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## Development of a Partnership for International Rural Advanced Pharmacy Practice Experiences

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# Development of a Partnership for International Rural Advanced Pharmacy Practice Experiences

## **Abstract**

**Objective.** To design a faculty-guided international elective Advanced Pharmacy Practice Experience (APPE) in partnership with a medical relief organization. To expose students to pharmacy-related opportunities in non-traditional settings focused on an indigent population, while obtaining a global perspective on healthcare.

**Methods.** The College of Pharmacy partnered with an international medical relief organization utilizing their resources for trip planning and in-country logistics to provide a framework for a pharmacy student rotation. The international trip is a portion of the calendar month rotation, while the balance is faculty-guided discussion groups, involvement in formulary planning, developing educational materials, and local medical relief work. Student course evaluations, exit interviews, and post-trip debriefing were used to evaluate the rotation experience.

**Results.** The APPE rotation met all pre-selected objectives outlined by the American Association of Colleges of Pharmacy. This is evidenced by complete submersion into a developing country's culture and healthcare system as well as student course evaluation responses. Students evaluated seven rotation objectives with the College of Pharmacy's Likert scale. The average score was 4.8 of 5, which demonstrated the student's either agreed or strongly agreed that each objective was met. Additionally, the response to the exit interview and group de-briefing questions confirmed that the students successfully met the goals and objectives of the APPE rotation.

**Conclusions.** Partnering with an international medical organization can provide a framework for a faculty-guided international elective APPE experience, requiring minimal resources from the College of Pharmacy while providing a quality international experience.

## **Keywords**

Advanced Pharmacy Practice Experience, international, partnership, rural, experiential education

## **Introduction / Background**

Providing quality Advanced Pharmacy Practice Experiences (APPEs) can be challenging, especially when considering locations outside of the College's vicinity. Developing partnerships with community pharmacies and health systems has been documented as a way to increase APPE opportunities for pharmacy students (Turner et al, 2007; Bress et al, 2011). Additionally, exposing students to a broad spectrum of patient populations, especially those that are underserved, can provide benefit to student education (Assemi et al, 2009). The Bill Gatton College of Pharmacy at East Tennessee State University, established in 2005, has a mission to provide quality interprofessional education for pharmacy students as well as to prepare them to serve in rural areas. The development of a unique, collaborative APPE experience may help achieve this mission and advance pharmacy student education.

Faculty at the College of Pharmacy set out to design a faculty-guided international elective Advanced Pharmacy Practice Experience (APPE) in partnership with a medical relief organization. The APPE would serve to expose students to pharmacy-related opportunities in non-traditional settings focused on an indigent population, while obtaining a global perspective on healthcare. The APPE would equip students to identify and assist patients to overcome barriers to healthcare in rural settings, to provide pharmaceutical care to patients at interprofessional healthcare clinics, and to obtain a global perspective on healthcare.

## **Developing Objectives for an APPE**

International experiences in pharmacy education can fulfill many professional objectives. A documented approach to providing international APPEs is to partner with academic sites in developed countries to provide students with a perspective on global healthcare (Gourley et al, 2013). However this academic partnership may not address our additional goals of rural education or training in interprofessional patient care. This APPE design of partnering with a medical relief organization served to introduce students to additional rural settings, aside from what was available to them within the vicinity of the College of Pharmacy and incorporate the students into an interprofessional patient care team. This APPE design helps to achieve the American Association of Colleges of Pharmacy (AACP) Center for the Advancement of Pharmacy Education (CAPE) Educational Outcome 1.a.ii and Supplemental Educational Outcome IV which address a collaborative, interprofessional approach to pharmaceutical patient care (AACP CAPE, 2004; AACPE CAPE, 2007). Objectives of this APPE include identifying and assisting to overcome barriers to healthcare in rural settings, providing pharmaceutical care to patients at interprofessional healthcare clinics and obtaining a global perspective on healthcare.

