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Impact of a community pharmacy based health, wellness and prevention introductory pharmacy practice experience

PATRICIA NARO, JENNIFER BEALL*, TERRI WENSEL, EVA CLICK, BETTY McCULLOUGH, ASHLEY HEARD

McWhorter School of Pharmacy, Samford University, Alabama 35229, USA

Abstract

Accreditation standards for United States of America (US) schools of pharmacy incorporate introductory pharmacy practice experiences (IPPE) that provide direct patient care activities. In an effort to blend this requirement with a public health focus, a pharmacy school in the southeastern US developed a weeklong IPPE in a community pharmacy with a public health focus. Activities for this IPPE included providing immunisations, non-prescription product counselling, and medication therapy management. Since its establishment in Autumn of 2011, 18,452 vaccinations have been administered by pharmacy students. This experience can serve as a model for public health patient care activities by pharmacy students in a community pharmacy setting.

Keywords: *Introductory Pharmacy Practice Experience, Public Health, Immunisation, Community Pharmacy*

Introduction

The 2016 Accreditation Council for Pharmacy Education (ACPE) guidelines state that introductory pharmacy practice experience (IPPE) students will receive a minimum of 150 hours in the community pharmacy setting, and also they will be exposed to decision making and direct patient care activities (ACPE, 2016). It is essential that an IPPE reflects what is current in healthcare as well as provide a benefit to the site.

One premise of the 2013 Center for the Advancement of Pharmacy Education (CAPE) Outcomes is the role of the pharmacist in "contributing to health and wellness of individuals and communities" (*Medina et a*l., 2013: p.3). Sub-domain 2.3 of these outcomes is "Health and Wellness (Promoter)" and includes immunisations in the example learning objectives.

The American Public Health Association (APHA) issued a policy statement in support of the role of pharmacists in public health. In pursuit of this, APHA "supports greater inclusion of public health interests in the curriculum of schools of pharmacy" (APHA, 2006)

In the Autumn of 2009, a new curriculum was instituted for a private, four-year pharmacy school in the southeastern United States (US). The design of the curriculum included a progressing IPPE course sequence whereby these experiences would take place early and often, and have a theme for each course. They are designed to build from distributive functions toward more patient care focused activities as recommend by the guidelines. The first year IPPE courses take place in a community pharmacy setting learning the process of medication distribution. The second year IPPE course takes place in an institutional setting learning the distribution process there. The Autumn third year IPPE course takes place in a community pharmacy setting and does not incorporate the distribution process, but has emphasis on health promotion and disease prevention. The IPPE course in Spring of the third year is a simulation course that prepares students for their advanced practice experiences in the fourth year.

This paper describes specifically the week long IPPE course taking place in the third year which has an emphasis on health promotion and disease prevention.

Course Methodologies

The curriculum of this school incorporates the IPPE throughout the student's educational career. IPPE V is the fifth in a six-course IPPE sequence and takes places in October of the third professional year. This IPPE is specifically designed for the public health aspect of community pharmacy. October was chosen as the month for this course as it is an opportune time for immunising patients for influenza, falls mid-semester, and is the American Pharmacists Association (APhA) American Pharmacists Month. During this IPPE week, didactic classes were not held.

The public health aspect promotes disease prevention by administration of vaccines. Other public-health focused aspects include preventing medication-related adverse events through assisting patients with non-prescription

*Correspondence: Jennifer Beall, *McWhorter School of Pharmacy, Samford University, 2100 Lakeshore Dr, Homewood, AL 35229, USA. Tel: +1 205 726 2534; Fax: +1 205 726 2669. Email: jwbeall@samford.edu*

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product selection, monitoring antihypertensive therapy through blood pressure monitoring, and providing medication therapy management (MTM). In Autumn 2011, this IPPE took place at the same time as the National Consumer League Script Your Future medication adherence campaign. As a result, we formally incorporated this campaign into the expected activities for students during that year but did not for future course offerings. Learning objectives for the current offering of this course are found in Table I.

