INSTRUCTIONAL DESIGN AND ASSESSMENT

Geriatric Care as an Introductory Pharmacy Practice Experience

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Objective. To describe the design, delivery, and impact of a geriatric introductory pharmacy practice experience (IPPE) to develop students' skills related to consultant pharmacists' roles and patient care responsibilities.

Design. A required 2-unit geriatric IPPE, involving 40 hours in a geriatric-care facility, 5 reflection hours, and 12 classroom-discussion hours, was developed for first- and second-year pharmacy students. Students interviewed patients and caregivers, reviewed patient charts, triaged patient needs, prepared care plans, and performed quality-assurance functions.

Assessment. After completing the IPPE, students' geriatric- and patient-care abilities were enhanced, based on review of their interactions, care plans, reflections, and examinations, and they demonstrated cognitive, affective, and psychomotor-domain learning skills. Students' care plans and quality assurance activities revealed positive patient outcomes, opportunities for measurable patient health improvement, and a positive impact on quality assurance activities. Student evaluations and feedback from health workers at the facilities also were positive.

Conclusions. This geriatric IPPE in which students cared for a specific patient and interacted with other health care providers is an innovative approach to enhancing students' abilities to serve the growing geriatric population.

Keywords: introductory pharmacy practice experience, geriatrics, pharmaceutical care, active learning, patient care

INTRODUCTION

As identified in the Institute of Medicine's (IOM) 2008 report, *Retooling for an Aging America*, the need for pharmacists trained in geriatric care will continue to increase.¹ By the year 2050, the US population age 65 years and older will increase to 88.5 million, more than twice the 2010 population of 40.2 million. Over the same period, the number of people 85 years and older is projected to increase from 5.8 million to 19 million. By 2030, nearly one fifth of US residents will be 65 years of age or older.²

Classroom education in senior care is essential, but effectively applying that knowledge in actual patient care is even more important. Senior care differs from care for younger patients because it involves biological, physiological, pharmacokinetic, and pharmacodynamic factors, along with the functional decline associated with aging. Emphasis on geriatric pharmacotherapy education must grow with the aging population.

A structured approach in the cognitive domain provides the necessary foundation for delivering geriatric care. Learning in the affective domain is fostered through direct student-patient interaction. Student knowledge, comprehension, application, analysis, synthesis, and evaluation are facilitated by active learning and through actual patient interaction. Integration of didactic education with experiential application facilitates student learning across several domains.³⁻⁹

The American Society of Consultant Pharmacists (ASCP) is an international professional society with the mission of promoting the appropriate, safe, and effective use of medications in the elderly. ASCP provides leadership, education, advocacy, and resources to advance the practice of senior care pharmacy by pharmacists as well as pharmacy students. The ASCP Geriatric Pharmacy Curriculum Guide provides assistance on topics for student-centered learning in the classroom setting.¹⁰ Structured learning outside the classroom and in patient-care settings complements and solidifies the didactic education that students receive.^{11,12}

The Center for the Advancement of Pharmaceutical Education 2004 Educational Outcomes identifies the need for patient-centered, population-based pharmaceutical care, along with systems management and public-health-based educational outcomes as the evolving method for

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curricular development and student learning.¹³ The Accreditation Council for Pharmacy Education (ACPE) Standards and Guidelines emphasize these same outcomes through early IPPEs and interprofessional interaction.¹⁴

ACPE Standards and Guidelines specify that IPPEs comprise no less than 5% of the curricular length. Community- and institutional-setting IPPEs must involve actual practice experiences that permit students to assume direct patient-care responsibilities, under appropriate supervision, as permitted by practice regulations. Additionally, IPPEs must be integrated with classroom coursework, assist with meeting community needs, and strengthen academic-community relationships while building student civic and professional responsibility through caring for others. Standard 12 of these guidelines states that the curriculum should enable students to provide patient care in cooperation with patients, prescribers, and other members of an interprofessional health care team based upon sound therapeutic principles and evidence-based data, taking into account relevant legal, ethical, social, cultural, economic, and professional issues, and emerging social/behavioral/administrative and clinical sciences that may impact therapeutic outcomes.¹⁴

At the University of the Pacific School of Pharmacy and Health Sciences, 320 IPPE hours fulfill the required 5% curricular length. These are divided into introductory experiences in each of the following areas: community (170 hours), hospital (65 hours), geriatric (45 hours), and community health care outreach (40 hours). Some of the curricular practice experiences that comprise health-care outreach include osteoporosis and falls prevention, medication-use safety training, medication therapy management, memory-decline screening, Medicare Part D assistance, and immunizations.