## **Advanced Pharmacy Practice Experience Design**

The College of Pharmacy partners with an international medical relief organization, Global Health Outreach, utilizing their resources for trip planning and in-country logistics to provide a framework for a pharmacy student rotation. Appropriate affiliation agreements were completed by the College and the medical relief organization prior to the first APPE experience. With support of the College of Pharmacy, interested faculty volunteered to lead the international

elective APPE experiences. This was the first international opportunity at this new College of Pharmacy, and continues to be offered each rotation cycle.

The international medical relief organization, Global Health Outreach, facilitates 40-60 short-term medical trips annually. Global Health Outreach provides an interprofessional structure for trips utilizing physicians, physician assistants, nurses, nurse practitioners, dentists, physical therapists, pharmacists, surgeons, optometrists and public health professionals among others. Global Health Outreach provides logistical support for the trips handling air and ground transportation, lodging, food, appropriate insurance and licensing, local language interpreters, textbooks, entry fees, team leadership, and recruitment.

Each rotation is able to accommodate 4-5 APPE students, supervised by one faculty preceptor. The international trip with an interprofessional team from Global Health Outreach comprises 10-15 days of the calendar month rotation and the remainder of the time is flexible based on faculty member, student, and Global Health Outreach team needs. The balance is faculty-guided discussion groups, involvement in formulary planning, developing educational materials, and local medical relief work which serve to achieve APPE objectives and prepare the students for international patient care. Additionally, students receive training on how to perform a basic eye exam in order to organize and execute an eye clinic in the destination country. The eye clinic helps patients' select appropriate reading glasses for their visual deficits. An example rotation plan is available in Table 1. An alternate approach to preparing students for this type of APPE is to offer a pre-requisite elective course (Schellhase et al, 2013).

**Table 1: Example APPE Plan**

Calendar Timing	Objective	Activity
Beginning of APPE cycle	Select students	Receive applications for review, conduct interviews, and select students
6 months prior	Disease state knowledge	Student-led discussions on common disease states in country of travel*
	Public health education	Developing or updating of public health educational materials and presenting to preceptor for feedback*
4 months prior	Travel safety	Obtain passport, visas, and appropriate immunizations and personal travel medications
2 months prior	Formulary planning	Work with preceptor to select medications and quantities for formulary*
Month of trip: Pre-trip	Cultural competency	Student-led discussions on country of travel cultural topics
	Interprofessional relationships	Interprofessional experiences in local underserved clinics
	Medical altruism	Volunteer experiences at local medical charities
	Pharmacy logistics planning	Work with preceptor to plan pharmacy design and workflow
Month of trip: Trip	Interprofessional teamwork	Manage pharmaceutical care through setting up and maintaining a functioning pharmacy, interpreting orders, assisting with medication selection, dispensing appropriate medications, providing patient education and rotating through multiple areas of the clinic outside of the pharmacy
Month of trip: Post-trip	De-brief	Discuss the experience and student global perspective individually and as a group
<i>*Students receive credit for this time resulting in time off during the slated APPE month</i>		

Student-guided discussion groups, with faculty oversight, cover common disease states in underserved countries as well as the culture of the country of travel. Students assist in formulary planning on many levels including selecting medications, determining quantities and developing concise education points for patient counseling through an interpreter on high use medications. Students assist in developing, updating or modifying public health education materials in an attempt to increase healthy habits and decrease disease burden in the country of travel. Public health topics that have been included in educational materials to date are in Table 2.

**Table 2: Public Health Educational Topics for International Rural Experiences**

<b>Public Health Topics*</b>
Nutrition
Dehydration
Safe drinking water/clean water
Handwashing
Toothbrushing
Wound care
Choking prevention
Breastfeeding
Avoiding mosquitoes
Disease prevention (HIV, malaria, tuberculosis, etc.)
Human immunodeficiency virus (HIV) prevention and care
Medication adherence
<i>*Interested individuals may contact the corresponding author for an electronic copy of the public health educational materials</i>

Students spend time in local medical clinics where underserved populations are seen to serve the needs of the local area in an interprofessional setting in preparation for the international team experience. Students also use their pharmacy skills to assist area medical charities such as Kingsway Charities as time during the rotation month allows.