Table I: Learning Objectives for Introductory Pharmacy Practice Experience (IPPE) V

1. Demonstrate proficiency in administration of vaccines
A. Correctly review patient-specific information prior to administration
B. Correctly administer vaccinations
C. Provide appropriate patient counseling about vaccinations
D. Correctly document all vaccination activities
2. Effectively perform medication therapy management (MTM) encounters and document appropriately
3. Communicate effectively with patients regarding prescription and non-prescription drug therapy
4. Select appropriate non-prescription drug therapy based on patient characteristics
5. Communicate effectively with patients regarding medication adherence
6. Exhibit professionalism in all encounters with patients and other health care providers
7. Perform patient physical assessment activities, where available

The experiential was established around the beginning of flu season to allow the students the opportunity to perform vaccine administration, the key activity built into this course. Students receive training for this through the APhA certificate training programme that takes place at the start of their second professional year. A refresher activity on immunisation is provided to students prior to the IPPE week in a lab session in the Autumn of their third year.

MTM is an effective way to adequately review appropriate medication use and provide counseling to patients who may have multiple comorbid conditions. Starting with the Autumn of 2015, students also received the APhA MTM certificate training live programme prior to the IPPE week. This allows students to gain experiences towards completion of the programme during the week.

When available, students were placed in hometown or other areas outside of the metropolitan statistical area where the pharmacy school was located. In order for a student to be placed in a different state for this experience, the student was required to provide the Office of Experiential Education with a copy of any intern license or other documentation required by that state's board of pharmacy to serve as an intern and to immunise in that state.

The experiential was presented to preceptors as a public health rotation incorporating the non-distributive activities of a community pharmacy. A checklist was provided to preceptors prior to the start of the IPPE to guide them in opportunities for students during the week. The checklist is provided in Table II.

Table II: Checklist for Preceptors for Introductory Pharmacy Practice Experience V

- Orientation to pharmacy and computer system
- Accurately provide vaccinations
  - Use appropriate technique for vaccine administration
  - Provide patient counselling along with the vaccine
  - Accurately document the patient encounter
- Provide effective Medication Therapy Management (MTM) encounter
  - Thoroughly interview the patient
  - Develop and prioritise a list of medication-related problems
  - Develop an effective medication-related action plan
  - Communicate effectively with pharmacy professionals and any other health care providers the action plan
  - Communicate the action plan effectively to the patient
  - Accurately document the encounter
- Provide OTC product selection assistance to patients
  - Take a patient history effectively (home medications, past medical history, *etc*.)
  - Select an appropriate therapy based on the results of the patient history
  - Communicate recommendations effectively to pharmacist then to the patient
- Answer drug information questions directed to
  - Patients
  - Healthcare providers
- Provide physical assessment (blood pressure measurement, blood glucose testing, *etc*.)
  - Use appropriate technique
  - Discuss any recommendations based on results to pharmacist then to the patient
- Any other non-distributive patient care activities as appropriate
  - Develop patient-targeted information materials
  - Any other projects that would be beneficial for your patients

Coursework that the students were assigned during this experience were pre- and post-rotation reflections along with a reporting of the activities they completed during the week. The reflections asked the student to rate their confidence in their abilities to perform certain tasks expected during the rotation, such as administering vaccinations and providing patient counselling. These self-assessments were available to the preceptor and could be incorporated into the preceptor's determination of whether the student met the course learning objectives. Students were also provided with a data collection form to record the activities that they performed during the rotation. The form had to be signed by the preceptor as confirmation of participation in these activities. Evaluation of the student's performance was based on the IPPE learning objectives and was administered electronically through the school's electronic management system for experiential education, E*Value.

Results

To date, IPPE V has been offered five times, with the first offering in Autumn 2011 and the most recent in Autumn 2015. A total of 585 students have completed the course.

For the fifth offering, the decision was made to centralise placement of students to largely a single community pharmacy chain; however, a total of five different chains were used to meet the placement needs for the class. Previous to this centralisation, the number of site types ranged from 28 to 31; the majority of sites were a chain setting with the remainder being independently-owned pharmacies. Partnering with a single chain was done in an attempt to standardise the experience. One hundred thirty-three students completed this offering in Autumn 2015. Students were placed in seven different states with the majority being placed in Alabama.

