

A New INTERDISCIPLINARY Approach to Assisted Living and Elder Care Training

Nearly 13% of the U.S. population—almost 32 million Americans—are 65 years of age or older. The number of elderly continues to grow rapidly, and this growth is predicted to continue well into the next century. By the year 2030, the number of persons in this age group is expected to reach 65 million, twice the current number, representing 22% of the total population.¹

In response to this pressing demographic imperative, the assisted living (AL) industry has evolved to serve large numbers of frail older adults who require 24-hour supervision but do not need skilled nursing care. In contrast to nursing facilities, most AL facilities strive to create a nonmedical model of care that supports residents' independence to the greatest extent possible. In most AL settings, medical care is delivered off site and nurses, if present at all, serve in an advisory or administrative capacity.

At present, it is estimated that one million Americans, the majority of



The ASCP Research and Education Foundation, in cooperation with the University of Maryland Schools of Pharmacy and Nursing and Sunrise Assisted Living, recently coordinated development of an interdisciplinary clinical clerkship in assisted living. Here, the architects of the new clerkship model report the results of their six-month pilot study.

NICOLE BRANDT, PHARM.D, is Assistant Professor and Deputy Director, The Peter Lamy Center on Drug Therapy and Aging, and MADELINE FEINBERG, PHARM.D, is Director, Elder Health program, University of Maryland School of Pharmacy, Baltimore. (At the time of the pilot study, Brandt was Pharmacy Resident in Geriatric Pharmacotherapy, and Feinberg was Assistant Professor, University of Maryland School of Pharmacy). ANN MARIE SPELLBRING, RN, PH.D, is Associate Professor, University of Maryland School of Nursing, Baltimore. JANICE FEINBERG, PHARM.D, JD, is Executive Director, ASCP Research and Education Foundation, Alexandria, Virginia.

ACKNOWLEDGEMENTS: The interdisciplinary clerkship model discussed in this article was developed and pilot tested under an unrestricted educational grant provided by The Merck Company Foundation and administered by the ASCP Research and Education Foundation.

**Nicole Brandt
Madeline Feinberg
Ann Marie Spellbring
Janice Feinberg**



The survey revealed

that over 50% of pharmaceutical education programs have no requirements of any kind regarding aging-related content or experience for pharmacists-in-training.

whom are elderly, reside in AL facilities, and an additional 3.2 million Americans are at risk for AL facility placement.² Today, the typical AL resident is older and more disabled than the typical AL resident of a decade ago. A recent 10-state study on quality of care in board and care homes, including AL facilities, found that 30% of residents were 75–84 years of age, 34% were 85 years or older, 40% had moderate to severe cognitive impairment, and nearly 50% needed assistance with one or more activities of daily living.³ A recent survey of medication use in AL residents found that 88% were taking one or more prescription medications, 24% were taking seven or more prescribed medications, and 41% were receiving one or more psychotropic medications.⁴

Regulation and/or licensing of AL facilities are the responsibility of individual states. Unlike nursing facilities, which are federally regulated under Medicare and Medicaid Conditions of Participation and operate under a federal mandate requiring pharmacist oversight of medication use and drug therapy outcomes, AL facilities in only a few states (New Jersey, North Carolina, Oklahoma) have any requirements for pharmacist supervision of medication use.

ADDRESSING A GREAT NEED

The increasing need for properly coordinated health services for the elderly presents a substantial chal-

lenge to health care professionals, and meeting this challenge will require, among many other things, a vigorous commitment to education. Schools of pharmacy must begin to address the need for geriatric education to prepare pharmacists to handle the challenges of caring for an increasingly aged society.

Recently, a survey was sent out to U.S. schools of pharmacy assessing a range of pharmaceutical education program characteristics, including requirements with regard to gerontology/geriatrics education. The survey revealed that over 50% of pharmaceutical education programs have no requirements of any kind regarding aging-related content or experience for pharmacists-in-training. Specifically, 100 programs (47%) had no didactic courses in gerontology/geriatrics, 40 programs (19%) had no courses integrating aging-related content with other didactic courses, and 73 programs (34%) had no experiential courses or clerkships in geriatrics.⁵

To help foster enhanced gerontology/geriatrics training at U.S. schools of pharmacy and nursing, the ASCP Research and Education Foundation worked collaboratively with the University of Maryland Schools of Pharmacy and Nursing and Sunrise Assisted Living, Mid-Atlantic Region, to develop a model of interdisciplinary clinical training to promote enhanced quality of care of seniors residing in AL settings. The project was funded by an

unrestricted grant from The Merck Company Foundation.

