INNOVATIONS IN TEACHING

Enhancing Student Learning Through Integrating Community-Based Geriatric Educational Outreach Into Ambulatory Care Advanced Practice Experiential Training

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Objectives. The aging of society, coupled with an increased life expectancy, challenges schools of pharmacy to strengthen student education and training addressing the health care needs facing older adults. A teaching innovation is presented which involves, the integration of a service-learning method with a community health outreach program to nurture the development of the attitudes, knowledge, and skills necessary to deliver pharmaceutical care to the growing, diverse geriatric population.
Design. The ambulatory care advanced practice project was restructured, requiring students to provide medication evaluation and counseling, immunization education, blood pressure screening, and risk-level assessment for diverse geriatric populations participating in an outreach education program sponsored by the College of Pharmacy and a state agency.
Assessment. Evaluative methods (eg, qualitative, quantitative, formative and summative) were used to assess student achievement of program objectives.
Conclusion. Students developed enhanced communication skills, self-confidence, and an understanding of health-related issues when caring for diverse older adults. Community, agency, and student awareness about the role of pharmacists was increased.

Keywords: advanced practice experience, service learning, geriatrics, ambulatory care, community outreach

INTRODUCTION

The challenge to colleges and schools of pharmacy in the 21st century is to prepare students and practitioners to meet the growing pharmaceutical care needs of an aging population. By 2030, nearly 1 in 4 Americans will be over the age of 65 years.[1] This enormous shift in population demographics will create a demand for practitioners with geriatric training and will influence the curriculums of many pharmacy schools. While it is quite evident the pharmacy practitioner of the future will be providing most of their pharmaceutical care to older persons, few pharmacists specialize in geriatrics. Furthermore, according to recently published data, only 13% (9/72) and 11% (1/9) of pharmacy schools in the United States and Canada, respectively, required students to take a formal course in geriatrics.[2,3]

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The elderly, compared with other population age groups, experience an increased number and severity of chronic medical problems, resulting in a disproportionate use of medications. While these medications can improve health and prolong lives, taking multiple medications with potentially complicated and misunderstood regimens may have serious consequences.[4] An excessive percentage of hospitalizations, nursing home admissions, and deaths in older adults can be directly attributed to problems with medications. Additionally, the lack of medication adherence, medication and health condition knowledge, and culturally or socially driven health practices can contribute to medication-related problems and negative health outcomes.

As members of the health care team, pharmacists must understand their important role in improving patients' health outcomes. To be effective in this role, pharmacists must possess an understanding of drug therapy principles and gain a functional appreciation for the complex factors that explain why patients do not achieve their desired medical and health outcomes, as

well as an overall sense of wellbeing. The authors are concerned with how to best prepare their students to effectively practice in the ever-changing health care environment. The challenge is to identify, develop, and incorporate methods that successfully bridge the gap between traditional teaching and learning strategies, while creating higher-level learning and practice setting applications. The intent is for students to function as practitioners who can interact with patients, solve problems, advocate, and empower their patients regardless of their chosen practice setting.

In 1997, the United States Department of Health and Human Services established Healthy People 2010.[5] Healthy People 2010 challenges individuals, communities, and professionals to take specific steps to ensure that good health, as well as long life, is enjoyed by all. This initiative has established a general set of goals and specific aims for improving the nation's health by the year 2010. The 2 main goals are to "increase years of healthy life" and "eliminate health disparities." The 3 specific aims that target the elderly population are the following: (1) to increase the proportion of primary care providers, pharmacists, and other health care professionals who routinely review all new prescription and nonprescription medicines with their patients aged 65 years and older and patients with chronic illnesses or disabilities; (2) to increase the proportion of adults who are vaccinated annually against influenza and who are ever vaccinated against pneumococcal disease; and (3) to reduce hospitalization rates for ambulatory-care—sensitive conditions (immunization-preventable pneumonia and influenza).

Institutions of higher learning are well positioned to facilitate this national agenda because they have the resources necessary to compile successful task forces and partnerships that can focus on the needed services of the community. In addition, they can integrate students and practitioners into service-learning programs to enhance their educational development and professional growth.[6,7]

The Accreditation Council for Pharmacy Education (ACPE) recommends that health promotion and disease prevention are included in curricular content. ACPE also states that a key professional competency to prepare graduates of pharmacy programs is to teach them how to collaborate effectively with other health and health-related professionals to improve the health outcomes of the patients.[8] Cooperative relationships need to be developed between professionals in areas of "common cause" to effectively achieve those goals. Community health educational initiatives targeting medication and health needs of the aging population, coordinated through service agencies and performed by various educators and health care providers can promote healthy behaviors, strengthen community prevention efforts, protect health, and promote access to quality health care.[9] Through medication monitoring and health promotional educational programming, pharmacists can provide effective pharmaceutical care services to this population. With this background, in July 2001 the University of Illinois at Chicago (UIC) College of Pharmacy created a program entitled, "Medication Monitoring and Safety in Older Adults: A Community-Based Educational Program" (MMSOA).

