

Aligning Experiential Opportunities with Institutional Needs: Focus on Chronic Obstructive Pulmonary Disease

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Abstract

Background: Our institution identified the COPD population as one in which greater pharmacy involvement may be beneficial. This report describes how the Department of Pharmacy aligned this broad goal with an experiential student rotation. The development and implementation of a COPD patient-pharmacist interaction sequence is described.

Methods: The student pharmacist created a sequenced program of three patient visits focused on disease state and medication education, adherence assessment, inhaler technique training, smoking cessation, eligibility assessment for free medications and discharge prescription filling. The program was piloted for one month in July of 2014 during the day shift on Mondays through Fridays. Patients completed a short satisfaction survey at discharge.

Results: The student pharmacist interacted with 35/69 (51%) of newly admitted pulmonary patients and completed the three-visit sequence in 24/35 patients (69%). Patients were missed secondary to unexpected discharge and weekend discharge. Medication adherence was assessed as moderate or high in 96%. Patient performance on a COPD knowledge assessment tool improved from 74% at baseline (visit 1) to 79% at discharge (visit 3). Smoking cessation education was provided to the 4/24 (16.7%) patients who were current smokers. Reflection by the student pharmacist identified the two most common and significant patient interactions as clarifying the role of rescue versus maintenance inhaler medications and correcting inhaler technique. Nine patients (38%) were eligible for, and received, a free inhaler. Only two patients had discharge medications filled. Many of the tools developed by the student pharmacist have been incorporated into the clinical pharmacist work plan. Patients rated interactions with the student pharmacist favorably.

Conclusions: The student pharmacist developed a series of educational interactions with the COPD patient, many of which have been incorporated into the pharmacy clinical practice model.

Keywords: Chronic Obstructive Pulmonary Disease (COPD); Experiential education; Student pharmacist

Abbreviations: ACPE: Accreditation Counsel for Pharmacy Education; COPD: Chronic Obstructive Pulmonary Disease; COPD-Q: Chronic Obstructive Pulmonary Disease Questionnaire; EMR: Electronic Medical Record; PMU: Pulmonary Mobility Unit; PTA: Prior To Admission

Background

Experiential training is a critical component of Doctor of Pharmacy Curricula. The ACPE accreditation standards require that introductory pharmacy practice experiences comprise at least 5% of the curriculum length and advanced pharmacy practice experiences comprise at least 25% [1]. The need to provide a large number of high quality introductory and advanced experiential rotations continues to be a priority for pharmacy schools. Efforts are directed both at recruiting more experiential sites and requesting those with established affiliations to increase their capacity to precept pharmacy students. Benefits of precepting pharmacy students may not be fully realized and include improved workplace satisfaction amongst preceptors, an increase in the number of patient-care interventions and improvement and development of new clinical services [2,3]. In a recent editorial

entitled "Rethinking Experiential Education (or Does Anyone Want a Pharmacy Student)?" a distinction was made between pharmacy students and student pharmacists [4]. Student pharmacists are those who provide care, add value to the site and assist in the provision or expansion of pharmacy services. For many, this represents a significant paradigm shift from the historical manner in which experiential pharmacy education has been provided. There is an under recognized opportunity to construct experiential rotations in a manner which is beneficial to the site. We provide a descriptive report of aligning an

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experiential rotation with institution priorities for improvement of care.

Our institution is a 1,070 bed academic tertiary care hospital with a broad range of inpatient and outpatient services. In June of 2010, the Pulmonary Mobility Unit (PMU) was launched with the goal of improving care of chronic obstructive pulmonary disease (COPD) patients. The unit, supported by nurse clinicians, focused on exercise, mobility, vaccinations, education and medication management. Patients were provided a folder with detailed information about COPD, however, time limitations often prevented optimal counseling in these areas. Decentralized pharmacy services were available on this unit, which included patient education when time permitted. In 2014, a working group of pharmacists (outpatient pharmacy manager, unit based pharmacist, inpatient pharmacy manager and specialty pharmacy manager) and nurses met to identify additional areas of opportunity for this patient population. Patient understanding of medication, adherence, appropriate use of inhalers and disease state knowledge were identified as areas of opportunity. The literature suggests up to 68% of patients do not use inhalers well enough to benefit from the prescribed medications [5]. Both nurses and pharmacists conveyed that keeping up with the varying techniques needed for all the newly approved inhalers was a challenge. Medication cost was a recognized barrier to adherence and at times prevented the follow through to fill discharge prescriptions. A student pharmacist (4th professional year, completing an advanced experiential rotation) participated in all meetings and was charged with the development and implementation of a pilot program designed to address these areas of opportunity.

Program Development and Implementation

The student pharmacist developed a program in which newly admitted COPD patients met with the student pharmacist for three separate visits over the course of three days. An overview of the goals for each visit is provided in Table 1.

