

Public Health Screenings as a Component of Introductory Practice Experiences

Randell E. Doty, Kevin M. Latham and Ronald B. Stewart

College of Pharmacy, University of Florida, Health Science Center, P.O. Box 100486, Gainesville FL 32610-0486

The American Council of Pharmaceutical Education has mandated major changes in experiential coursework. Incorporation of introductory practical experiences early in the entry-level curriculum has been recommended. This paper describes our experiences with the design, implementation and results of a public health screening component that was incorporated into the first year of an entry-level curriculum. Students measured blood pressure and administered risk assessments for osteoporosis, cardiac disease and diabetes to participants visiting shopping malls. They also provided poison prevention information and conducted brown bag sessions for senior citizens.

INTRODUCTION

The American Council of Pharmaceutical Education (ACPE) has mandated major changes in experiential coursework. The Council recommends that introductory practice experiences be included early in the curriculum(1). Introductory practice experiences have been recommended to enhance the process of professionalization and to provide an environment for inculcating the philosophy of pharmaceutical care(2). Introductory practice experiences may be difficult to include in a pharmacy curriculum that is already crowded with didactic courses. To date, descriptions of introductory practice experiences in the pharmacy literature have been limited to shadowing programs in which students interact with a role model for brief periods or elective/volunteer programs(2,3,8,9).

ACPE recommends that health promotion and disease prevention be included in core curricular content(1). The Janus Commission of the AACP has urged incorporation of community outreach programs or service learning activities as a part of core pharmacy curriculum(4). Graber *et al.* recently reported on the current and ideal emphasis on 33 generalist curriculum topics in PharmD programs.(5) The 33 topics were selected following a survey of academic deans from five health profession schools and pharmacy curriculum directors. The purpose of the survey was to determine which topics the health profession deans and pharmacy curriculum directors thought needed greater emphasis in the curriculum. Health promotion/disease prevention ranked in the top third of all subjects by pharmacy curriculum directors and it ranked first by health profession deans. Results of this survey suggest that the current emphasis on health promotion and disease prevention in the pharmacy curriculum is receiving much less than ideal attention.

The purpose of this paper is to describe the design, implementation and results of a public health/disease prevention screening program component that was incorporated into the second semester of the first year of an entry-level curriculum. The screening component has been taught as the major focus of the Clinical Practicum II course for three years. This paper will concentrate on the methods and results for the second year the course was taught.

BACKGROUND

In 1996, the University of Florida College of Pharmacy faculty approved a revised entry-level Doctor of Pharmacy curriculum and it was implemented in the fall semester of 1997. One objective of the revised curriculum was to incorporate introductory practice experiences in the first year of the pharmacy program to better prepare students to provide pharmaceutical care(6,7).

In the new curriculum two semesters of introductory practice experience were integrated into the first year of didactic coursework (Clinical Practicum I and Clinical Practicum II). Each course is one credit hour. The course goals, ability based outcomes, and specific objectives for these courses are included in Appendixes A and B.

Clinical Practicum I is taught in the first semester of the first year. Even though it is not the focus of this paper, it is necessary to briefly describe the course to understand how it prepared the students for Clinical Practicum II. In Clinical Practicum I, students were introduced to basic communication techniques for gathering information on the medical history from patients or volunteers. Students also were introduced to basic physical assessment techniques including blood pressure, temperature, pulse and respiration, etc., which were performed on patients or volunteers. In Clinical Practicum I, first year pharmacy students were teamed with college of nursing junior students at a community site where they gathered information about patient's health status, health behaviors, and social issues. Student teams were assigned a single volunteer who they visited four times during the semester. Faculty members from the College of Nursing and College of Pharmacy supervised student teams. Experiences from Clinical Practicum I prepared the pharmacy students for their health screening/health promotion activities in Clinical Practicum II.

Clinical Practicum II was integrated into the second semester of the entry-level Doctor of Pharmacy program and it

Am. J. Pharm. Educ., 64, 425-30(2000); received 3/30/00, accepted 9/19/00.

was expected to build on the knowledge and skills gained from the previous semester. Ability-based outcome goals of this course were for the student to use predetermined screening tools, physical assessment techniques, appropriate communication techniques, and professional demeanor to conduct a health screening or educational program for the community, including documentation of their activities. The concept of a health screening and disease prevention program was selected since it provided a source of real patients for the students to interact with and begin to develop their professional skills. The course was begun in the spring semester and has now been taught for three years. The number of students enrolled has ranged from 100-130.