This program was developed as a collaborative partnership between the UIC College of Pharmacy Department of Pharmacy Practice and the Suburban Area Agency on Aging (SAAA), in cooperation with the Illinois Department on Aging. In 2002, Dominick's Pharmacy was added to the partnership to enhance the university-community collaboration and expand the scope of education and services the program could provide.

DESCRIPTION OF INNOVATION
Objectives and Goals

The main goal of the authors was to develop a program involving the pharmacy student, pharmacy practitioner, older adults, and service agency specialists that would provide an innovative, realistic, "hands-on" approach to geriatric education and training. The desire was to create a program that enabled students to interact with older adults from various sociocultural, ethnic, and economic backgrounds, while demonstrating the traditional contributions (teaching, scholarship, and service) that pharmacy education makes to society. Further, the authors envisioned an opportunity for students to be in touch with individuals in their own community environments where they have a potential to present and/or openly discuss factors that influence health and medication-taking behaviors in the older adult. To achieve this goal, the authors developed the MMSOA program with the following objectives.

Program Objectives

1. Educate the elderly participant on the steps necessary for improving medication use, effectiveness, and safety.
2. Review and evaluate the participant's medications (prescription, nonprescription, non-traditional) for effectiveness, potential for serious adverse effects, drug interactions, and duplications.
3. Improve the participant's understanding and knowledge of their health condition(s) and medication(s).
4. Identify potential medication compliance problems/issues and help to resolve them.
5. Evaluate the disease prevention practices of the participants in the area of immunizations, and

educate the participants on the importance of immunizations in the fight against vaccine-preventable diseases.

6. Increase the participant's awareness of the pharmacist's role as medication-use experts and their importance as a member of the healthcare team.

7. Educate and encourage the participant on the importance of taking a proactive role in the management of their health, health care, and medications.

8. Provide the pharmacy student, pharmacy resident, and practitioner with educational experiences to further develop effective medication counseling skills and gain a better appreciation of the health-related perceptions and needs of the elderly population.

9. Evaluate the participant's perceived value of the program and the impact on their knowledge, understanding, medication-taking behaviors and health practices.

10. Improve cultural competency through the development and delivery of the above services to agency-targeted elderly populations with limited skills in speaking English (English as a second language).

Current Curriculum

The UIC College of Pharmacy currently integrates geriatric educational topics throughout the curriculum rather than providing geriatric-focused core didactic courses and required advanced practice experiences. There is no uniform opportunity for intensive exposure to geriatric patients. As a result, many pharmacy students may not develop the attitudes, knowledge, and skills needed to deliver competent, compassionate care to older patients as a practitioner. A United States survey of Colleges of Pharmacy[3] showed that 80% of pharmacy graduates felt their formal education in pharmacy did not adequately prepare them for geriatric pharmacy practice. Furthermore, the survey results suggested that more exposure to geriatric patients could augment the learning process.

In an effort to create a unique geriatric education and training experience for students, practitioners, and pharmacy practice residents, the UIC College of Pharmacy incorporated a required, community-based education (service-learning) project targeting geriatric pharmaceutical care into the College's existing Ambulatory Care Advanced Practice Experiential curriculum. Student service-learning experiences using various approaches have been implemented at several pharmacy schools and described in the literature.[10,11] Service-learning programs are designed to increase the student's awareness and understanding of important issues facing communities. Pharmacy students often gain from being directly involved in such outreach programs because they can acquire and apply valuable "real world" experiences, enabling them to function as mentors, educators, and advocates for the people they serve. In addition, community outreach programs can provide a beneficial service to the public, empower individuals, and promote partnerships between the College of Pharmacy and various communities.[9]

The Ambulatory Care Advanced Practice Experience (PHAR 371) is 1 of 4 core requirements comprising the 7 rotation sequences in the fourth professional year of the Doctor of Pharmacy program. This 6-week rotation includes an integration of direct patient care responsibilities in a selected primary care practice setting, journal club discussions, presentations, and conducting a special project. The student's final grade for the rotation is determined by their successful completion of all of these components. Unfortunately, there was only variable exposure to ambulatory geriatric patients throughout these rotations. Elective geriatric advanced practice opportunities are offered to a limited number of students, based on availability. After discussions with the ambulatory care advanced practice faculty member, a decision was made, due to the mutual objectives for each experience and the current structure of the rotation, to incorporate the new program into this practice experience to complement and provide a needed dimension to the students' education.