The first visit aimed to assess baseline COPD knowledge and medication adherence. The Chronic Obstructive Pulmonary Disease Questionnaire (COPD-Q), a validated, low-literacy tool, was used to assess patients' disease state knowledge. This questionnaire is comprised of 13 true or false statements such as "COPD can be reversed" and "COPD medicines can keep the disease from getting worse" Table 2 [6]. Diagrams were used to highlight the etiology of COPD and differentiate between chronic bronchitis and emphysema. Standard COPD treatments and signs and symptoms of an exacerbation were reviewed. The student pharmacist used results from the patient's COPD-Q to individualize disease state education.

Medication adherence was assessed using the Modified Morisky Adherence Scale, a four-item assessment requiring a verbal yes or no response. Adherence was categorized as low, medium, or high [7]. Potential patient-specific barriers to adherence were identified and the importance of medication adherence was reviewed. The student pharmacist then introduced the institution's discharge prescription fill service with bedside delivery. A process was developed to communicate with nursing when a patient expressed interest in this service.

The second visit focused on inhaler knowledge and technique,

Items to be discussed	Visit 1	Visit 2	Visit 3
Administer baseline COPD-Q knowledge assessment	x		
Determine if someone assists the patient with medications at home; if yes, try to arrange for that person to be present at least once during conversation of medication adherence/inhaler technique	x		
Assess medication adherence using Morisky scale	x		
COPD disease state education	x		
Discuss option of filling COPD medications at time of discharge			
• If patient accepts, complete the Bedside Delivery Service information sheet and bring insurance information to technicians with specialty pharmacy	x		
Request patient has family member bring prescription insurance card(s) to hospital if not currently in their possession/documentated in EMR	x		
Discuss PTA inhalers			
• Purpose (rescue vs. maintenance)			
• Adherence			
• Inhaler technique		x	
• Cleaning			
• Storage			
• Side effects			
Smoking cessation consultation			
• Determine smoking status from EMR and confirm with patient			
• Motivational interviewing; assess willingness to quit			
• Screening and assessment of level of dependence (Fagerstrom)		x	
• Emphasize importance of quitting (health benefits/statistics)			
• Provide written information and pamphlets			
• Referral to Quit Smoking program			
Discuss cost of inhalers and determine if cost is a barrier to adherence		x	
Complete enrollment in manufacturer discount program (if necessary)		x	
Re-administer COPD-Q knowledge assessment		x	
Patient completes satisfaction survey			x
Discharge medications are filled and delivered to patient			x
Re-emphasize adherence and re-address any problem areas with inhaler technique and teaching from visit #2			x
Document encounter with template patient education note			x

COPD-Q: Chronic Obstructive Pulmonary Disease Questionnaire
 COPD: Chronic Obstructive Pulmonary Disease
 EMR: Electronic Medical Record
 PTA: Prior To Admission

Table 1: Outline of Patient Visits.

Question (True or False)	% Incorrect (n=24)	
	Baseline	Follow-up
1. People with COPD should get a pneumonia shot	8%	0%
2. Using oxygen at home can help people with COPD live longer	25%	21%
3. COPD medicines keep the disease from getting worse	71%	67%
4. COPD can be prevented	25%	29%
5. People can stop taking their long-acting breathing medications (inhalers) when their COPD symptoms get better	17%	4%
6. People with COPD often have a cough that won't go away	33%	17%
7. Stopping smoking will keep COPD from getting worse	79%	79%
8. Cigarette smoking or second hand smoking causes most COPD	8%	13%
9. People with COPD may feel short of breath	0%	0%
10. The medicine albuterol (inhaler) can be used anytime you are short of breath	13%	13%
11. People with COPD should have a flu shot every year	13%	0%
12. People should only use their COPD inhalers (medicines) when they can't breathe	29%	13%
13. COPD can be reversed	17%	13%

COPD: Chronic Obstructive Pulmonary Disease

Table 2: COPD Questionnaire and Patient results.

Date: MM/DD/YY

Time: XX:XX

Patient education was provided to _____ on each of the following:

- COPD disease state education
- Difference between long-term control/maintenance vs. rescue medications and side effects
- Inhaler technique – patient was able to demonstrate appropriate administration technique with the following inhalers: _____
- Smoking cessation
- Encouraged patient to receive annual influenza vaccination and pneumococcal vaccination, if appropriate

P4 Student Pharmacist, _____, PharmD Candidate 2015

COPD: chronic obstructive pulmonary disease

Figure 1: Medical Record Patient Education Note Template.

patient eligibility for a medication discount program and smoking cessation. In preparation for this visit, the student pharmacist underwent a skills validation session involving a detailed checklist with an ambulatory care specialist on inhaler technique for the different products. During this visit, the patient was asked to describe how they use the medication at home using a demonstration inhaler. The student pharmacist addressed areas for improvement then utilized the “teach-back” method to confirm patient understanding. The student explained purpose (rescue versus maintenance), side effects, cleaning and storage. Cost as an adherence barrier was then discussed. Prior to program implementation, the student pharmacist created a comprehensive reference table for inhaler discount coupon programs. The student assisted qualifying patients with enrollment in these programs. If applicable, smoking cessation was also addressed. The level of nicotine dependence was assessed using the Fagerstrom Score [8]. Motivational interviewing was executed to discuss consequences of smoking and options for quitting. Patients were encouraged to set a quit date and were given referral information for follow up with a formal smoking cessation program.