The University of Florida College of Pharmacy is located in Gainesville, Florida, in Alachua County. Alachua County has approximately 211,000 residents. The University of Florida, which is located in Gainesville, has a student enrollment of 42,000. This environment provided an ample source of participants for health screenings. Health screenings were located in large retail stores that contained pharmacies and in several shopping malls.

METHODS

Course Requirements

For the public health screening and health promotion component of Clinical Practicum II, students are required to participate in five one-hour community screening/education sessions over the 15-week period of the course. Four areas of screening were required for all students including osteoporosis risk assessment/nutritional assessment, hypertension risk assessment, poison prevention, and diabetes risk assessment. Additionally, students were required to complete one elective screening that could be selected from additional required screenings, brown bag programs for senior citizens, local health fairs, or poison prevention presentations in elementary schools. During the semester students also were expected to shadow a senior pharmacy student on advanced pharmacy practice experience rotation and participate in two special events, health care issues day (a day long interdisciplinary health professions symposia) and pharmacy grand rounds (an afternoon college wide case presentation/discussion). Clinical Practicum II was a one-credit course and grading was pass/fail. Assignments for the course were either completed to the satisfaction of the faculty or the student received an incomplete grade until such time as the assignments were completed.

Site Selection and Scheduling

Sites selected for health screening included 15 retail stores with pharmacies and one retail store in a large shopping mall. These sites were selected to provide maximum participant exposure with opportunity for pharmacy students to be in close proximity to pharmacy services. Approval for health screenings was obtained from the pharmacist manager in each store as well as the pharmacy district manager for the company. Screenings were conducted during a 12-week period of time and most screening sites were used four times during the semester. In addition to these regularly scheduled events occasional special opportunities in local health fairs were utilized as they presented themselves.

Student Assignment

The curriculum had been planned to allow for health screenings from 3:30-5:30 PM, on Tuesday, Wednesday, Thursday and 9:00-12:00 AM on Friday. Approximately 50

screening sessions were established during the 12-week period to accommodate the 100 plus students. Five students per team were scheduled during each hour of the screening sessions and students were supervised at all times by a pharmacy faculty member or pharmacy fellow.

Numerous conflicts with the screening times were expected to occur since students would likely have work, medical appointments, and other obligations. To minimize these conflicts the class was divided alphabetically into four groups and four days a week students were scheduled to select one health screening time. The alphabetical order in which students were allowed to select screening times was rotated to give students an equal opportunity to select the five health screenings. By the end of five weeks all students had selected their four required and one elective health screening periods.

Preparation for Health Screenings

Since these were first year pharmacy students, information had to be provided to prepare them with the knowledge and skills necessary for the health screenings. Two lecture class periods were usually devoted to the public health problem to provide background information on the disease and familiarize students with risk factor assessment materials. For the hypertension risk factor screening, one class period was scheduled for small groups to practice with the sphygmomanometer. In addition to the class times, students had the opportunity to checkout sphygmomanometers overnight so that they could practice.

To lessen the anxiety from the student-patient interaction process, osteoporosis risk assessment was the first screening that students performed. Osteoporosis was the first health screening since it did not require students to perform physical assessment and it gave them an opportunity to become comfortable when talking with patients.

Screening Tools and Educational Materials

Screening tools and educational materials for osteoporosis risk factor assessment, nutritional risk assessment, and diabetes risk factor assessment were obtained by contacting the National Osteoporosis Foundation, Ross Pharmaceuticals, and the American Diabetes Association. Each organization has a relatively short questionnaire to assess the risk of developing the disease. No hypertension screening protocol was found which suited the level of the students, so one was produced specifically for this course based on the JNC VI criteria. For the brown bag sessions a tool was created tailored to the students' level of knowledge, which would allow them to perform some basic medication reviews. Printed educational materials for the screenings were supplied mostly free of charge to the College and these materials were given to patients whenever appropriate.

All students entering the College of Pharmacy are required to have a computer with access to the internet. The course web site has links to the Osteoporosis Foundation, American Heart Association and the American Diabetes Association. Students could access those web sites to obtain extensive educational materials to further prepare them for their health-screening role.