Terminal Competencies and Objectives

The UIC College of Pharmacy Terminal Competencies represents the total scope of general, professional competencies expected of graduates. The MMSOA program and student learning objectives were developed and linked to the relevant terminal competencies to ensure consistency between expected student core educational outcomes and the educational needs of the target population. The terminal competencies reflected in MMSOA program objectives focused on the following:

1. monitoring patient therapeutic objectives and outcomes;

2. providing drug information/education to health care professionals and the community;

3. communicating with patients (eg, written, verbal, technological media);

4. solving and documenting therapeutic problems;

5. promoting effective health care and disease prevention strategies; and

6. establishing innovative pharmacy practice services.

Table 1. MMSOA Program Forms Used

Form/Document	Purpose
Participant demographics	Demographic and medical history information
Medication assessment	Current medications and medication taking behaviors
	Medication and immunization risk assessment
Immunization beliefs and perceptions	Current immunization beliefs and practices
Personal medication report card	Medication/immunization risk-level stratification (Hepler and Strand [4],
Personal immunization report card	CDC vaccine guidelines)
	Educational materials *(program specific based on English and English as a second language)*
Certificate of participation	Participant documentation of attendance, empowerment and follow-up
Participation thank you letter	Provides faculty contact information
Participant satisfaction survey	Program assessment
Agency satisfaction survey	Program assessment

Complementary UIC College of Pharmacy Initiatives Supporting the Program

To foster academic enrichment at the College of Pharmacy, the authors developed and provided 4 additional educational and professional initiatives within the program. The opportunities for students, the Department of Pharmacy Practice residents, and clinical faculty with the corresponding objectives were as follows:

1. Advanced Ambulatory Care Practice Experience (PMPR 384)
    a. improve marketing/communications among all constituencies
    b. implement effective program assessment tools
    c. create a program documentation-related peer review process
    d. develop and conduct a collaborative health care-related outreach program
2. Pharmacy Practice Resident training
    a. instruct students on conducting patient interviews and documentation
    b. conduct performance-based student assessment
    c. deliver health information to consumers and/or health professionals using effective communication skills
    d. provide student mentorship
3. Independent Study Elective (PMPR 390–3rd professional year student)
    a. demonstrate understanding of geriatric-specific pharmaceutical care through research
4. Pharmacy clinical faculty
    a. provide consumer health information
    b. provide student and resident mentorship
    c. provide community service

Program Process

The program personnel consist of agency coordinators, pharmacy faculty, pharmacy practice residents, and students. Program activities include a presentation focusing on safe medication usage and the importance of immunizations, one-on-one medication counseling, immunization reviews, and blood pressure screenings. Immediately following the presentation, the individualized counseling and education is delivered to the community participants.

To enhance the student's ability to develop a pharmaceutical care plan, medication and immunization-related risk assessment, document all program activities, and reflect upon their educational experiences, a series of forms and documents were developed for use by program providers. All of the community participant's educational forms are provided in the appropriate language. The form titles used and their purpose are listed in Table 1. The responsibilities of the MMSOA program personnel and how those responsibilities are related to the previously described objectives are outlined in Table 2.

From August 2001 through November 2002, there have been 50 programs conducted in 9 different languages. These programs involved 850 community participants, of which 428 (50.4%) received medication reviews. Of the participants who received the one-on-one reviews, 186 (43.5%) and 246 (57.5%) were identified as being at high risk for medication and immunization-related morbidity, respectively. These risk categories were not demonstrated to be mutually exclusive. Sixty-four students have participated, 43 in the English-language programs and 21 in the English-as-a-second-language programs.

EVIDENCE OF STUDENT LEARNING

Evidence of learning was assessed through the student's ability to develop and communicate complete, appropriate medication and immunization-related assessments, realistic care plans, and associated counseling. It was encouraging to have students share information on the participants' misconceptions about immunizations that were dispelled during the programs and the

Table 2. Responsibilities of MMSOA Program Faculty, Students, and Personnel

Personnel	Responsibility	Example(s)	Objectives
Agency	• Identify host sites and population needs • Develop schedule • Evaluate program • Medication access programs education	• Regional agency coordinator works with faculty coordinator to plan, execute and evaluate programs	• Program
Faculty and Resident Coordinators	• Secure transportation • Finalize program logistics • Assign, orient and train students and other program professionals • Ensure appropriate staffing and materials • Mentor students • Review student therapeutic recommendations • Ensure completion of program documentation • Review/comment on student service-learning logs • Conduct feedback/reflective sessions • Coordinate and perform student evaluations • Deliver presentations	• Adult immunization education • Blood pressure measurement review • Reflective learning review • Program educational goals/objectives review • Healthy people 2010 education • Review student care plans and recommendations • Formative and summative student evaluation • Secure English as a second language faculty and students	• Program • Terminal Competencies
Advanced Practice Experience Students	• Interview elderly participants • Complete medication assessments • Complete immunization beliefs/practices assessments • Perform blood pressure screenings • Assign and communicate risk level stratification for all participants (medication & immunization) • Determine appropriate follow-up • Complete reflective learning logs • Participate in reflective and feedback sessions	• Complete participant demographic, medication and immunization forms • Formulate care plans based on assessments and communicate them to faculty • Complete risk stratification report card for participant • Provide medication and immunization counseling based on assessments • Provide medication and immunization-related written materials or compliance aids • Complete all documentation • Complete reflective log after each program • Attend and participate in all reflective sessions	• Program • Terminal Competencies
Dominick's Pharmacists	• Provide immunizations	• Influenza and pneumoccocal vaccines provided at pharmacy	• Program • Terminal Competencies

