cases, the administration time of a drug may be adjusted so the mother does not nurse at the time of peak drug concentration in the milk.

Situations where a new mother wants to breast feed and requires chronic modification are more likely to arise. The pharmacist can recognize some of these situations and provide counsel to patients as well as information to other health professionals.

### *References available on request*



## **1983 REGIONAL MEETINGS REMINDER**

The 1983 Regional Meetings will be held this fall. Tentative dates for your area include:

Northeastern and Mideastern Regions will hold a joint meeting probably in the Pocanos in October 1983. Representatives will come from Pi and Delta chapters.

Southern Region will meet in Athens, Georgia, in September or October, with Alpha Kappa as hostess. Representatives will come from Alpha Nu.

Western Region will meet in October in Portland, Oregon, with Rho and Upsilon as co-hostesses. Representatives will come from Alpha Lambda.

Midwestern Region will meet in August in St. Louis with Alpha Zeta as hostess. Representatives will come from Phi chapter.

More details will be sent to your chapters from the prospective hosting chapter.

*Connolly Cont'd from Page 1*

and sisterhood that has nurtured LKS through nearly 7 decades. Her physical presence will be deeply missed but her love of LKS lives on.

Of special importance to our memory of Mary Connolly Livingston is her significant role in the establishment of the Lambda Kappa Sigma Educational Trust. Mary's initial generous donation laid the basis for what has become the funding source for over \$8000 each biennium in graduate and undergraduate pharmacy educational grants. Those funds will continue to grow and be available to financially assist deserving pharmacy students. In this manner, Founder Mary has insured the lifeblood of her profession and that of her Fraternity.

It is the request of Mary Connolly Livingston that all donations in memory of her go directly to the LKS Educational Trust. All those who personally remember this woman and all those LKS sisters and chapters who exist because of the foresight of Mary and our other Founding Members will want to contribute to the Educational Trust. Your memorial contribution may be sent to the LAMBDA KAPPA SIGMA EDUCATIONAL TRUST, 6181 North Parker Ave., Indianapolis, IN 46220. Your support of the cause that Mary held so dear will help to insure sound professional training for pharmacists of the future. That is a wonderful opportunity — and a substantial professional responsibility.

Avis J. Ericson  
Grand Secretary

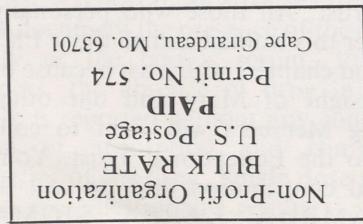
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**November 1, 1983**

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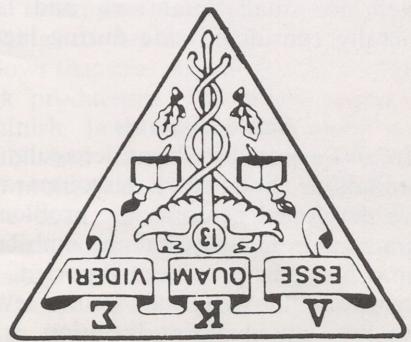
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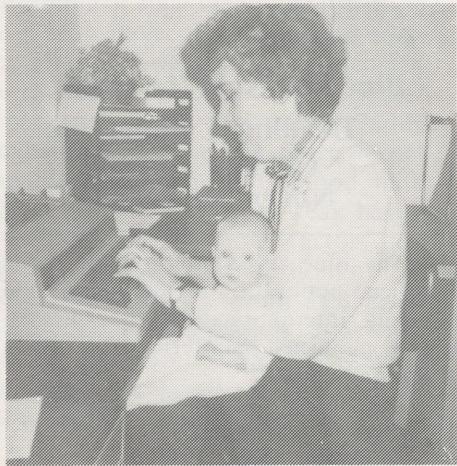




**LAMBDA KAPPA SIGMA**  
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## OFFICE SPOTS



A frequent visitor to the Office these days is the Grand President's daughter. Sarah. Sarah looks on as International Office Secretary Donna Magwitz types memos on our new electronic typewriter.



Address updates continue to come from our sister chapters. With the Televideo CRT, Office Secretary Donna Magwitz is able to keep our mailings current from the International Office.

\*2640 Cookbooks have been distributed since the July unveiling. There's still a chance for you to purchase one from the IO by writing to:

Lambda Kappa Sigma  
 "A Collection of Favorite Recipes and Ideas"  
 2025 Andrew  
 Cape Girardeau, MO 63701  
 Please enclose \$7.50 for your copy.  
 Checks may be made payable to Lambda Kappa Sigma.

\*The 1982-84 Manual for Chapter Operations-By-Laws is scheduled for distribution to chapters in January. Individual copies may be obtained at no charge from the International Office.

\*The Lambda Kappa Sigma Educational Trust Fund Raising Drive continues. We need your help in reaching our annual goal. This year's Cora E. Craven Grants were increased both in dollar amount and in number awarded to twelve grants of \$300.00 each. The B. Olive Cole Grant value increased to \$500.00. Help us to make these continue to grow.