Poison prevention/information sessions were scheduled in the month of March to coincide with Poison Prevention Week. A representative from the Florida Poison Information Network presented a lecture/discussion class to prepare students to provide education to patients. The representative from the Network provided educational materials on poisonous plants,

Table I. Results of health screenings for osteoporosis, nutrition, hypertension, and diabetes^a

Health screening	Number of patients	Patients at risk		Patients at risk referred		Education Provided	
		Number	Percent	Number	Percent	Number	Percent
Osteoporosis	678	116	17.1	54	46.5	98	84.5
Nutrition	254	45	17.7	32	71.1	32	71.1
Hypertension	879	493	56.1	98	19.9	313	63.5
Diabetes	181	75	41.4	24	32	53	70.7

^aJanuary through April 1999 (second year of the course).

seasonal poisoning hazards, first aid for poisonous snakebites, and information for patients on methods to poison proof their homes. Educational materials for patients were provided in quantities sufficient for the screening sessions at no charge to the College of Pharmacy.

Faculty Participation

After site selection was completed a request for faculty volunteers was sent by e-mail to College faculty. While most screening sessions were supervised by the two faculty with primary course responsibility (RED, RBS), over a dozen different faculty and fellows in the College participated in the screenings. Faculty volunteers were from the departments of Pharmacy Practice, Pharmaceutics and Pharmacy Healthcare Administration. All were registered pharmacists.

Screening Process

Students were expected to provide their own transportation to the screening site. On arrival at the screening site, faculty members placed a sign in a prominent area that identified the College of Pharmacy as the organization conducting the health screen. The sign also prominently displayed the nature of the health screen being offered. Students were instructed to aggressively inform patients that the College of Pharmacy was providing a free screening for the disease or health problem. If the site did not have suitable facilities to perform the screening, tables and chairs were transported to the site by the faculty member.

Documentation Process

Students were required to actively solicit members of the public at the site to participate in the screening program. Each student was required to document his or her activities while at the site. Data on osteoporosis, hypertension, and diabetes were collected by students at the time patients agreed to be screened in the program. A form was developed to record the patient's zip code, age, sex, race, their "at risk score", whether they received educational information, and whether they were referred to a health care provider. For hypertension screening the actual blood pressure value obtained from the patient was recorded. Students were required to download a formatted Excel file from the course web site and complete it for each screening they attended. These records were transmitted to the course coordinator as an email attachment. They served both as an exercise in documentation as well as a record of student's attendance. Data for the brown bag sessions (which were optional) did not follow the same format as the rest of the screenings and therefore were submitted in another format. No data was recorded for the poison information sessions since these were primarily information distribution rather than data information gathering. The sequence of health screening was osteoporosis, hypertension, poison prevention information and diabetes. With the exception of poison prevention, screening

types were not discontinued as the semester progressed, but the new type was added to the screening repertoire. For example, diabetes screening days concentrated on diabetes but might include osteoporosis or hypertension if a person were interested.

RESULTS

Each student participated in five hourly health screenings during the semester and was successful in attracting an average of 4-6 subjects to complete health screenings during an hour session. It was more difficult to interest subjects in osteoporosis screening but once students began to measure blood pressure a high percentage of subjects requested to have their blood pressure measured.

To illustrate the level of activity achieved by the students in this course, the number and types of participants screened by students are provided for the second year of the course. Table 1 depicts the number of participants screened by pharmacy students by each screening type, number and percentage of subjects at risk for the condition, and the number and percentage of at risk subjects provided with educational materials concerning their condition. The data collected indicates that 1992 screenings were performed between January and April of 1999. Since some participants were screened for more than one disease it is not clear how many individuals participated. A total of 1294 screenings during this time period reported zipcodes in Alachua County.

The health screenings program provided a rich source of patients who were at risk for the diseases. Screenings exposed pharmacy students to realistic health care issues that would be dealt with in their future coursework. Patients related numerous stories to students concerning the impact of the disease on their lifestyle, difficulties with medication compliance, economic effect of medication purchases on their budget and adverse effects experienced with their current medications. Patients provided positive feedback to students concerning the health screens and frequently thanked students for the screening service and the educational materials provided. Several times during the course a summary of patient screenings is provided to the students to illustrate the impact they have had on identifying previously undiagnosed diseases or conditions or risk factors in this population.

