



Published in final edited form as:

Am J Health Syst Pharm. 2009 March 15; 66(6): 576–579. doi:10.2146/ajhp080083.

Use of Clinical Pharmacists in Academic Emergency Departments

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Abstract

Objectives—Previous reports have shown that clinical pharmacists improve quality of care, but the extent of pharmacist involvement in emergency departments (EDs) is unknown. The objective of this study was to determine the prevalence and nature of clinical pharmacy services in academic EDs.

Methods—All programs listed in a national Emergency Medicine physician residency catalog in June 2006 were surveyed using a web-based survey instrument, which was developed based on literature and expert consensus. Only the primary residency hospital sites were considered. Data were compiled and analyzed using descriptive statistics and 95% confidence intervals.

Results—Of the 135 emergency medicine (EM) residency programs surveyed, there were 99 responses (73%). Eight percent of institutions reported that clinical pharmacy services were available 24-hours a day, 22% reported partial coverage, and 70% reported no coverage. Six percent reported the presence of a satellite pharmacy located in the ED and staffed by a pharmacist. The most common clinical pharmacy services reported in EDs with pharmacy coverage were modification of inventory according to formulary status, the provision of drug or toxicology information, and adverse drug event reporting. Even among institutions which had availability of clinical pharmacists, most did not provide services which have been shown to be valued, such as drug therapy recommendations, cost-effectiveness advice, patient counseling, or medical student and resident education.

Conclusions—A minority of academic EDs provide clinical pharmacy services with a dedicated clinical pharmacist. EM residency programs should lead the way in the integration of clinical pharmacists in emergency care.

Keywords

clinical pharmacists; emergency care; pharmacy services; residency; medication errors; survey

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Presented at the American Society of Health-System Pharmacists 41st Midyear Clinical Meeting and Exhibition, Anaheim, CA, December 2006; 26th Annual Eastern States Conference for Pharmacy Residents and Preceptors, Baltimore, MD, May 2007; Society for Academic Emergency Medicine Annual Meeting, Chicago, IL, May 2007, and the New York State ACEP Scientific Assembly, Bolton Landing, NY, July 2007.

INTRODUCTION

Evidence has shown that clinical pharmacists can positively impact patient safety, health outcomes and drug costs.¹⁻³ The presence of clinical pharmacists in the emergency department (ED) was first reported decades ago.⁴ Recently, reports have demonstrated that pharmacist interventions in the ED lead to a cost savings, and that ED staff feel the clinical pharmacist improves quality of care and medication safety.⁵⁻⁷

In 2003 an estimated 3% of institutions in the United States utilized dedicated clinical emergency pharmacists (EPH) physically located in the ED, and only 14% made any type of clinical pharmacy services available to the ED.⁸ Recently, influential organizations such as the Institute of Medicine have supported the increased utilization of EPh roles.^{9, 10}

Academic EDs provide an educational environment to train emergency medicine (EM) physicians who will eventually guide future practice, and the EPh can have a significant educational benefit.^{5,7,9,11} Although the presence of Emergency Pharmacists has previously been reported as low, their prevalence in EDs with EM physician residency programs is unknown. Therefore, the goal of this study was to determine the prevalence and nature of clinical pharmacy services in academic EDs.

METHODS

Study Design and Population

This study consisted of a survey of all emergency medicine residency programs listed in the Society for Academic Emergency Medicine residency catalog in June 2006 (www.saem.org). We chose to focus this study on EDs with residency programs because they often lead the specialty in the integration of new innovations, and they can shape the future of the specialty by influencing the new EM graduate's perception of what normal ED operations consist of.¹¹ This study was reviewed and approved by the Institutional Review Board.

Survey Content and Administration

The survey instrument was developed based on a review of the current literature and expert consensus. It was pilot tested and revised based on feedback. The instrument included eleven questions addressing characteristics of the institution, and the availability and nature of various pharmacy services in the ED. The estimated number of hours per week (0-168) that pharmacy services were provided was also requested. A dedicated ED clinical pharmacist was defined as a pharmacist physically present in the ED.

Residency program contacts listed in the residency catalog were contacted by telephone and asked to suggest a representative of the program who would be most knowledgeable about pharmacy services available in the ED. A web-based survey instrument was then sent to this representative electronically using QuestionPro survey tools (Seattle, WA). If no response was received from the first representative after two attempts, a second representative was recruited in the same manner and the survey was redistributed. Recruited representatives were given the option to refer the survey to a colleague if they felt someone else in their department was better able to answer the questions. Emergency Physicians were deliberately targeted since so that the results would represent the ED staff perceptions of their use of pharmacy services. If residency programs were associated with multiple hospitals, respondents were asked to answer questions only as they applied to the primary residency training site.

Data Analysis

Electronically downloaded data were de-identified and then transferred to an Access database (Microsoft, Redmond, WA). Responses were analyzed using descriptive statistics and 95% confidence intervals.

RESULTS

The survey instrument was distributed between September 2006 and March 2007. Of the 135 EM residency programs surveyed, 99 responses were received (73%). Respondents included residency directors (39%), EM faculty (19%), department chairs or vice chairs (15%), research directors (6%), chief residents (3%), and others (18%) (multiple selections were allowed). Responding institutions were characterized as nonprofit (32%), university (28%), or level 1 or regional trauma centers (21%) (multiple selections were allowed).