Table III provides an accounting of activities performed by the students in this course over the past five years. Since the inception of the course, a total of 18,452 immunisations have been provided. No clear trend is noted; however, a substantial increase in the number of influenza vaccinations occurred during 2015. Although efforts have been made to standardise the experience so students have a relatively equitable opportunity to enhance their clinical skills, there has been, and remains, a drastic variation in the number of immunisations provided per student. For example, in Autumn 2015, one student was responsible for administering 177 vaccines during the experiential week while another student only administered seven vaccines during the same timeframe.

Students had provided a large number of non-prescription product consultations. These consultations had been varied; however, a portion did relate to cough and cold products since the experience took place in the Autumn season. Table III provides a description of the number and type of consultations. The category of 'other' was the second most common. These included consultations on items such as ophthalmic products, allergy medications, dermatologic products, and vitamins.

While not as frequent, students were also engaged in physical assessment and biometric screening activities. By far, the most common activity noted was assessment of a patient's blood pressure, as seen in Table III.

Table III: Activities Provided by Pharmacy Students during Introductory Pharmacy Practice Experience V

Immunisations					
Year	Influenza	Pneumococcal	Zoster	Other	**Total**
2011 (n=116)	2718	56	55	20	**2849**
2012 (n=119)	2707	80	108	145	**3040**
2013 (n=118)	3337	80	144	61	**3622**
2014 (n=103)	2294	93	58	65	**2510**
2015 (n=129)	5605	575	147	104	**6431**
Total	**16,661**	**884**	**512**	**395**	**18,452**

Non-Prescription Product Selection Assistance/Counseling						
Year	Pain	Cough/ cold	GERD/ Heartburn	Herbal	Other	**Total**
2011 (n=116)	366	725	116	173	472	**1852**
2012 (n=119)	270	523	81	202	493	**1569**
2013 (n=118)	175	365	48	83	404	**1075**
2014 (n=103)	198	326	72	116	357	**1069**
2015 (n=129)	245	428	90	156	389	**1308**
Total	**1254**	**2367**	**407**	**730**	**2115**	**6873**

Patient Physical Assessment					
Year	Blood Pressure	Blood Glucose	Cholesterol Panel	Other	**Total**
2011 (n=116)	454	151	8	56	**669**
2012 (n=119)	153	18	2	21	**194**
2013 (n=118)	140	31	0	7	**178**
2014 (n=103)	223	146	99	59	**527**
2015 (n=129)	277	45	6	8	**336**
Total	**1247**	**391**	**115**	**151**	**1904**

Addressing medication adherence was not a frequent occurrence for students during Autumn 2015. Most conversations addressed some form of knowledge deficit the patient had about their medication. Additional activities the students were involved with during the

experience largely encompassed the provision of drug information and new prescription counselling. A small number of students partook in the evaluation of adverse drug events.

A goal of the experience is for students to provide comprehensive medication reviews in order to complete the requirements for the APhA MTM certificate programme. No students completing the course from 2011-2013 documented completion of a MTM activity. Sixty-one activities were documented in 2014 and 105 in 2015; an average of less than one MTM per student. This falls short of the required five cases to complete the certificate programme. Student-provided comments on evaluations identified scheduling as a barrier to completion of this service as many patients were not able to make appointments during the time the student was completing the experiential.

Table 4: Comparison of Average Confidence Ratings for Students on Pre- and Post-Rotation Reflections

Evaluation Question	2011		2012		2013		2014		2015	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Confidence in ability to administer vaccinations	3.76	4.72	3.17	4.85	3.84	4.88	3.95	4.83	3.95	4.87
Confidence in ability to counsel patients on prescription drug therapy	3.61	4.03	3.17	3.85	3.46	4.05	3.49	4.25	3.37	3.91
Confidence in ability to counsel patients on non-prescription drug therapy	3.58	4.17	3.51	4.25	3.35	3.80	3.52	4.38	3.51	4.14
Confidence in ability to counsel patients on medication adherence	4.03	4.36	3.88	4.55	3.86	4.27	3.84	4.57	3.76	4.35