Geriatric IPPEs appear to be an ideal mechanism to meet the Standards and Guidelines set forth by ACPE¹⁴ and address the issues identified in the IOM Report and by the AACCP,^{1,15} while also providing meaningful and quality educational experiences for pharmacy students. One program has briefly described a geriatrics IPPE for second-year pharmacy students, in which students visited a long-term care facility to observe drug administration and to counsel patients.¹⁶ Others have described IPPEs or early curricular experiences in which students provided pharmacy distribution services, direct patient-care, or assistance during daily living activities to geriatric patients.^{17,18} However, because both of these IPPEs included non-geriatric-focused experiences, not all students were required to complete a geriatrics IPPE. An elective pharmacy course that includes clinical interactions with geriatric patients as components of a lecture-based course also has been described.¹⁹

The goal of this report is to describe a unique model for a required geriatric IPPE course designed to deliver didactic and experiential learning and meet the requirements for geriatric-focused education identified by the 2006 ACPE Accreditation Standards and Guidelines.¹⁴

DESIGN

The School of Pharmacy at the Thomas J. Long School of Pharmacy and Health Sciences has developed a required IPPE coupled with classroom lectures and discussions to enhance student learning and abilities in geriatric care. This is a practice-based introductory experience focusing on consultant pharmacist functions in long-term care and geriatric patient care. This course is designed to enhance each student's understanding of the role and responsibilities of pharmacists in long-term and other geriatric-care settings through the provision of pharmaceutical care to patients and performance of quality assurance functions at geriatric long-term care facilities. The course objectives for students during this IPPE (Table 1) include their ability to:

- (1) Provide effective verbal communication and interactions with patients and healthcare professionals,
- (2) Describe and apply laws, rules, regulations, and standards required or associated with long-term-care pharmacy,
- (3) Effectively "navigate" and use the patient chart to find pertinent data for care documentation and decision-support,
- (4) Identify and use appropriate resources to identify and reconcile medication-related problems,
- (5) Identify and use appropriate resources for application in patient assessment and pharmaceutical care,
- (6) Design, recommend, and initiate individualized care plans,
- (7) Identify, evaluate, and apply primary evidence-based medical literature, levels of evidence, and statistics to decision support and treatment, and
- (8) Understand the medication-use process within a facility and perform associated quality-assurance functions.

The classroom portion of the course included core geriatric curricular content identified in the ASCP Geriatric Pharmacy Curriculum Guide, as well as competency outcomes in pharmaceutical care, systems management, and public health.^{10,13} Periodic examinations provided a method for assessment of student competency. Each student spent 40 contact hours in an affiliated long-term

Table 1. Expected Curricular Outcomes and Learning Objectives

At the completion of this course students should be able to:

- A. Provide effective verbal communication and interactions with patients and health care professionals
 - B. Describe and apply laws, rules, regulations, and standards, including Omnibus Budget Reconciliation Act (OBRA), Health Insurance Portability and Accountability Act (HIPAA), elder abuse, Joint Commission on Accreditation of Health Care Organizations (JCAHO), and others in long-term care
 - C. Effectively “navigate” and use the patient chart, whether electronic or paper, to find pertinent data and potential areas for documentation of care and decision-support of patient care, including use of the Minimum Data Set (MDS) data
 - D. Identify and use appropriate resources to identify and reconcile medication-related problems in the elderly, including:
 1. Significant drug-aging, drug-drug, drug-disease, and drug-food interactions
 2. Drug allergies
 3. Beers Criteria and unnecessary drugs
 4. The application of age-related alterations of pharmacokinetics, pharmacodynamics, and physiology in elder care therapy, calculation of patient renal function, and renally eliminated drugs dosage adjustments
 5. Unique compliance issues and drug-tube feeding concerns
 6. Identify and use appropriate resources to apply basic elements of patient assessment and pharmaceutical care to the common, major disease states and conditions affecting the elderly, including pain
 7. Evaluate patient’s chronic disease states
 8. Apply evidence-based criteria for effective disease state management
 9. Recommend appropriate therapeutic changes based on published treatment guidelines and landmark clinical trials when needed
 - E. Design, recommend and initiate an individualized care plan using appropriate resources in the logical development of the plan with the intent to identify problems, define treatment options, and provide effective caregiver guidance.
 1. Prepare pharmaceutical care plans identifying therapeutic or other clinical problems
 2. Suggest treatment or other therapeutic options for identified problems
 3. Verbally communicate urgent patient care problems to appropriate prescriber
 - F. Understand the medication use process within a facility and perform basic medication quality assurance evaluations modeling some of those performed by consultant pharmacists.
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care facility performing functions typical of a consultant pharmacist. Students’ patient-care plans and quality-assurance documentation complement their competency assessment. Five hours of self-reflection on their experiences were required and captured in a reflection document. These reflective experiences were shared in classroom discussions. Office hours and pre- and post-class discussions with the course instructor augmented the formal discussion. The expected curricular outcomes and learning objectives, defined in Table 1, were achieved by the combination of didactic and experiential-based active learning, assimilation, application, and synthesis.