During the third visit, the COPD-Q was re-administered, discharge medications were filled, a medical record note was documented and patients were asked to complete a short, four-item patient satisfaction survey. The student pharmacist again emphasized major teaching points. A template of the medical record note is shown in Figure 1.

The student pharmacist implemented this program over a one-month period of time in July 2014. Patients were captured if they were available Monday through Friday during the day shift.

Results

Sixty-nine patients were admitted to the pulmonary unit in July of 2014. Thirty-five patients (51%) were seen by the student pharmacist. The three-visit sequence was completed for 24 patients (69%). Two patients did not have a COPD diagnosis and the remaining nine patients did not complete all three visits due to unexpected discharge. After week one, timing was modified so that visits #2 and #3 were completed on the same day. The average duration of visit #1 was 30 minutes, visit

#2 was 30 minutes, and visit #3 was 20 minutes. The student invested approximately three to four hours of time on this project per day.

Medication adherence was assessed as moderate or high in 96% of patients (46% high, 50% moderate). The most commonly reported barrier was forgetting to take medications. The mean score on the COPD-Q was 74% and 79% at baseline and discharge, respectively (Table 2). Smoking cessation education was provided to 4/24 patients (16.7%) who were current smokers. Nine patients (38%) were eligible for a free 30-day supply of inhaled medication. Eight patients received the drug before discharge and one received a coupon at discharge. Two patients opted to utilize the bedside medication delivery service at discharge. In the satisfaction survey, all patients chose either "satisfied" or "very satisfied" with the student pharmacist interactions.

Discussion

This report describes the process of utilizing a student pharmacist to develop and expand pharmacy patient care services in accordance with an area of need identified by the institution. A fourth year student pharmacist worked to develop a program targeted at education surrounding COPD as a disease, medication, and smoking cessation education, assessment of inhaler technique, promotion of adherence and enrollment of patients in medication discount programs. Reflection by the student pharmacist identified that the most frequent and impactful interventions were ensuring patient understanding of the difference between rescue and maintenance medications and correcting inappropriate inhaler technique. Considering the high cost of inhaled medications, patients were very satisfied with having a student pharmacist help them qualify for a free inhaler.

Only two patients had their new discharge medications filled using the institution's specialty pharmacy. Reasons for the low capture included patient preference that prescriptions be filled at their outpatient pharmacy and timing of discharge (specifically, uncertainty or short notice of planned discharges and limited pharmacy hours that prevented capture of patients discharged on weekends). Despite this small sample, the student pharmacist developed a process for coordinating communication between pharmacy and nursing staff to facilitate the filling of discharge medications. Opportunities were identified to improve this process both for COPD patients and other hospitalized patients being discharged.

Limitations of this project include the moderate capture of new patients admitted to the COPD floor (~ 50%). At the beginning of the project the student pharmacist planned patient interaction based upon the perceived date of discharge. As the project moved forward, changes in both the timing of the visit and communication with the pulmonary nurse clinicians improved the weekly capture. Patients admitted on the weekends, however, were frequently missed as these patients were often being prepared for discharge by the following Monday. Project sustainability is another potential limitation. At the conclusion of the project the student pharmacist educated the unit-based pharmacists on the key initiatives of the project, shared the preliminary results, and reviewed the tools that were developed to support patient interaction. The following items were added to our unit-based pharmacy services website or pharmacist resource folder on the pulmonary floor for all pharmacists to use: inhaler technique assessment forms, inhaler education materials and the medication coupon reference list. Although not a result of this project, the hours of unit-based pharmacy services were recently modified to produce a four hour pharmacist overlap period to allow pharmacists more time for patient interaction. Pharmacists working on the COPD floor now routinely incorporate

medication education and inhaler technique assessment, smoking cessation education, adherence reinforcement, medication discount eligibility evaluation and promotion of discharge medication filling service into their daily workload.

As health systems are increasingly asked to precept introductory pharmacy practice experience students, the COPD population may offer a wealth of opportunity. Although the patient interaction sequence outlined here was developed by an advanced experiential student, early experiential students would be qualified to help sustain the pharmacist's role. Practice sites must strive for this type of strategic integration of student pharmacists in the pharmacy practice model. We described how such integration will maximize benefit to the site and provide an engaging learning experience for the student. Ensuring that practice sites find value in the role of a student pharmacist is an important component of quality experiential education and the preparation of students for entry-level pharmacy practice.

Conclusion

This report described the development of educational pharmacy encounters for the COPD patient population by an advanced practice experiential rotation student. Patient interaction included disease state and medication education, refinement of inhaler technique, smoking cessation counseling, adherence reinforcement, and eligibility assessment for free medications and discharge prescription filling. Many of the tools developed by the experiential student have been incorporated into the standard pharmacist practice model. The COPD population may offer an opportunity for sites that precept early experiential students, as the student pharmacist is able to provide meaningful patient interaction which could potentially improve the transitions of care.

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