A NEW LEARNING MODEL

The interdisciplinary, experiential geriatrics rotation model developed for the project was designed to foster increased collaboration by gerontological nurse practitioner (GNP) and doctor of pharmacy students. The two complemented each other by improving the nurse practitioner's awareness of the pharmacy students' role, providing an opportunity to increase knowledge of medication use in the elderly. The pharmacy student was able to get more hands-on experience in physical assessment from the GNP, as well as recognize the increasing role of the GNP as a primary care provider in long-term care. This experience was designed to foster collaborative practice in the future.

The joint clinical clerkship was specifically designed to support the social model of care characteristic of the AL environment. Table 1 lists the overall goals of the clerkship program.

Following development of the clerkship structure and objectives, a six-month pilot project was planned. Pharmacy and nursing school faculty with expertise in geriatrics served as student preceptors and coordinated clerkship site selection. A pharmacy resident specializing in geriatrics provided on-site supervision of the pharmacy student and overall program supervision. As advanced

TABLE 1. INTERDISCIPLINARY CLERKSHIP PROGRAM GOALS

- To investigate the feasibility of an interdisciplinary model of health care delivery that supports the social model of the assisted living environment
- To expose students to health-related needs of frail elders in assisted living
- To test a model for the provision of pharmaceutical care to elderly persons at highest risk for medication-related problems
- To prospectively identify residents at risk for falls and prevent or decrease the number of falls
- To develop a model that will assist other schools of nursing and pharmacy in establishing similar programs

TABLE 2. JOINT CLINICAL CLERKSHIP LEARNING OBJECTIVES FOR PHARMACY STUDENTS

At the completion of this experiential learning program, the pharmacy student will be able to:

1. Identify the signs and symptoms of disease states and syndromes commonly encountered in elderly patients.
2. Participate in the drug therapy decision-making process and perform the following tasks for elderly patients residing in assisted-living communities.*
 - Collect and record patient-specific data (pharmaceutical care database).
 - Identify, record, and assess patients' actual and potential medication-related problems.
 - Develop and record pharmaceutical care plans.
 - Educate patients and health care professionals on appropriate use of drugs.
 - Measure and document patient outcomes.
3. Provide drug-related information to residents, families, and members of the interdisciplinary care team in the assisted living community.
4. Compare and contrast the role and contribution of each interdisciplinary team member.

* These activities represent the major core performance outcomes for Phase IV pharmacy practice rotations.

TABLE 3. JOINT CLINICAL CLERKSHIP LEARNING OBJECTIVES FOR NURSING STUDENTS

At the completion of this independent study project, the advanced practice nursing student will be expected to:

1. Develop a comprehensive assessment of functional health status to identify those residents with the greatest health risks and needs.
2. Work with AL facility staff to evaluate and revise existing assessment tools.
3. Identify appropriate pharmacologic and nonpharmacologic interventions.
4. Develop resident-specific education plan for knowledge of and compliance with drug therapy.
5. Prepare care plans for residents at high risk for adverse reactions to drugs and/or falls.
6. Facilitate resident participation in self-care.



We recruited students

who sought to acquire skills working with frail elders in the ambulatory care setting.

practice nursing students are already licensed nurses, there was no need for on-site nursing supervision.

Sunrise Retirement Homes, a large national chain of AL facilities, was recruited to provide a clerkship site for the project. The founder of Sunrise is a member of the nursing school's Board of Visitors and had previously worked closely with several long-term care pharmacy providers. Sunrise's regional nursing director served as the liaison between the company and the local AL facility. The facility was selected on the basis of its proximity to the university, its full census in both AL and independent living sections, the interest and experience of the facility's wellness nurse, and the

availability of a geriatrician, who attended more than half of the AL residents on site.