This was a required course for first- and second- year students in an accelerated 3-year PharmD program (third through fifth semesters, which are equivalent to the second and third years of a 4-year program). To enroll, students had to have completed all prerequisite courses and have a current pharmacy intern license.

Affiliation agreements with 13 long-term care facilities allowed students to interact directly with patients and facility caregivers. Facility consultant pharmacists, directors of nursing services, directors of staff development, and the course instructor serve as student preceptors. Each affiliated long-term care facility is evaluated initially

and re-evaluated annually for quality of care using the California HealthCare Foundation Web site (<http://www.calqualitycare.org/>).

Experiential Portion of the Course

Students must have completed all required immunizations, background checks, tuberculin testing, professional liability insurance verification, Health Insurance Portability and Accountability Act (HIPAA) privacy education, a confidentiality attestation agreement, and blood-borne pathogen and cardiopulmonary resuscitation training before going to their assigned facilities.

Students began their long-term care experience with a site-specific orientation conducted by the director of staff development or the director of nursing services at each respective site. Orientation topics included assignment of a patient, identification of the facility consultant pharmacist, structure of patient charts, general facility rules, an elder abuse video, and a facility tour.

Patients were assigned to students by the director of nursing services and/or the director of staff development at each facility. The criteria used by caregivers in assigning patients included patients’ unresolved problems/conditions, quality-of-life issues, and/or need for enhanced

management, better therapeutic choices, or improved disease monitoring.

Students followed their assigned patients throughout the 13-week semester. They were required to interact with their patient (as appropriate for the patient's physical and mental status), to interact with the patient's caregivers, and to record their patient interviews and chart review findings on course-defined forms. The completed forms and student case presentations maintained patient confidentiality by excluding patient's name and other personal identifiers. Students were not allowed to make entries in patient medical records and were prohibited from photocopying any information from the patient's medical record. All student activities and data collection were approved by the University of the Pacific's Institutional Review Board.

Students were required to introduce themselves to their patient and their patient's nurses and/or caregivers. Students received education on effective communication techniques for seniors in the classroom portion of the course. During weekly visits with their patient, students conversed socially, identified patient-described chief complaints, and checked patient's vital signs, including pain assessment.

A review of students' care portfolios by the course instructor provided a formative means of guidance throughout the semester. A summative grade was awarded at the end of the semester for each student's experiential work and successful fulfillment of the course objectives.

The experiential portion of the course required each student to follow a patient in a long-term care setting and complete patient assessments (including problem triage and vital signs), care plans, and progress notes based on the patient's current medical and medication-related problems. When students identified mental-status problems, they used appropriate assessment tools to evaluate the patient's condition (eg, the Geriatric Depression Scale). Each student prepared a patient-care portfolio showcasing their findings. Table 2 provides examples of required elements of the patient-care portfolio and the criteria used to evaluate those portfolios. The algorithm that students used when triaging identified patient problems and the hierarchy for each problem's classification are presented in Appendix 1.

The course instructor reviewed each student's work and provided structured feedback. Printed and/or electronic copies of the reviewed patient-care portfolios were then provided to the nurses and the consultant pharmacist at each facility. Nursing staff members interacted with the students, answering questions and providing guidance regarding each student's patient. The consultant pharmacist at each facility also had the opportunity to provide feedback. Students performed selected quality-assurance functions, such as medication-room inspections, medication reconciliation,

tapering for gradual dose reduction, and medication-pass observation to enhance their understanding of medication-use systems management and patient safety. Forms for documentation of these activities were obtained from a commercial documentation product provider for pharmacy, long-term care, assisted living, and home care. These forms also were included in the student's patient-care portfolio. Learning outcomes of knowledge, application, analysis, and evaluation were synthesized into patient-care portfolios. The course instructor's review of these portfolios was used to evaluate each student's learning.

