

BACKGROUND

A number of articles have been published emphasizing the role of a pharmacist in the Emergency Department (ED) and the benefits that can be seen.¹⁻³ Currently at Creighton University Medical Center (CUMC) there is no dedicated pharmacy presence in the ED; however pharmacy practice residents are given the option to complete an elective rotation in the ED. During this time the residents serve in the function of dedicated pharmacist. To date, no articles have been published examining the effect of pharmacy practice residents rotating in an ED with no dedicated pharmacist presence.

OBJECTIVES

Primary objective: Assess interventions made by pharmacy practice residents during a scheduled elective ED rotation.

Secondary objectives: Identify barriers experienced by the residents and assess perceived benefits and barriers of the pharmacy residents' presence from the perspective of non-pharmacy ED practitioners.

METHODS

Three pharmacy practice residents completed elective rotations in the ED during September, October, and November 2011. Interventions were tracked daily using a paper documentation form, later transferred to an electronic database. Barriers were documented in a descriptive manner. An electronic survey was distributed via email to the ED physicians and PAs January 2012.

RESULTS

A total of 8467 patients were seen in CUMC's ED September-November 2011, averaging 94 patients per day. See Table 1 for patient demographics during the study period.

Interventions: A total of 208 interventions were made in the 3-month observation

Table 1: Patient Demographics

N=8467 (100%)	Age Range (years)			
	0-18	19-40	41-65	≥66
	1709 (20.2)	3514 (41.5)	2477 (29.3)	767 (9.07)
	Gender			
	Male		Female	
	4092 (48.3)		4375 (51.7)	

Figure 1: Total Interventions

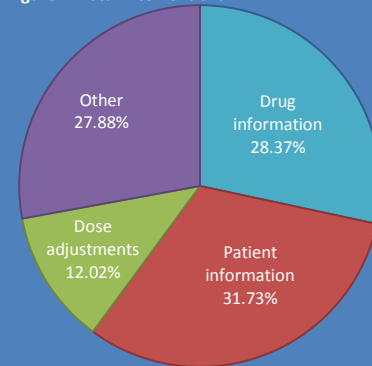


Table 2: Description of "Other" Interventions

Category	N (% of Total)
Miscellaneous	14 (6.73)
Initiation of medication	12 (5.77)
Questions from nursing staff	12 (5.77)
Toxicology	5 (2.40)
Order clarification	4 (1.92)
Alternative drug therapy	3 (1.44)
Change in route of administration	2 (0.96)
Formulary interchange	2 (0.96)
Change in therapy due to allergies	1 (0.48)
Drug compatibility issue	1 (0.48)
Drug therapy duplication prevention	1 (0.48)
Discontinuation of medication	1 (0.48)

Figure 2: Barriers

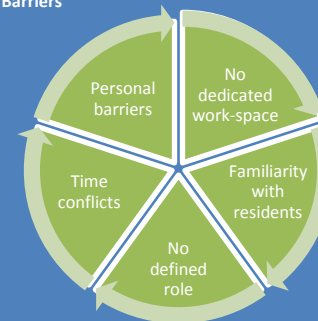


Table 3: Electronic Survey Results

Question	Response	N (%)
In your opinion, the pharmacy residents were present and involved in the ED.	Agree Slightly Disagree	5 (83.3%) 1 (16.6%)
How often did you utilize the pharmacy residents?	Daily Once a week Never	4 (66.6%) 1 (16.6%) 1 (16.6%)
If at all, how did you utilize the pharmacy residents? (multiple responses allowed)	General Drug Information Dosing questions Drug selection Communication with main pharmacy	5 (100%) 5 (100%) 3 (60%) 3 (60%)
Was there a reason that kept you from utilizing the pharmacy residents more often? (multiple responses allowed)	Not present when needed No, I utilized the residents to their fullest capacity Did not think to ask pharmacy resident Resident had not identified areas in which he/she was available to help	2 (33.3%) 2 (33.3%) 1 (16.6%) 1 (16.6%)
Did you ask the pharmacy residents at least one drug information question?	Yes No	6 (100%) 0 (0%)
If yes, approximately what is the total number of questions you asked while the pharmacy residents were in the ED?	More than 10 5 to 10 2 to 5	3 (50%) 2 (33.3%) 1 (16.6%)
In your opinion, the pharmacy residents could have been more beneficial/helpful to the ED staff.	Neutral Agree	4 (66.6%) 2 (33.3%)
What are the specific tasks or functions you wish the pharmacy residents would have helped with? (free text response)	-Reviewing and confirming medication orders real-time to allow more rapid access to medications -Involvement with bedside dosing in stroke/code situations -Medication education -Dosing	
In your opinion, a larger pharmacy presence is desired in the ED.	Agree Slightly Agree Neutral Disagree	3 (50%) 1 (16.6%) 1 (16.6%) 1 (16.6%)
Other comments related to pharmacist presence in the ED? (free text response)	-More defined presence desired -Permanent and more involved position -Involvement level varied among the residents	

RESULTS_{Continued}

period, with a 95.2% acceptance rate (198/208). Each intervention made was put into broad intervention categories (see Figure 1 and Table 2 for breakdown of intervention by type). The majority of interventions classified as "Patient Information" involved obtaining home medication histories and patient discharge counseling. Interventions included in the "Drug Information" category involved answering questions regarding specific agents, medication classes, and overall treatment of various disease states. Miscellaneous interventions included communication with the main pharmacy or questions about inventory.

Barriers: The barriers identified by the residents are shown in Figure 2.

Survey: Of 13 possible respondents, 5 MDs and 1 PA responded to the email survey (46% response). A complete list of the survey questions /responses is shown in Table 3.

CONCLUSION

Overall a high acceptance rate of interventions was seen with the most common interventions being related to patient information, provision of drug information, and dosage adjustments. Several different barriers were encountered; however some (i.e. work-space issues, staff familiarity) are modifiable and could likely be overcome with time. Results of the survey were generally positive and showed a desire for a more structured, permanent ED pharmacist position. However, many institutions are unable to allocate resources to provide a dedicated pharmacist to the ED. This study would suggest utilizing other pharmacy resources, such as residents, can also make a positive impact and thus help to improve patient care.

REFERENCES

1. Rudis MI and Attwood RJ. Emergency Medicine Pharmacy Practice. *Journal of Pharmacy Practice* 2001 (24): 135-145.
2. Eppert HD and Reznick AJ. ASHP Guidelines on Emergency Medicine Pharmacist Services. *Am J Health-Syst Pharm.* 2011; 68:e81-95
3. Rothschild JM *et al.* Medication Errors Recovered by Emergency Department Pharmacists. *Annals of Emergency Medicine* 2010 (55): 513-521.