PROGRAM OBJECTIVES: PHARMACY

Fourth-year entry-level and nontraditional (post-baccalaureate) doctor of pharmacy students were eligible to participate in the clerkship as part of their required experiential learning program. We recruited students who sought to acquire skills working with frail elders in the ambulatory care setting. Students were expected to develop an understanding of both the medical and social needs of this population. In order to receive academic credit for experiential learning, pharmacy students were required to meet mandatory objectives for the school of pharmacy's general pharmacy practice clinic rotations (Phase IV experiential learning) or for the geriatric pharmacotherapy elective experience (Phase VI). Terminal performance objectives for Phase IV and Phase VI are summarized in Table 2.

PROGRAM OBJECTIVES: NURSING

Second-year advanced practice nursing students were eligible to participate in the program for one credit as an independent study course. A list of course objectives was developed (Table 3). Students met regularly with the faculty preceptor, who visited students on site. Additional objectives specific to this pilot project were also developed

TABLE 4. TERMINAL PERFORMANCE OBJECTIVES FOR PHARMACY AND NURSING STUDENTS

At the completion of a four-week rotation assignment, students will be expected to jointly:

1. Assess five to 10 residents assigned by the facility wellness nurse.
 2. Meet biweekly with the pharmacy resident to present resident care plans.
 3. Write a clinical note summarizing nursing and pharmacy assessments and the plan for each resident.
 4. Ensure that the appropriate physician receives the note within one week of placement in the resident's chart
 5. Follow up on all recommendations, and document outcomes in a written note to be placed in the resident chart and copied to the wellness nurse and the resident or the resident's family.
 6. Present in-service programs, answer drug information questions and/or assist in medication or nursing-related training for direct caregiver staff at the facility.
-

TABLE 5. CRITERIA USED TO IDENTIFY AL RESIDENTS AT RISK FOR DRUG-RELATED PROBLEMS OR FALLS

-
- Current use of five or more medications
 - Recent history of falls
 - New-onset incontinence
 - Change in mental status
 - New admission to the facility
-

for both the pharmacy and nursing students Table 4.

CLINICAL ACTIVITIES

Residents who were deemed to have potential or actual medication-related problems were referred to the students by the wellness nurse at the facility. ASCP has developed criteria to identify elders at high risk for medication-related problems,⁶ and these criteria were applied to resident selection for intensive medication review (Table 5). The prevalence of inappropriate medication use⁵ was measured in those residents who were seen by the students.

In addition, all residents newly admitted to the facility were also referred to the students for medication review. Residents who experienced a change in status (e.g., cognitive decline, falls, new-onset or worsening incontinence) were also referred for student evaluation. The students were also asked by Sunrise's regional coordinator to evaluate and suggest revisions to the "Falls Assessment Tool" already in use by Sunrise AL facility staff.

SCHEDULING AND ORIENTATION

Students rotated at the facility for one-half day (five hours) per week. The pharmacy student could choose either a four- or eight-week rotation assignment, while the nursing student was required to do an eight-week rotation; thus, both members of the interdisciplinary clerkship team were usually working

together over a four-week period.

Prior to attending the rotation, the faculty preceptors and/or the pharmacy resident met with the students to provide background on the AL setting and the typical characteristics of the AL population. Information regarding staff structure and the skills of the direct caregivers (resident assistants) at Sunrise was also provided. A suggested reading list was provided to the students (Appendix A).

PILOT STUDY RESULTS


Our experience developing and pilot testing the clerkship model showed that an interdisciplinary clerkship for pharmacy and nursing students can be successfully implemented at an AL practice site. Our experience also holds a number of valuable lessons and insights to guide other schools of pharmacy and nursing in establishing similar clerkship programs.

CLINICAL INTERVENTIONS

Students collaboratively performed a review of body systems, detailed medication history, and drug regimen review for all residents referred to them by the Sunrise wellness nurse. Either the pharmacy student or nurse practitioner student administered assessment tools such as the Folstein Mini-Mental State Exam, a geriatric depression screening tool, mobility tools, a urinary incontinence assessment, and an activities of daily living assessment. The pharmacy student observed the performance of the physical examination under

TABLE 6. REASONS FOR REFERRAL TO THE INTERDISCIPLINARY STUDENT TEAM

Problem	Frequency
Current use of five or more medications	7
New-onset confusion	5
At risk for falls	4
Medication noncompliance	4
Dizziness	1
Weight loss	1
Incontinence	1
Wound care issues	1



the direction of the nursing student. The pharmacy student conducted a detailed medication review jointly with the nursing student, assessing residents for drug therapy effectiveness and drug toxicity, and screening for drug-drug or drug-disease interactions. The students met jointly with family members or caregivers such as home health care nurses, and they shared responsibility for communicating results of the medication review with the prescribing physician.