Students were required to visit with their patients, prepare and update care plans, perform quality-assurance functions, and sign in and out each time they visited their assigned facility. They also maintained an individual log of their hours. A minimum of 40 experiential hours had to be completed by each student.

Student reflections on their geriatric experience were formally captured in a required reflection document including the 7 questions provided in Table 3. Student responses to these questions served as the basis for formal classroom dialogue. Students also expressed feelings, attitudes, values, and comments about their patient interactions in written communications to the faculty instructor.

Classroom-based Portion of the Course

The classroom-based portion of the course focused on pharmaceutical care for geriatric patients through classroom and Web-based lectures and case studies. Student-presented cases and discussions from practice-based, student-centered, experiential education in the long-term care facilities built on this foundation. The *ASCP Geriatric Pharmacy Curriculum Guide* served as a tool for planning lecture content,¹⁰ and facility consultant pharmacists identified additional lecture topics for the course. The sequence of presentation topics was structured to provide students with core knowledge and direction to enable their transition from the classroom to the patient-care facility (Table 4). Multiple-choice and/or case study-based examinations were used as a method of evaluating the classroom-based elements of the course. Interprofessional presentations were given by guest lecturers on physical therapy and durable medical equipment, long-term care pharmacy law, and consultant pharmacy. Presentations on medication safety and quality assurance in long-term care also were provided. Active learning was facilitated by in-class questions using the Socratic Method to determine understanding of concepts. Discussions regarding patient-specific (case-specific) student questions also occurred.^{3,4}

In 2005, a required geriatrics course was taught once a year to a student population of 200. It consisted of 24

Table 2. Elements and Criteria Used in the Patient-Care Portfolio and Quality-Assurance Functions to Achieve Active-Learning Objectives

Element/Criteria	Points
A. Patient Triage and Assessment Care Plan Activity Elements and Grading Criteria	
Patient information complete	1
Ideal body weight correctly calculated	1
Basal Metabolic Index (BMI) correctly calculated	1
Creatinine clearance calculated/accurate	1
Problem list is complete	1
History of present illness adequate and past medical history complete	1
Medication list and immunization history are complete	1
Beers criteria drugs and Black-Box warning drugs identified	2
Allergies/adverse drug reactions/smoking history /compliance history complete	1
Systems review/drug interactions /cultural components complete	1
Laboratory data available from chart recorded and aberrant values noted	1
Drug interactions of clinical significance identified and listed	1
Minimum Data Set (MDS) problems identified and listed	1
Consolidated problem list compiled	1
Problem list triaged using triage algorithm and problems classified as to significance	10
Most problematic issued identified for care plans	10
Total	35
B. Care Plans/Progress Notes Activity Elements and Grading Criteria	
1. Care Plans	
Each medical problem selected is evaluated for clinical significance, therapeutic outcomes, potential urgency, and impact on morbidity, mortality, and patient's quality of life	10
For each care plan the problem is completely assessed and addressed using the Subjective, Objective, Assessment, and Plan (SOAP) care plan format	10
Recommendations are specific, relevant and appropriate	10
Total	30 each
2. Progress Notes	
Progress note is adequately completed using the SOAP format	5
Total	5 each
C. Quality Assurance Functions and Grading Criteria	
1. Medication Room and Care Area Inspection	
a. General appearance and observations	5
b. Medication carts	5
c. Emergency kit and refrigerator	5
Total	15
2. Medication Reconciliation	
a. All medications listed with name, dose, frequency, and route on medication administration record and container	5
b. Date and time of last dose recorded	5
c. Physician order, MAR, and container match	5
d. Review outcome and discrepancy notification	5
Total	20
3. Gradual Dose Reduction – Unnecessary Medications Assessment	
a. Medication name, classification, dose reduction attempt date, outcome, and comments	10
b. Drug indication appropriate, resident's functional status maintained, duration of use appropriate, dosage appropriate, and no ADRs	10
Total	20
4. Medication Pass Observation	
a. Resident identified using 2 identifiers	2.5
b. Drugs current as ordered	2.5
c. Drug-dose and administration appropriate as passed	2.5
d. Error total and rate calculated	2.5
Total	15

Table 3. Student Experiential Reflection Questions

What did you learn about yourself from this experience?
What did you learn about a patient in this stage of his or her life?
What were your fears or anxieties about this experience?
Were these realized?
Did you gain greater insight about yourself from this experience?
What was the best part of this experience?
What was the worst part of this experience?
Has this experience changed your thoughts or future plans about your pharmacy career?

lecture presentations on select geriatric topics with traditional examination assessments. Web-based presentations and documents available to students during and after formal classroom presentations allowed students to insert additional notes using their laptop computers. The course also included a brief experiential component for student observation and limited interaction with patients in 5 local long-term care facilities.