students' individual roles in educating the community participants on the importance of receiving immunizations. For the authors, it was rewarding to provide the students with the opportunity to use the skills they had learned through the American Pharmacists Association (APhA) Pharmacy-Based Immunization Delivery Program (required for all UIC fourth professional year students) to educate the community on the avoidance of vaccine-preventable death. They experienced firsthand how a pharmacist and pharmacy students can indeed impact health beliefs and practices.

Reflective Learning Logs (Appendix 1) were also used to assess the students' learning throughout the program as well as the value of the program. These types of logs, utilized widely in service-learning programs, were found to be useful in the verification of students' growth

and awareness, specifically within subjective aspects inherent in the program. This verification was accomplished through review and comparison of student reflections collected before, during and after the program. Formal and informal reflective discussion sessions were also conducted throughout each 6-week rotation period. A particular entry recorded in a student reflective log became the focus of many discussions. A student identified a drug duplication-related problem with an individual taking a 5-mg dose of Coumadin® at 4:00 PM and a 5-mg dose of sodium warfarin at 8:00 PM. The individual had no idea that the 2 medications were the same drug. Each had been prescribed by a different physician and dispensed at a different pharmacy. Other than the student, no other health care professional had explained to her that she was unknowingly overdosing herself. After performing a brief review to detect potential bleeding complications, the student contacted the physician for follow-up. The physician praised and thanked the student and the College's provision of this type of service for senior citizens. As a result, the student became acutely aware of the value of the service she provided and, potentially, the life that she had saved.

It was rewarding to review and comment on the students' reflective feedback contained in the learning logs. Excerpts from students' comments, reflecting achievement of the learning objectives, are included in Table 3. These examples are representative of the majority of comments submitted by the students. Overall, the students' reflections from their program experiences depict a positive impact on knowledge, skills development, attitudes, and professional growth.

Students were also asked supplemental questions, intended to elucidate the most and least beneficial aspects of their program participation. Repeatedly, the most beneficial elements noted by the students were in the areas of confidence building, strengthened communication skills, the role of the pharmacist in preventative care, and a heightened awareness of the needs of the elderly. Areas of concern and program improvements outlined by the students included requests for more choices in transportation to the program sites (self-transportation vs group transportation via university van), improvement in preprogram marketing by the agency (may increase individual counseling participation), on-site logistics configurations to address privacy, and a decrease in the number of reflective logs required to be submitted (one log after each program). While all of these suggestions have been subsequently addressed, the comments related to the reflective logs were of particular concern to the authors. The repetitive nature of the questions asked for each student encounter was the heart of the issue. Imbedded into the program are opportunities for each student to interact with a broad base of

older adults from different socioeconomic, cultural, and ethnic populations. Utilizing the same set of questions, the students are asked to reflect upon their experiences at each program site, serving as the longitudinal basis for the reflective process. Consequently, to improve students' understanding of its importance, a more comprehensive orientation on the role of the reflective log in achieving the program objectives was implemented.

EVALUATIVE DATA
Program and student evaluation
In an effort to assess the educational impact and achievement of the program objectives, an anonymous 17-item questionnaire was developed and distributed to community participants at the end of each session. It used a 5-point Likert-like scale (ie, 1=strongly agree to 5=strongly disagree). The questions and mean ratings are included in Table 4. In 2002, the questions and rating scale were simplified, using a 3-point scale (ie, 1=yes to 3=no) to enhance readability and accuracy of responses. Results from the revised questionnaire are outlined in Table 5. Results from both surveys were consistently positive (1.2–1.8 on a 5.0 scale for the first survey and 1.0–1.3 on a 3.0 scale for the second survey). To examine the program's effectiveness from the agency's perspective, a 5-item evaluative questionnaire was also distributed to the agency coordinator at each host site. Results are included in Table 6. Excellent mean ratings were demonstrated in all areas of this evaluation.