A total of 22 residents were referred to the students over the course of six months. Reasons for referrals to the students are listed in Table 6. The average age of the residents was 81 years, the majority were female (63%), and they had, on average, 6.5 distinct medical diagnoses (range 2–7). On average, these residents were receiving



ASCP has developed

criteria to identify elders at high risk for medication-related problems, and these criteria were applied to resident selection for intensive medication review.

TABLE 7. NUMBER AND TYPE OF INTERVENTIONS BY INTERDISCIPLINARY STUDENT TEAM

Intervention	Frequency
Untreated medical or psychiatric problem; referred to physician	10
Untreated indication; new medication recommended	9
Medication noncompliance	7
■ Nurse administration of medications recommended	1
■ Facilitated self-administration of medications	4
■ Patient education	2
Ineffective dose; increase dose	5
Unnecessary drug; discontinue	4
Drug toxicity; decrease dose or discontinue	3
Monitor for drug effectiveness or toxicity	5
■ Monitor labs	2
■ Monitor vital signs	3
Modify environment for safety and fall prevention	2
Prevent potential problems	6
■ Risk of dehydration; increase fluid intake	1
■ Post mastectomy; refer to cancer support group	1
■ Physical therapy evaluation	1
■ Alter timing of medication administration	1
■ Monitor food intake and weight	1
■ Prevent skin breakdown; staff education	1

7.7 medications (range 2–18).

The most frequent reason for referral was to determine the resident’s ability to self-administer medications. In addition to evaluating the resident’s cognitive and functional ability to self-administer medications, the students recommended strategies to assist the resident and to monitor compliance; when appropriate, they recommended that residents no longer self-administer medications. This usually entailed interactions with family members or direct caregiving staff. Of note, residents are charged an additional fee for medication administration. Students gained insights into the dilemmas faced by elderly regarding loss of independence, financial burden, and family denial regarding cognitive impairment of loved ones. Table 7 presents information on the frequency and types of interventions made by the student interdisciplinary team.

EDUCATION AND TRAINING INTERVENTIONS

Students presented in-service programs to staff on disease management and medication administration (proper medication pass procedure), and also made presentations on medication-related topics (e.g., concomitant use of herbal and homeopathic remedies) to the independent-living residents. When schedules permitted, the students attended rounds with the geriatrician and physician assistant.

The students revised the existing Falls Assessment Instrument and “Monthly Wellness Summary” used by

Sunrise staff to monitor residents for change in status.

PROGRAM EVALUATION

Four entry-level PharmD students, two non-traditional PharmD students, and three advanced practice nursing students participated in the pilot program. With the exception of one pharmacy student with previous clinical training in a long-term care facility, none of the others had any experience working with an at-risk elderly population.

All students described the rotation as a “very positive” or “unique” experience, although all noted the difficulty and frustration of working in the AL environment, where care is fragmented, communication among providers sporadic, and staff medical skills minimal. Despite those challenges, the students described the working environment as individually rewarding based on residents’ enthusiastic response to their interventions, as well as their freedom to take time to do a proper assessment of problems. Students unanimously liked the interdisciplinary training model because it enabled them to learn more about their counterparts’ expertise and because it facilitated the team approach to resident care—an approach they felt was sorely lacking in this setting.

IMPLEMENTATION CHALLENGES

The major challenges encountered by the student team related to the ill-defined channels of communication