In 2006, the didactic component was expanded to include the ASCP *Geriatric Pharmacy Curriculum Guide's* recommended topics, and formal affiliation agreements were updated and signed with 11 local facilities. The required experiential student time was expanded to 20 hours. New student assignments for the course included a patient assessment and development of a care plan for 6 identified patient problems. These

requirements were added to comply with the Accreditation Council for Pharmacy Education Standards and Guidelines of 2006. The course was continued in this format through 2008, when an additional assignment was added. As part of their assessment for the course, students were required to formally identify Beers criteria drugs and drugs with black box warnings.

In the fall of 2009, the course was significantly modified to include more experiential time. Course lecture presentations and discussions were reduced to 12 with expanded Web-based presentations and focused classroom presentations and discussions. Midterm and final examinations were changed to ongoing weekly multiple-choice or case-based assessment examinations. The experiential component was doubled to 40 hours of in-facility time. Along with interprofessional communication and coordination, patient assessment and care plans were continued but reduced in number. Interprofessional communication and coordination responsibilities were continued at prior levels. Selected quality-assurance functions, such as medication room inspections, medication reconciliation, gradual dose reduction, and medication pass observation, also remained course requirements to foster enhanced understanding of medication systems management and patient safety.

The SF-36 Quality of Life assessment tool was incorporated into the experiential component and was administered by the students at the beginning and end of the patient-care portion of the course.

Table 4. Lecture and Reading Topics Included in Didactic Curriculum

An Introduction to Geriatric Pharmacy Practice
The "Anatomy of a Patient's Chart"
Communicating with the Elderly
Identifying Medication-related Problems in the Elderly
Patient Safety in the Skilled Nursing Facility
Pharmaceutical Care for the Elderly Patient - Age Change
Renal Function in the Elderly
Renally Cleared Drugs
Anticholinergic Risk
Long-term Care Pharmacy Law
Durable Medical Equipment
Assessing Adverse Drug Reactions
Elder Abuse – Mandated Reporting
The Consultant Pharmacist in Senior Care and Long Term Care – Quality Assurance
Psychotropic Drug Use and Omnibus Reconciliation Act – Unnecessary Meds, Gradual Dose Reduction
Case Studies on Falls, Pain, Anemia, and Nutrition in the Elderly
Palliative Care & Advanced Directives

EVALUATION AND ASSESSMENT

Experiential student learning was assessed by the course instructor for the initial assessment and triage care plan, problem-specific care plans, progress notes, and the quality-assurance documents using a grading rubric described in Table 2. This table defines required activity elements and the peer-validated grading criteria used in the patient-care portfolio and quality-assurance exercise to achieve active-learning objectives.

These student documents were scored by the faculty instructor to ensure grading consistency. Baseline student scores for assessment and triage care plans averaged $72.7\% \pm 16.9\%$. With guided faculty feedback, students corrected and/or completed all missing care-plan elements. This structured guidance fostered active learning. Students showed formative improvement in assessment, problem recognition, and triage skills for care-plan development.

Students' care plans and progress improved from an average baseline score of $50\% \pm 5.5\%$ to a final mean score of $97.2\% \pm 4.6\%$. Table 5 describes curricular

outcome examples identified in student findings from their care-plan reviews.

In 2009, selected quality-assurance functions including medication room inspections, medication reconciliation, gradual dose reduction, and medication-pass observation were added to the course requirements. These were designed to foster enhanced understanding of medication systems management and patient safety and expanded students' experiential service hours. Final scores for the students' quality-assurance performance averaged $90.2\% \pm 6.2\%$. Student recordings of medication-pass observation most commonly indicated that nurses did not use at least 2 patient identifiers when administering medications.