While in-country the faculty and pharmacy students are responsible for organizing, managing and operating the clinic's pharmacy. This includes staffing the pharmacy, dispensing medications, preparing unit dose medications, and counseling patients with an interpreter. The pharmacy team assists prescribers with alternative drug selection and provides a daily report on medication acquisition and shortages. At certain sites, pharmacy students have the opportunity to facilitate the eye clinic by using their preparatory training to assist patients with the selection of the most appropriate reading glasses. Also, the students are able to assist with the overall organization and flow of clinic, by welcoming the patient, taking pertinent vitals and recording the patient's chief complaint. Additionally, the students shadow prescribers in order to gain a deeper understanding of the patient's life, rural living and healthcare, and the utilization of drug resources.

## Evaluation

A review of aggregate data from student course evaluations was conducted for the initial cohort of students from 2011, as approved by the East Tennessee State University Institutional Review Board. Group debriefing sessions and individual exit interviews were also conducted to assess student achievement of APPE objectives and the student responses were critiqued for themes.

Student course evaluations were performed electronically and given to faculty in de-identified aggregate form allowing for non-biased review of the experience. Electronic student course evaluation questions and responses are summarized in Table 3.

Exit interviews were conducted individually to evaluate specific student's ability to identify and overcome healthcare barriers and provide multidisciplinary patient care in a clinic setting. Post-trip debriefing was performed as a group to evaluate the rotation experience and the students' change in global perspective. Questions utilized in exit interviews and group de-briefing are summarized in Table 4. Table 5 summarizes common, representative student comments from the exit interview and group debriefing sessions.

**Table 3: Student Course Evaluation Survey Results**

<b>Survey Question</b> <i>Response rate = 100%</i> <i>(10 out of 10 for participants from 2011 cohort)</i>	<b>Mean</b> <i>(Scale 1 to 5*)</i>	<b>SD</b>
This site location had an overall atmosphere that enhanced my learning experience during this rotation	4.8	0.63
The faculty preceptor practiced and taught patient-centered care	4.8	0.32
The faculty preceptor spent an appropriate amount of time orienting me at the beginning of the practice experience	4.7	0.48
The faculty preceptor explained in detail what was expected of me in regards to work hours, appearance, preparation, performance, attitude, assignments, and method of practice	4.6	0.52
The faculty preceptor stimulated my interest in all aspects of professional practice	4.7	0.48
The faculty preceptor provided learning opportunities	5	0
I would recommend this site to a fellow student	4.7	0.67
<i>*The scale was such that 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree</i>		

**Table 4: Exit Interview and Group De-briefing Questions**

<b>Individual Exit Interview Questions</b>
<i>Provide your comments on how this APPE addressed your ...</i>
Ability to identify healthcare barriers
Ability to overcome healthcare barriers
Ability to provide interprofessional patient care in a clinic setting
<b>Group De-briefing Questions</b>
<i>Discuss your ...</i>
Rotation experience
Change in global perspective

**Table 5: Student Course Evaluation Comments**

<b>Survey Comments</b>
“This was an AMAZING rotation! I grew so much from my experiences on this rotation. I would strongly suggest it to any student. It was such a great learning experience and I am extremely grateful ...”
“The site in Nicaragua was a wonderful and extremely unique experience. It provided opportunity for us, as students, to get out of our comfort zones on a daily basis and gain confidence and ability to care for patients in a unique setting. ”
“On this rotation I have expanded [much] of my pharmacy knowledge far beyond what anyone could learn in any pharmacy here in the states. I got [to] shadow providers as we treated common illnesses and as we faced many health problems that many would never witness in the U.S. I was able to dispense medications to patients and counsel them even though we couldn't understand one another's language. I was able to get important information to patients even though everything I said had to be translated. We each had a different task everyday [and] that taught me adaptation and flexibility. My strength, perseverance and patience [were] tested constantly. However my knowledge was expanded and my heart was overjoyed with each and every patient that came through our clinic.”
“The only improvement I could ask for is for the school to continue to offer this rotation.”