Eight percent of institutions reported that a dedicated EPh was available 24-hours a day, 22% reported partial coverage, and 70% reported no coverage. Six percent reported the presence of a satellite pharmacy located in the ED and staffed by a pharmacist. The types of services provided by the EPh are summarized in Table 1. The most common services provided were modification of inventory according to formulary status (52%), the provision of drug or toxicology information (47%), and adverse drug event reporting (42%).

DISCUSSION

This survey study found that 30% of residency training site EDs utilize some form of clinical pharmacy services, about double the published rate of all types of EDs.⁸ The increased coverage is not surprising since EDs that host EM residencies tend to receive a higher volume of patients and are more likely to be part of hospitals which use clinical pharmacists in other settings where they have been proven to improve care, such as the intensive care unit.¹⁻³

Although it is encouraging that nearly one-third of responding EDs use some type of clinical pharmacy services, these EDs do not appear to take full advantage of the skills and services available from a clinical pharmacist with a physical presence in the ED. For example, only a small minority of EDs reported using a clinical pharmacist to provide drug therapy recommendations, cost-effectiveness advice, or patient counseling. Clinical pharmacists have also been reported to have successful involvement with the precepting and education of medical students and residents in the ED,⁵ but very few EDs surveyed utilized them for these educational roles.

In addition, about half of the EDs did not consult their pharmacist to obtain drug or toxicology information. This result is surprising since this would seem to be a primary function of the clinical pharmacist in the ED. Modification of inventory based on formulary status was only performed by a pharmacist in about half of the EDs, but is an important function that has been shown to impact medication choice in the ED.¹² All of these opportunities for pharmacist involvement have been shown to be valued by staff in the EDs that use them,⁵⁻⁷ and are core functions of a clinical pharmacist.

The value of the physical presence of clinical pharmacists in the ED has been repeatedly reported by EDs with existing programs. EM residency programs should be leaders in implementing emergency pharmacist programs. As EM residency graduates infiltrate the workforce, the expectations that they developed in residency will influence their new environments. As evidence for the value of clinical pharmacists in the ED grows, their presence in residency programs will become an important way to eventually increase their use in all EDs.

It is important to recognize the limitations of this study. The respondents were selected based on referrals from the residency representatives listed in the residency catalog, and therefore may not have been the most knowledgeable person available about the use of pharmacy services. To increase the likelihood of an appropriate representative, institutions were initially contacted directly and a knowledgeable source was requested. The role of the EPh varies between locations so the estimated hours per week and significance of those hours may have been interpreted differently by respondents. It is also possible that respondents misinterpreted questions, or misunderstood the meaning of terms such as pharmacy services, but we attempted to minimize this by clarifying terms in the survey, and by pilot testing the instrument.

CONCLUSIONS

Approximately one-third of EM residency primary training sites use a clinical pharmacist in the ED. Most of these programs do not utilize the clinical pharmacist in a way that realizes the full potential of the role. Academic EDs should consider implementing emergency pharmacist programs to improve patient care and improve training. EDs that currently have clinical pharmacy services available should consider increasing their physical presence in the ED, and expanding their involvement in clinical consultation and patient care activities. EM residency programs should lead the way in the integration of clinical pharmacists in the ED.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

This study was part of a project supported by grant number 1U18HS015818 from the Agency for Healthcare Research and Quality. Further information can be found at www.EmergencyPharmacist.org. Mr. Hildebrand was supported by the University of Rochester Medical School's summer research program. Dr. Shah is supported by the Paul B Beeson Career Development Award (NIA 1K23AG028942), and Dr. Fairbanks is supported by a research training grant from the Emergency Medicine Patient Safety Foundation through the Society for Academic Emergency Medicine. The authors wish to recognize Karen Kolstee, Lindsey Clark, Jennifer Williams, and Daniel Coughlin for their assistance with this study.

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Table 1

The majority of surveyed EDs lack the provision of clinical pharmacy services.

Type Of Service Provided	Yes	n	% Yes	95% C.I.
Modification of inventory based on formulary status	51	99	52	41-62%
Drug or toxicology information	47	99	47	37-58%
Medication-error or adverse-drug-reaction reporting	42	99	42	33-53%
Renal dosing advice	38	97	39	29-50%
Order clarification	39	99	39	30-50%
Teaching at ED in-service meetings	36	99	36	27-47%
Drug therapy recommendations	34	97	34	25-44%
Antimicrobial selection or dosing advice	34	99	34	25-45%
Research activities	33	97	34	25-44%
Medication dispensing	33	99	33	24-44%
Drug interaction screening	32	99	32	23-42%
Assessment of patient contraindications to therapy	31	97	32	23-42%
Medical/trauma resuscitation participation	29	99	29	21-39%
Allergy screening	29	99	29	21-39%
Cost effectiveness advice	27	97	28	19-38%
Patient counseling or education	17	97	18	11-27%
Precepting of medical students/EM residents	13	97	13	7-22%