Didactic learning and meeting of course objectives was assessed by means of a midterm and a final multiple-choice examination. Each semester, a midterm examination based on lecture presentations, course Web site postings, and designated readings was administered. At the end of the course, a comprehensive final examination also was conducted. The final examination included all course topics with emphasis on new material presented since the midterm. Formative examination outcomes demonstrated overall class improvement from a midterm examination mean of $79.5\% \pm 6.8\%$ to a final examination mean of $84.8\% \pm 7.8\%$. Pre- and post-course assessments of geriatric knowledge are currently being planned to further evaluate the impact of the course on student knowledge in geriatrics.

As part of the school's policy, students were strongly encouraged to complete an optional standardized evaluation of the course (Table 6). Students indicated their level of agreement with each statement based on a 5-point Likert-scale in which 1 = strongly disagree and 5 = strongly agree. One hundred thirty-four (63%) students completed the course evaluation in 2008 (Table 6). The ratings received on the evaluations for this course were consistently higher than those received on other Pharmacy Practice Department courses as well as all School of Pharmacy courses ($p = 0.027$). Student course evaluation ratings

for 2008 also were higher than those for 2005 ($p = 0.027$), as shown in Table 6.

In this course, learning was facilitated by students' interaction with their geriatric patients. This affective learning experience complemented development of cognitive and psychomotor skills. Students' reflective comments on their interactions with patients revealed positive experiences. Some students expressed that they enjoyed spending time and communicating with their elderly patients and that the experience helped them gain insight about both the patients and themselves. Others reported that they learned how to gain the patients' trust, which fostered open communication and led to a meaningful experience. Some students remarked about the need for care improvements, including medication reconciliation and proper documentation. Many shared that the experience made them realize how pharmacists can and do make a difference in the delivery of care. These examples identify student learning in the affective domain, which is associated with valuing and internalizing their personal beliefs and opinions.

Facility Staff Members' Evaluation of the Program

A course-specific survey instrument was developed, sent to each skilled nursing facility site, and completed by facility staff members (Table 7). The survey asked respondents to indicate their perceptions regarding a set of statements, with response options based on a 5-point Likert-scale in which 1 = very unwilling to 5 = very willing; 1 = not at all valuable to 5 = very valuable; or 1 = very unsatisfied to 5 = very satisfied. The median response on each question was 4.6 (Table 7).

Feedback from consultant pharmacists and directors of nursing services on student performance also was positive. Based on their comments, both consultant pharmacists and directors of nursing services valued the presence, assistance, and work of the pharmacy students.

When the opportunity was presented, students conversed with their patients' physicians during visits to their

Table 5. Results from Student-Care Plans

Descriptor	Frequency, No. (%)
Total number of patients who received pharmaceutical care reviews	109
Patients who had one or more drugs that met Beers Criteria (potentially inappropriate in the elderly) in their current medication profile	51 (46.8)
Number of patients whose student care plans included recommendations for therapy changes, general patient care changes, or therapy-care enhancements	93 (85.3)
Number of patients whose student care plans included recommendations associated with overall quality of life or holistic care improvement	31 (28.4)
Number of patients whose student care plans included recommendations for medication-related problems	27 (24.8)

Table 6. Student Evaluation of Course

Statement	PHARM 141, 2005 ^a (n = 71), Mean	PHARM 141, 2008 (n = 134), Mean (SD)	All Pharm. Practice Courses, 2008 ^b (N = 1248) Mean	All Pharmacy Courses, 2008 ^c (N=1248), Mean
My interest in the subject was increased? ^d	3.7	4.2 (0.8)	4.0	4.0
I achieved the objectives of this course. ^d	4.0	4.4 (0.6)	4.2	4.2
Sessions illustrated principles related to the course. ^d	3.9	4.3 (0.7)	4.2	4.2
Overall value of the course to the curriculum. ^e	3.5	4.2 (0.8)	4.1	4.1
I understood the purpose of laboratories/discussion. ^d	4.0	4.4 (0.6)	—	—
Overall quality of instruction. ^c	3.5	4.5 (0.7)	—	—
Examples were used to help clarify the subject. ^d	—	4.5 (0.6)	4.2	4.2
Abstract ideas and concepts were clearly presented. ^d	—	4.5 (0.6)	4.1	4.1

^a Difference between PHAR 141 2008 and PHAR 141 2005, $P = 0.027$ (determined by Wilcoxon signed rank test).

^b Difference between PHAR 141 2008 and All Pharmacy Practice Courses 2008, $P = 0.027$ (determined by Wilcoxon signed rank test).