During poison prevention sessions many patients who stopped by for information related their own scenario of how their child or grandchild was poisoned. These stories served to reinforce to the students the importance of poison-proofing homes.

Student evaluations of this course were much higher than the College average for all courses. Course evaluation information is included in appendix C. Numerous comments were received from students indicating they enjoyed going out into the community to talk with real patients. A few students indicated they did not like having to solicit patients for participa-

tion in the health screens or were anxious when talking with strangers.

DISCUSSION

The second year of this course was described because of changes made to the course after the first year. Even though the course was successful in its first year the improvements made had a noticeable impact and warrant discussion. In the spirit of continuous improvement there were changes implemented for the third year but the impact of these changes were not as great. Screening location was the first significant change from the first year of the course. The first year health screenings were primarily carried out in front of freestanding pharmacies. Several chains store pharmacies were used as well as some local independent pharmacies. We also used a few grocery stores and discount stores that had pharmacies. It became apparent during the course of the semester that grocery stores and discount stores were superior locations for the purpose of the health screenings, primarily because of the high traffic flow of consumers. Secondly, there appeared to be a different attitude on the part of patrons at the freestanding pharmacies. Patrons of these stores seem to be more focused on getting in and out of the store and were less likely to take time to participate in health screenings. Patrons at discount stores and grocery stores appeared to have a less rigid plan of activities at these stores leaving them more open for participation in screening programs. Finally customers entering freestanding pharmacies seem to be more likely to have recently come from an appointment with a healthcare professional, reducing their need and desire for health screenings.

The second significant change was making the documentation process mandatory and electronic. This facilitated early curricular reinforcement of the importance and process of documenting activities in pharmacy practice. It also provided a convenient way to illustrate the potential impact of student projects on the community.

The third course change was to make screening programs cumulative. In the first year once a screening type had been offered for a few weeks, it was not made available for future screening sessions. This limited the potential interest of the public. By adding new screenings as the semester progressed while keeping the options of the previously offered type available it brought more people to the screening sessions. Often a person approached students to participate in one screening and decide to participate in multiple screening types.

In the third year a major change implemented for the course was in the documentation process. Students in the third year ask screened individuals whether they had been told they had been diagnosed with the disease and if so whether they were being treated. This was changed because a number of screened individuals (particularly in hypertension screenings) were aware of their disease but wanted to check their status or be monitored. By asking these questions students and faculty present at the screenings were able to provide more appropriate educational information and referrals.

Throughout the three years of this course it has become apparent that as more public health screenings are offered more opportunity will become available to offer them. Course coordinators have received more invitations for special event screenings than can be comfortably scheduled in the semester.

CONCLUSIONS

Introductory practical experiences early in the entry-level curriculum can provide positive reinforcement to pharmacy stu-

dents concerning the importance of the pharmacy profession and the pharmacists' role in the health of patients. These experiences can help students apply knowledge acquired in their early didactic coursework to real people and their problems. This course demonstrated that when carefully integrated into the curriculum, public health/disease prevention screening can be of great benefit to pharmacy students and at the same time benefit a significant segment of the population.

References

- (1) American Council of Pharmaceutical Education. "Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree." Adopted June 14, 1997. ACPE, Chicago IL (1997).
- (2) Beck, D.E., Thomas, S.G. and Janer, A.L. "Introductory practice experience: A conceptual framework." *Am. J. Pharm. Educ.*, **60**, 122-131(1996).
- (3) Callahan, P. and Keller, J. "Evaluation of practice site learning experience for entry-level doctor of pharmacy students," *ibid.*, **61**, 87-90(1997).
- (4) Bootman, J.L., Hunter, R.H., Derr, R.A., Lipton, H.L., Mauger, J.A. and Roche, V.F. "Approaching the millennium. The report of the AACP Janus Commission," *ibid.*, **61**, 4S-10S(1997).
- (5) Graber, D.R., Bellach, J.P., Lancaster, C., Musham, C., Nappi, J. and O'Neil, E. H. "Curriculum topics in pharmacy education: Current and ideal emphasis," *ibid.*, **63**, 145-151(1999).
- (6) Chalmers, R.K., "Chair report of the Study Committee on Preparing Students for the Realities of Contemporary Pharmacy Practice," *ibid.*, **47**, 393-401(1983).
- (7) Chalmers, R.K., Adler, D.S., Haddad, A.M., Hoffman, S., Johnson, K.A. and Woodward, J.M., "The essential linkage of professional socialization and pharmaceutical care," *ibid.*, **59**, 85-90(1995).
- (8) Grabe, D.W., Bailie, G.R., Manley, H.J. and Yeaw, B.F. "The early patient-oriented care program as an educational tool and service," *ibid.*, **62**, 279-289(1998).
- (9) Vrahnos, D. and Maddux, M.S. "Introductory clinical clerkship during the first and second professional years: Emphasis in clinical practice and writing," *ibid.*, **62**, 53-58(1998).