TABLE 8. RECOMMENDATIONS ON ESTABLISHING AN INTERDISCIPLINARY JOINT CLINICAL CLERKSHIP IN THE AL SETTING

Recommendation	Rationale/Comments
Inform all participants of program and goals verbally and in writing.	Participants include all facility staff, all residents, attending physicians, family members.
Develop and formalize the process for resident referrals.	Provide detailed explanation of criteria for resident referral to responsible party (e.g., wellness nurse). Designate a special place (e.g., notebook, posted list) where residents referred to students are listed.
Identify staff member to assume responsibility when wellness nurse is not available.	Ensure that other staff members are informed of is program and prepared to assume responsibility for referrals and follow up.
Schedule regular weekly meetings with wellness nurse/staff members to keep them informed of student activities.	In the event other commitments interfere with regularly scheduled meetings, ensure that faculty or students call during the week to maintain good communication with facility staff.
Ensure follow up with each resident and family members verbally and in writing.	Document all interventions and ensure that all involved parties are aware of student activities.
Orient students to philosophy of the assisted living environment.	Most assisted living facilities are not structure in the medical model; documentation and medication monitoring are more informal than in institutional setting. Students need to develop new strategies to ensure follow-up on recommendations.
Mentor students closely, and provide feedback.	Absence of faculty or other licensed health care professionals on site requires close supervision by faculty preceptors.

APPENDIX A. SUGGESTED READINGS FOR CLERKSHIP PARTICIPANTS

1. Beers MH. Explicit criteria for determining potentially inappropriate medication use by the elderly. *Arch Intern Med* 1997;14:1531-6.
2. Clark PG. Values in health care professional socialization: implications for geriatric education in interdisciplinary teamwork. *Gerontologist* 1997;17:441-5.
3. Rochon PA, Gurwitz JH. Optimising drug treatment for elderly people: the prescribing cascade. *BMJ* 1997;315:1096-9.
4. Kresevic DM, Mezey M. Assessment of function: critically important in acute care of elders. The NICHE faculty. *Geriatr Nursing* 1997;18:216-21.
5. Molley DW, Alemaychu E, Roberts R. Reliability of a standardized minimal state examination compared with the traditional minimal state examination. *Am J Psychiatry* 1991;148:102-5.
6. Penn C, Lekan-Rutledge D, Joers AM et al. Assessment of urinary incontinence. *J Gerontol Nursing* 1995;8:8-19.

between the pharmacist, physician, and other AL providers, particularly when the physician was off site. Follow-up required great persistence on behalf of the student team; delays of a week or more in initiation of recommended changes in medication orders were not uncommon. In addition, residents and their families were not adequately informed about the pilot program, nor were their physicians or direct care providers on staff. The need to make numerous phone calls and provide detailed explanations undoubtedly delayed implementation of the program.

Moreover, staff turnover, illness, and the need to attend to other administrative responsibilities distracted the wellness nurse from making referrals to the students on a weekly basis and, in some cases, from

ensuring that the providers received the students' plans. Also, because this program was a pilot, there were no processes or systems in place at the facility to accommodate the students' activities.

Given these problems, we developed a list of suggestions to facilitate the implementation of a similar interdisciplinary clinical training program in the AL setting (Table 8).

FINAL NOTES

Our six-month pilot study demonstrated that an interdisciplinary clinical rotation for doctor of pharmacy and advanced nurse practice students can be successfully implemented in the AL setting.

Students who participated in the pilot identified and assessed residents deemed to be at high risk for medica-

tion-related problems or falls and made recommendations to the residents' prescribers. Despite barriers associated with the development of this program, the students made a number of interventions as a team and gained greater understanding of their colleagues' expertise.

It is our hope that this experience will encourage other schools of nursing and pharmacy to seek opportunities for interdisciplinary clinical training, particularly training designed to help AL residents and other community-dwelling frail elderly maintain functional ability and independence. ☺

REFERENCES

1. United States Department of Commerce, Bureau of Census. Projections of the population of the United States, by age, sex and race: 1988 to 2080. Washington, DC: U.S. Government Printing Office; 1989.
2. Select Committee on Aging, Subcommittee on Health and Long-term Care, U.S. House of Representatives. Board and care homes in America: a national tragedy (committee publication no. 101-711). Washington, DC: U.S. Government Printing Office; 1989.
3. Larrat EP, Spore D, Mor V et al. Medication utilization in board and care facilities. *Consult Pharm* 1995;10:1267-77.
4. Spore DL, Mor V, Hiris J et al. Psychotropic use among older residents of board and care facilities. *J Am Geriatr Soc* 1995;43:1403-9.
5. Dawson GD. Geriatric-care education and training: surveys of pharmacy education and state home care associations. In: *Gerontology & geriatrics education* (in press).
6. Fouts M, Hanlon J, Pieper C et al. Identification of elderly nursing facility residents at high risk for drug-related problems. *Consult Pharm* 1997;12:1103-11.