^c Difference between PHAR 141 2008 and All Pharmacy Courses 2008, $P = 0.027$ (determined by Wilcoxon signed rank test).

^d Response scale: 5 = strongly agree, 1 = strongly disagree.

^e Response scale: 5 = excellent, 1 = poor.

facility. Physicians commented favorably about the students' interaction and work.

DISCUSSION

This required geriatric IPPE continues to evolve in its content and experiential outreach for enhancing student learning. This is made possible by the inclusion of geriatric education as core curricular content and by faculty expertise and commitment to geriatric curricular content. The course is supported by local long-term care facilities' willingness to serve as clinical learning practice sites. Requests from other local facilities to participate in

the program continue to be received, attesting to the value of the geriatric IPPE program within the community. Student engagement in patient care and professionalism interactions with facility caregivers continues to foster student learning and the success of this course. When previously offered once yearly, class sizes ranged from 215 students per semester. The current maximum number of students per semester is 75 and the course is offered each of the 3 semesters during the academic year.

Student learning is greatly enhanced by the interaction of students with patients who need their help and assistance. Students' patient care and interactions play a vital role in broadly impacting patient outcomes. After completing this course, students frequently continue to visit their patients. They also have expressed a desire to continue developing their expertise and skill in providing care to geriatric patients. They are able to do so through electives and advanced pharmacy practice experiences (APPEs). Many of the healthcare outreach IPPEs focus on senior care. A didactic course offered as an elective focuses on fundamental concepts about Medicare, in-depth examination of the structure and understanding of the Medicare Part D prescription drug benefit, and the economic implications of Part D for Medicare beneficiaries. An accompanying IPPE Medicare Part D outreach provides students with further geriatric experience.

Table 7. Skilled Nursing Facility Evaluation of the Program (N=6)^a

Survey Questions	Results
Site willingness for providing further student opportunities ^b	4.6
Perceived value of student/patient staff interaction ^c	4.6
Satisfaction with student/patient interaction ^d	4.6
Satisfaction with students' professionalism ^d	4.8

^a Fifty-five percent of sites completed the program evaluation.

^b Based on 5-point Likert Scale (1 = very unwilling, 5 = very willing)

^c Based on 5-point Likert Scale (1 = not at all valuable, 5 = very valuable)

^d Based on 5-point Likert Scale (1 = very unsatisfied, 5 = very satisfied)

Many of the students who completed this required geriatrics IPPE are now considering a career as a consultant pharmacist and some have inquired about residencies in geriatrics. Currently, the number of APPEs in geriatrics is somewhat limited. Veterans Health Administration facilities provide the greatest offerings for geriatric experiences that include inpatient and ambulatory care. Additionally, some APPEs are available for long-term care consulting and geriatric ambulatory care. Increased opportunities in geriatric APPE and postgraduate residencies would greatly enhance continued student learning to better serve our aged population.²⁰

SUMMARY

The combination of didactic classroom-associated learning with application to and interaction with patients in this required IPPE has proven to be an excellent opportunity for students that enhances learning by combining the 3 domains of cognitive, affective, and psychomotor learning.⁷⁻⁹ The combined methodologies of didactic and experiential teaching accommodate a variety of learning styles, including structured and unstructured dimensions as well as doing-and-reflecting dimensions.²¹

Formative evaluations of student progress from examinations and care projects, facility staff and student comments, and overall course evaluations revealed positive trends supporting this unique experiential program. Empathy for patients and their needs fostered students' desire to learn more so they can provide the best care.⁹ Student experiential activities within the care facilities positively impacted patient care.

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Appendix 1. Algorithm Used for Triage of Identified Patient Problems and Classification Hierarchy

Triage Algorithm

1. Is this a current acute, unresolved problem? Yes ☐, No ☐
2. Is this problem currently a concern for this patient's quality of life? Yes ☐, No ☐
3. Is this condition currently under control? Yes ☐, No ☐
4. Can recommendations be made for enhanced management of the therapy, better therapeutic choices, or better disease monitoring? Yes ☐, No ☐

Classification:

- A. High Significance ☐ if [1=yes] or [2=yes & 3=no & 4=yes]
 - B. Intermediate Significance ☐ if [2, 3, & 4=yes]
 - C. Low Significance ☐ if [1=no] or [2 = no, 3 = yes, & 4 =no] or [2, 3, & 4 = no]
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