Scale: 1-5 (1 = no confidence; 5 = highly confident)

Students reported increases in confidence in their abilities for each of the four areas evaluated at the end of the IPPE week: administering vaccinations, counselling patients on prescription therapy, counselling on non-prescription therapy, and counselling on adherence. Table IV provides the pre- and post-rotation reflection averages for each item each year. For the post-rotation reflection, students were encouraged to reflect on a meaningful patient encounter that they had during the week. Responses to this question include:

- "*I provided basic information about the vaccine… The gentleman left the pharmacy informed, calm, and immunised! It felt very rewarding to see such a dramatic change in his demeanour from the time he arrived until his departure.*"
- "*I experienced a situation in which a father came in with his 2-year-old son who had a cough. I was effectively able to recommend a product that would help with his cough, while meeting the age requirements for OTC* [over -the -counter] *products in young children… I felt a sense of pride in having been able to help that father work towards making his son feel better.*"
- "*A patient's wife inquired about a niacin regimen that her husband's* [physician] *had placed him on. She was very concerned about all the flushing that can result from niacin therapy and so I was able to counsel her regarding that issue. She was very appreciative and the encounter left me feeling like I had made a real difference in that situation*."

Discussion

Reported numbers of activities performed by students has varied somewhat over the past five course offerings. The first offering in Autumn 2011 was a new experience for our programme and our preceptors. As a result, the planning of immunisation clinics and other opportunities provided in subsequent offerings did not take place and this is reflected in the activities reported during that year. Once there was experience with this course, preceptors and the Office of Experiential Education were better able to market this service to patients and provide guidance on how students could be beneficial to the site during this week.

As mentioned, one of the barriers to completion of the APhA MTM certificate training programme was the opportunity to complete the required five cases. While the ideal situation is for students to complete these encounters during their IPPE week, students are allowed until the end of the following semester to complete these and earn the certificate.

It would be virtually impossible to provide an identical experience for each student so as a result, there are differences in opportunities for patient encounters. The variety of geographic settings, prescription volume, and whether the site has the opportunity for targeted immunisation clinics contribute to variations in numbers of activities students report.

Limited comparative information is available on this subject as there are no other identical public health focused experiences identified in literature. There are, however, IPPEs that have an immunisation component. While students in the current study were expected to provide immunisations, the expectation was that there would also be additional services to which the students would devote their time. Some sites planned to involve students in a flu clinic during their IPPE week, however

not all sites did which led to variability in the numbers of immunisations provided among students.

Turner *et al*. described an IPPE with student-administered vaccinations. Their students participated in two adult immunisation clinic sessions of 90 minutes each in the Autumn semester of their P-2 and P-3 years. Students were asked to estimate the number of patients that they immunised in these two sessions during the semester. In the study period of 2004-2005, they estimated 47-72 patients immunised by each student, which the authors reported indicates that IPPE students and their learning opportunities can be highly valuable to preceptors (Turner *et al.*, 2007).

Conway *et al.* reported the integration of third-year pharmacy students in campus-based influenza clinics. The students spent a total of 12 hours in the clinics immunising faculty and staff in a health sciences centre. The third-year students each vaccinated 75-100 individuals during their assignment in the clinic (Conway *et al.*, 2013)

With Alabama being the primary state in which students were dispatched for this experiential, the impact to the community was profound. Within the state, there are currently 88 medically underserved areas and 12 medically underserved populations (U.S. Department of Health & Human Services, 2017). Despite the concentrated timeframe of the experiential, students have been able to reach patients who otherwise may not have routine access to preventative healthcare.

Conclusion

The IPPE course described provides a unique way to deliver patient-care services in a community pharmacy setting. It also provides students with an opportunity to practice immunisation techniques while easing the workload of pharmacists during influenza season. Students have been able to make an impact on public health through the patients they encountered. Future offerings of this course will continue to provide opportunities for students to develop experience in patient care services.

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