Consistent with the MMSOA program and course objectives, the students were evaluated on 3 levels by faculty program coordinators, community program participants, and agency personnel. Formative and summative assessment included student ability to identify, resolve, and effectively communicate clinically relevant issues and recommendations to the program participants and faculty program coordinators. Students were responsible for evaluating and communicating the participants' risk of morbidity and mortality related to their medication use and immunization beliefs/practices. Students were also assessed on their problem-solving ability, effectiveness in integrating course concepts into their practice experiences, professionalism, and thoroughness in documenting their one-on-one encounters. Final project grades were based on completion of program requirements and achievement of objectives. A 5-point Likert-like scale was used (ie, 1=never to 5=always). Results of student evaluations by the program faculty in these educational areas reflected a continually strong performance by the students (mean=4.95) as summarized in Table 7.

The students' self-evaluation of their program experiences were assessed using a 6-item, anonymous-response questionnaire, which was administered during the final week of the rotation. A 5-point, Likert-like

Table 3. Selected Student Reflective Log Entries

Question	Student Reflection
What new or refined skills have you gained as a result of your program experiences?	• "better appreciation for the differences and difficulties of other races in relation to health care" • "better communication skills" • "I've learned to ask questions and explain things in a completely different manner." • "Perform efficient drug reviews on people with multiple medications" • "how to listen carefully to the elderly and respect their ideals and beliefs" • "not to prejudge people depending on the environment they come from; some of the more knowledgeable participants came from less affluent neighborhoods."
What questions have you been forced to face as a result of your experiences?	• "I was afraid to talk with the elderly and now I am not" • "it's ok to look up the answer to a question. I shouldn't be afraid that I will look stupid." • "not all patients want to talk to you or take your advice" • "why I felt so insecure and lacked confidence. Now I feel prepared and like I have a lot to offer people" • "self-doubt affects the quality of medication decisions/recommendations" • "if I am really prejudiced but didn't know it"
How do you think you can gain a better understanding of the person's values and beliefs?	• "truly listening to their concerns and what is important to them" • "identify physical limitations" • "respect their wishes" • "have an open mind" • "acknowledge and respect their point of view"
What do you believe are the barriers to the individual achieving adherence to their medication regimen?	• "lack of knowledge of what the medication can do for them" • "lack of medication insurance coverage" • "too many physicians and too little communication between them" • "old prescription bottles with mixed medicines in them" • "too many pharmacies used so no one pharmacist would know all of the medications one is taking" • "limited memory" • "language barriers" • "health conditions (e.g., stroke, blind)" • "too many medications"
What type of personal characteristics does it take to be successful in this type of work?	• "understanding, compassionate, friendly, patience, ability to conduct focused conversation, open mind (bias-free), confident, the desire to help others, dedication" • "ability to handle disappointment"
What has been the most exciting and/or rewarding aspect of your experience?	• "as a pharmacy student I can make a difference and have an impact on people's lives" • "I learned a lot from the participant's questions" • "watching our professors interact with the participants and learning from them" • "I could actually understand why people were on certain medications"
Looking back to the first day of your program experience: How do you remember feeling and how differently do you feel today? (What has changed?)	• "less confidence;(more confidence)" • "apprehensive and uncomfortable with interviewing; (comfortable)" • "lack of understanding of the needs of the elderly; (better understanding)" • "shock at conditions of unfamiliar surroundings; (better adaptability)"

scaled instrument was also used (ie, 1=very well to 5=very poorly). Overall, students' scaled and free responses reflected a positive educational experience (1.2–2.3). Mean ratings revelations in areas pertaining to "understanding how pharmacists can impact lives" (1.5), "ability to speak with someone who is elderly" (1.2), and "ability to speak with someone of a different culture"

(1.7) were particularly encouraging. Specific student comments included: "I have built confidence in making medication-related recommendations"; "this program is a great way to reach out to seniors and improve their medication knowledge"; "this is a good way to have exposure to the real world"; "I really have retained information from my classes"; and "every student should have this

Table 4. Program Participants Satisfaction Survey for 2001 (N=265)

Learning Objective	Mean Rating[*]	% Agreeing With Statement[†]
I felt that the presentation given by the pharmacist helped me to understand how to take my medicine better.	1.4	97.1
The pharmacist helped me to want to know more about my medicines and ask more questions.	1.4	95.5
I understood most of what the pharmacist talked about in the presentation.	1.4	97.6
The pharmacist helped me feel more in control of my health.	1.4	95.5
I would come to another medicine information program in the future.	1.4	93.5
The pharmacist was friendly when talking to me about my medicines.	1.0	97.8
I understood most of what the pharmacist talked about.	1.2	98.3
The pharmacist answered all of my medicine questions.	1.3	96.1
The pharmacist helped me to remember how and when to take my medicines.	1.5	88.3
I have a better understanding of why it is important to take my medicines.	1.3	93.1
The pharmacist listened carefully to everything that I said and seemed very interested.	1.3	93.1
The pharmacist asked too many questions. [‡]	3.5	13
The pharmacist made me feel more confused about my medicines. [‡]	3.9	5.6
I could not talk to the pharmacist about my medicines because I needed more privacy. [‡]	3.8	6.4
I understand better how to avoid problems with my medicine.	1.4	82.3
The pharmacist told me things about my medicines that I did not know.	1.8	77.7
I would recommend this program to my friends.	1.2	94.0