## Discussion

To date, four groups have been a part of the Global Health Outreach APPE, traveling in June 2011 to Zambia, in July 2011 to Nicaragua, in September 2012 to Moldova, and in October 2013

to Ethiopia (Figure 1). Both 2011 teams had five students each, the 2012 team had four students, and the 2013 team had three pharmacy students on it. A total of 17 students have successfully completed the rotation. Of note, all of these locations were selected due to their rural and underserved nature. Survey data was analyzed and included (Table 3) for the 2011 cohort and the responses have remained consistent with subsequent cohorts. However, this remains a limited number of students to analyze responses and make comprehensive conclusions from.

**Figure 1: International Rural Experience Locations to Date**



During individual exit interviews, healthcare barriers and interprofessional care were discussed. Lack of money and transportation, lack of knowledge of available services and general education, and cultural standards were all barriers to healthcare identified by students. Students were able to assist individual patients in overcoming these barriers; however, some expressed frustration at not being able to identify a way to overcome barriers for the entire society. The experience made students consider the whole patient situation more than just their current complaint. Students listed many ways that they were able to provide interprofessional care including teaching other providers to use glucose meters, assisting with medication selection and patient communication, and using patient assessment skills. They noted a significant improvement in their ability to work with the interprofessional team and felt well received.

During group de-briefing sessions, the rotation experience and their global perspective were discussed. The rotation experience was touted as being a good interprofessional experience from which students increased their comfort with medication selection and had opportunity to use a wide variety of their skills and knowledge. Changes to their global perspective included an increase in compassion and patience, a realization that it is not easy for some patients to do simple things like take certain medications with lots of water or food. Students stated a fuller realization of how much they have in the United States and felt more aware of how much of a difference they can make.

Partnering with an international medical relief organization, such as Global Health Outreach, afforded our students positive learning experiences where they were able to use and expand their



patient care skills. As a branch of the Christian Medical and Dental Association, Global Health Outreach works to partner with all medical providers that are willing to assist in providing patient care with the understanding that the volunteer provider will not undermine the organization's sharing of the gospel message. This allows professionals from any or no religious background to participate in providing care through Global Health Outreach. The background of Global Health Outreach was made known to our APPE students prior to the experience so that they were able to make an informed decision to participate. Although during the trip the students were around religious activities similar to what they may experience in the United States, the students were not required to proselytize in any way. This was considered carefully in collaboration with the University's pre-existing international program and addressed accordingly in developing the partnership. The utilization of medical mission experiences in elective APPEs has been documented to provide positive student experiences while achieving the related APPE objectives (Brown & Ferrill, 2012).

Students participated in all aspects of the rural interprofessional medical clinic gaining knowledge and skills to be able to plan for and run a remote pharmacy. Students gained a global perspective through practicing of medicine in local as well as international rural locations and through interacting with patients in the clinic and home environment. Students had overall positive feedback when surveyed about their overall APPE experience as well as their experience in Nicaragua or Zambia.

Provision of a faculty-guided international APPE does have a significant cost for student and faculty travel as well as requiring much logistic preparation. To help offset the cost of travel for the students, they are encouraged to apply for additional scholarships through the University, ask for financial assistance from family and friends, and are able to adjust their loan amounts for the semester of travel. The College invests in the faculty member by supporting their travel expenses as they are actively precepting multiple students during that time. The challenge of appropriate licensing at the international destination and in-country logistics are managed by the partnering organization, which makes this APPE possible.

Our College plans to continue the partnership with Global Health Outreach to offer this type of international APPE. Our College is also working on other partnerships to begin offering additional elective international APPEs in developed countries which would allow for alternative global healthcare perspectives and additional student exposure to international patient care.

## **Conclusions**

Students benefitted from enhancing their cultural perspectives through an international pharmacy experience. Student course evaluations and interviews indicated that they perceived progress toward achievement of the APPE objectives of being able to identify and assist in overcoming barriers to healthcare in rural settings, provide pharmaceutical care to patients at interprofessional healthcare clinics and obtain a global perspective on healthcare. Partnering with an international medical organization, Global Health Outreach, helped provide a framework for a faculty-guided international elective APPE experience.

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