APPENDIX A. GOALS, OUTCOMES, AND OBJECTIVES OF CLINICAL PRACTICUM I

Goals

The goals of this course are to introduce the student to pharmacy as a profession; to help them understand the role the pharmacist plays in the health of the patient and in the health care team; and to help them apply the knowledge that they are acquiring in their didactic coursework by allowing them to use that knowledge while working with real people and their problems.

Ability Based Outcomes

The pharmacy student should be able to, using predetermined interviewing tools, physical assessment techniques, appropriate communication technique, and a professional demeanor, create a health history for a specific patient/volunteer in preparation to the provision of pharmaceutical care.

The pharmacy student should be able to communicate the major points of a specific patient/volunteer's health history to other health care professionals as well as the patient/volunteer in an understandable manner in both oral and written form.

The pharmacy student should be able to demonstrate in written form an understanding of the roles and responsibilities of the senior pharmacy student in the provision of pharmaceutical care.

Specific Course Objectives

- Interview a patient/volunteer using basic communication techniques to gather information concerning that patient/volunteer's:

Medical history Drug taking behaviors
 Medication profile Goals of their therapy
 Social history

- Examine a patient/volunteer using basic physical assessment techniques to gather information concerning that patient/volunteer's: Blood pressure, Body temperature, Pulse and respiration, Etc.
- Understand the process of identifying drug-related problems based on information gathered.
- Demonstrate the professional demeanor necessary to practice as a professional pharmacist.
- Understand and demonstrate concern for the patient's privacy and anxieties during interactions with patients.
- Be able to interact with persons seeking care and/or guidance in an open and empathic fashion.
- Describe the role of a senior pharmacy student in a clerkship setting.

APPENDIX B. GOALS, OUTCOMES, AND OBJECTIVES OF CLINICAL PRACTICUM II

Goals

The goals of this course are to introduce the student to pharmacy as a profession; to help them understand the role the pharmacist plays in the health of the public; and to help them apply the knowledge that they are acquiring in their didactic coursework by allowing them to use that knowledge for the benefit of real patients and the population as a whole.

Ability Based Outcomes

The pharmacy student should be able to, using predetermined screening tools, physical assessment techniques, appropriate communication technique, and a professional demeanor, conduct a screening program and/or educational program for the community including documentation of their activities.

The pharmacy student should be able to communicate the major points necessary to educate a patient concerning the results of a com-

munity-screening program.

The pharmacy student should be able to demonstrate in written form an understanding of the roles and responsibilities of the senior pharmacy student in the provision of pharmaceutical care.

Specific Course Objectives

Interview community members using basic communication techniques to gather information concerning that community member's:

Diabetes Risk Osteoporosis Risk
 Nutritional Status Knowledge of household
 Cardiac Risk poisoning risks
 Medication taking behaviors

- Examine a community member using basic physical assessment techniques to gather information concerning that community member's: Blood pressure
- Understand the process of identifying drug-related problems based on information gathered.
- Demonstrate the professional demeanor necessary to practice as a professional pharmacist.
- Understand and demonstrate concern for the patient's privacy and anxieties during interactions with patients.
- Be able to interact with persons seeking care and/or guidance in an open and empathic fashion.
- Document the interactions with patients.
- Describe the role of a senior pharmacy student in a clerkship setting.

APPENDIX C. COURSE EVALUATIONS FOR CLINICAL PRACTICUM II 1998 AND 1999

Clinical Practicum II (PHA 5492c)

Spring 1998		
Course Evaluation (1-5 point scale)	PHA 5492c	College
Overall Rating	3.75	3.35
Spring 1999		
Course Evaluation(1-5 point scale)	PHA 5492c	College
Overall Rating	4.20	3.31