[*]Strongly agree=1; Agree =2; Don't know=3; Disagree=4; Strongly disagree=5
[†]Strongly agree or agree
[‡]Negatively-worded question

Table 5. Results of a Satisfaction Survey of Program Participants for 2002 (N=210)

Learning Objective	Mean Rating[*]	% Agreeing With Statement[†]
The presentation by the pharmacist:		
Helped me to understand how to take my medicine better.	1.1	94.4
Helped me to understand why it is important to ask questions about my medicines.	1.0	98.5
Helped me to understand the importance of receiving my immunizations.	1.1	96.6
Was easy to understand.	1.1	96.4
Helped me feel more in control of my health.	1.1	95.4
Encouraged me to come to another medicine information program in the future.	1.1	91.1
Medicine review: The pharmacist (pharmacy student):		
Listened carefully and seemed very interested in everything that I said.	1.0	99.3
Talked to me in a way that I could understand.	1.0	97.9
Answered all of my medicine questions.	1.1	95.1
Helped me to remember how and when to take my medicines.	1.1	92.0
Helped me understand why it is important to take my medication	1.1	95.8
Asked too many questions. [‡]	2.7	12.5
Made me feel more confused about my medicines. [‡]	2.8	8.0
Did not provide enough privacy for us to talk about my medicines. [‡]	2.4	28.1
Helped me understand how to avoid problems with my medicine.	1.2	89.6
Told me things about my medicines that I did not know.	1.3	78.4

[*]Yes=1; Somewhat =2; No=3
[†]Yes
[‡]Negatively-worded question

experience." The results of these evaluations are illustrated in Table 8.

All evaluations strongly suggested that the students, community participants, and the agency have all benefited from the program. The education provided by the students has been very well received by the community participants. The students have done an outstanding job. This is also evidenced by the students' final project grades, community participants' evaluations, and agency evaluative feedback. Truly, the program has been a "win-win-win" experience. The agency coordinator and local service specialists have been very pleased with the program, its content, and the students' performance.

IMPLICATIONS FOR OTHER PROGRAMS

The model presented in this program is practical and, realistically, could be implemented in any professional program at a college/school of pharmacy or insti-

Table 6. Agency Service Specialist Program Satisfaction Evaluation (N=26)

Program Objective	Mean Rating[*]	% Agreeing With Statement[†]
You were given enough time in advance to plan this event successfully.	1.4	96.2
The pharmacy faculty and students were professional when interacting with staff and seniors.	1.3	96.2
The length of the program was appropriate.	1.3	96.2
Participants were pleased with the program.	1.2	96.2
The overall effectiveness of this program	1.1	96.2

[*]Strongly agree=1; Agree =2; Don't know=3; Disagree=4; Strongly disagree=5
[†]Strongly agree or agree

Table 7. Faculty evaluation of clerkship student program participation   n=43 students

Behavioral Objectives	Mean Rating[*]
Arrived at the College/Site on the assigned day(s) and time(s).	5.0
Was well groomed and professionally attired.	5.0
Exhibited professional and ethical conduct while at the site.	5.0
Provided accurate information during medication counseling.	4.9
Completed all program forms accurately.	4.9
Exhibited initiative and interest in learning.	4.9

[*]Never=1; Sometimes=3; Always=5

Table 8. Pharmacy Clerkship Student Evaluation of Program Experience (N=43)

Program Objective	Mean Rating[*]	% agreeing with statement[†]	Associated Terminal Competency[‡]
My didactic coursework has prepared me for this experience	2.0	79.2	All
My experience helped me to understand how pharmacists can impact patient lives.	1.5	97.2	Monitoring outcomes; health care promotion/disease prevention strategies
I was provided with feedback concerning my medication counseling skills.	2.1	51.4	Health care professional/ community education
My experience has helped me speak with someone of a different culture than my own.	1.7	76.4	Patient communication; therapeutic problem solving; Documentation;
My experience has helped me speak with someone who is elderly.	1.2	100.0	health care promotion/disease prevention strategies
My reflective log helped me think about my experience and how I can improve on the quality of services I will provide as a pharmacist.	2.3	58.1	All

[*]Very well=1; Well =2; Somewhat=3; Poorly=4; Very Poorly=5
[†]Very well or well
[‡]Terminal Competencies and Objectives

tution of higher learning. The following are the key recommendations and determinants of a program's success:

1. Recruiting faculty "champions" who possess an enthusiasm, drive, and commitment to the initiative.
2. Enlisting support from the institution's administration (eg, dean, department head) and faculty members (eg, advanced practice experience preceptors).
3. Developing strong collaborative support from a state and/or community-based service agency. This provides an outstanding resource (financially and cooperatively) for enhancing program success, relationship building with the community, and a

more efficient identification of actual community practices, beliefs, and needs. All communities have institutions, clubs, community centers, and other locations where the elderly gather for activities. Strategic alliances and partnerships can be developed and nurtured through various means. Although the authors collaborated with a governmental agency for financial support, this may not be essential for all institutions. Additional financial resources, however, cannot be undervalued.

4. Assuring that all participating students, faculty members, and key agency personnel are oriented and clearly understand the program's goals and objectives, the roles and expectations of all participants, and the program structure prior to their

participation;

5. Delegating responsibilities efficiently by developing a program structure through effective identification and separation of support vs clinical tasks

6. Marketing the program and its importance both internally and externally. The importance of this cannot be underestimated. The authors developed a display case in the main corridor of the College and reported on the success of the program to the University Community Health Services Committee. A true understanding of this program's purpose and benefits can build a much-needed support base, which can enhance the likelihood of its success. This also holds true for interagency and community marketing.

7. Evaluating program outcomes (eg, qualitative and quantitative) to demonstrate the program's significance. This contributes greatly to creating long-term strategic alliances with community-based organizations and establishing the potential for sponsorship or funding support. Utilization of health indicators that are relevant to the interests of collaborative partners also enhances the program's chances of success.

8. Customizing the program to the resources and needs of the community. While the MMSOA program targets diverse, elderly populations in urban environments, the concept can be adapted to audiences within other populations based on the demographic patterns and needs assessments of the community/patient population surrounding the institution. The program objectives can be realized by collaborating with primary schools to educate children about poison prevention, secondary schools to prevent drug abuse, health club members about herbal/alternative medicine use, individuals with low literacy levels about safe medicine use, and many other timely educational endeavors relevant to the interests of the community in which the institution is located. The benefits are exponentially worth the efforts.

PERSONAL REFLECTIONS

The inclusion of pharmacy students, residents, and faculty practitioners into the MMSOA program was intended to enhance the pharmacy students' ability to detect and respond to medication and healthcare-related issues in diverse, elderly populations. At the end of the learning experience, the students were more aware of actual medication use, health practices, health beliefs, and related issues that impact health outcomes in the older adult population. The authors believe that this program is innovative because it comprehensively and effectively integrates a higher education curriculum,

national health care goals/objectives, and the initiatives of community service agencies. As previously stated, the innovation was implemented to provide "real world" experiences to enhance traditional teaching and learning strategies in the area of geriatric health care and to help the student, as a future pharmacist, be better positioned to effectively serve this population.

Successes vs Difficulties

Overall, the program has been a great success. The authors, however, encountered a few challenges along the way, which we have outlined below along with how we have overcome each one.

1. Inconsistency of attitudes toward the program by the various local agency service specialists. Many of the agency coordinators truly valued the program and looked forward to the students' arrival. It was evident that they fully prepared their clients for the program. The attendance at those programs was excellent. The participants brought their medications and the schedule of events at those host sites accommodated the program activities. However, this was not the case at all host sites and with all local service specialists. At a few sites, while the specialist voiced their support of the program, his/her clients told a different story. Program participants were not prepared because they had not brought their medications, and bingo games and lunch programs were being held simultaneously, among other conflicting issues. Upon subsequent discussions with the agency regional coordinator, we recognized that additional education about the importance of this agency initiative and the expectations of program participation needed to be provided to these local specialists. These particular sites also exhibited a disparity in the provision of other client services, and agency intervention on other issues was warranted.

2. Community participant intervention follow-up process. The authors improved the follow-up process for participants who were identified as being at high immunization-related risk or higher medication-related risk. The follow-up process was developed to determine what health or medication-related changes had occurred as a result of this program. A mail and telephone contact process provided a more consistent method of follow-up for all areas of the program. Additionally, the specific impact our program had on the immunization practices of MMSOA participants was assessed through a mail and telephone survey. This enabled the PMPR 384 students to

be involved in community-based research. Results of this project will be published in the future.

3. Assessment methods. The authors realize most of the program's initial evaluative data that show evidence of student learning are qualitative. The 2003 program has strengthened the assessment of student learning by the development of instruments to categorize variables and emphasize pre/post quantitative data gathering and analysis.

4. On-site immunizations. Collaboration with Dominick's pharmacy has been instrumental in the provision of vaccines (eg, influenza and pneumococcal) to program participants. In the authors' previous study (unpublished data) measuring the impact on immunization beliefs and practices resulting from pharmacist-provided immunization-related education, results confirmed that access to the needed vaccines at the program site would improve vaccination rates. Initially, the immunizations were to be administered at the MMSOA programs by APhA immunization-certified pharmacists, faculty members, and pharmacy students. Due to liability concerns and timing issues, Dominick's decided to hold the pharmacist-run immunization clinics at their community pharmacy practice sites. The dates and neighborhood locations of the clinics were well publicized to the MMSOA program participants. While this program addition enhanced the services provided, it is still the future goal of the authors to provide access to the vaccines during each program.

5. Faculty workload. It was determined and agreed that a schedule of up to 6 programs per advanced practice experience module would satisfy the program objectives and minimize any "overextended" feelings on the part of the faculty and/or residents. This is in contrast to a schedule of up to 2 programs per week for 6-week periods.

6. Program costs/funding. The program has received continued support from the agency for the next 2 academic years, stating, "this valuable, successful health and medication advocacy program should be continued for the seniors despite our declining state and agency revenues." This statement is a strong testimonial to the success of the program and the students who have participated in it. The costs of this program are not prohibitive. Fixed costs are transportation related (eg, renting of the university van and fuel costs). All other costs are personnel related (time-equivalent salary and fringe benefits) and already covered if participation in the program is considered part of the faculty member's teaching responsibilities. Full agency sponsorship, however, might allow for the hiring of additional personnel. This, certainly, would be an optimal situation, but not imperative to implementing the program. Minimal supply costs (eg, paper, printing, etc) are also incurred.

CONCLUSIONS

The authors will continue to provide this community-focused, geriatric educational outreach program that targets the health and medication-related needs of older adults. While many service-learning activities are developed as a component of the pharmacy student's introductory practice experience, the integration of this model as a required component of an advanced practice experience creates great opportunities. The experience that students, residents, and faculty members gain is invaluable and provides an innovative opportunity for schools of pharmacy to meet the challenge of developing a foundation of competence in student education and training so that future pharmacists can meet the needs of the increasing elderly population. After all, what the investigators have learned is that "the best classroom in the world is at the feet of an elderly person." Students and the elderly participants come away from the experience having learned from each other and developed mutual respect. The program helps the faculty members and students demonstrate why they want to be pharmacists: "to help people." This teaching model should be shared with other institutions so that faculty members can demonstrate why they want to be teachers: "to inspire students."

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Appendix 1. MMSOA Student Reflective Learning Log

Objectives:
1. Define the role of community service experiences in a pharmacist's academic and professional development.
2. Identify how non-medical issues and problems may affect medication use and outcomes.
3. Describe what role medications can play in helping, as well as confounding an elderly person's daily life.
4. Utilize reflection to describe how a mix of theory, practice, thought, action, observation and interaction enhances learning.

Pre-site encounter:
Have you ever participated in a community outreach medication or health education program? If so, how frequently and in what capacity? (describe your responsibilities)

Site visit encounter #1-6:
1. Describe the program site/environment that you have been to today.
2. What is the difference between your home community and the community where today's site is located?
3. What has been the most uncomfortable aspect of your experience or what, if anything, made it difficult to talk with the participants at the site? How could you overcome or prevent those difficulties?
4. How do you feel about the people that you have interacted with today?
5. Think about one of the persons you encountered today. Answer the following:
   a. Three (3) points that you would say are differences between you and him/her.
   b. Three (3) areas of commonality
   c. What do you think are the qualities, personality, preferences, daily concerns that the person would want you to be aware of?
   d. How do you think you can gain a better understanding of the person's values and beliefs?
   e. What do you believe are the barriers to him/her achieving adherence to their medication regimen?
   f. What would you suggest could be done to overcome the barrier(s)?
   g. How strong is the social support that he/she receives from their family/friends? What impact can this have on their therapeutic success? What role has it played for the person?
   h. How has your experience today helped you to better demonstrate caring to your patients?
6. How has this experience challenged any predetermined thoughts, philosophies, or prejudices that you have had?

After all site visit encounters have been completed:
1. What new or refined skills have you gained as a result of your program experiences?
2. What questions have you been forced to face as a result of your experiences? Any answers to those questions?
3. How has this experience impacted or altered your willingness to serve others?
4. How has this experience affected your understanding, insights and/or empathy towards the needs of the elderly?
5. What have you learned about yourself through this experience?
6. Place yourself in one of the person's shoes that you have encountered in the program. Please describe how that person would view the time you spent with him/her.
7. What recommendations would you have for future students participating in a program like this?
8. What changes/suggestions would you suggest to the program coordinators?

Thank you for your participation in this program and your reflections. We hope that you have had a meaningful experience.