

Research

Surveying residents of postgraduate year 2 critical care pharmacy residencies about their level of preparedness to practice

Mitchell S. Buckley, PharmD, FCCM, BCPS^{a,*}, Robert MacLaren, PharmD, FCCM, FCCP^b, Erin N. Frazee, PharmD, BCPS^c, Pamela L. Smithburger, PharmD, BCPS^d, Heather A. Personett, PharmD, BCPS^c, Sandra L. Kane-Gill, PharmD, FCCM, FCCP^{e,f}

^a Department of Pharmacy, Banner Good Samaritan Medical Center, Phoenix, AZ

^b Department of Clinical Pharmacy, University of Colorado, Skaggs School of Pharmacy and Pharmaceutical Sciences, Aurora, CO

^c Mayo Clinic—Rochester Methodist Hospital, Rochester, MN

^d University of Pittsburgh School of Pharmacy, Pittsburgh, PA

^e Department of Pharmacy and Therapeutics, University of Pittsburgh, School of Pharmacy, Pittsburgh, PA

^f Department of Critical Care Medicine, University of Pittsburgh, School of Medicine, Pittsburgh, PA

Abstract

Objective: As the scope of pharmacy services in the critical care setting advances, there has been a parallel evolution in critical care pharmacy residency training programs. The purpose of this study was to assess the ability of critical care pharmacy residency learning experiences to prepare trainees for provision of critical care pharmacy services.

Methods: This prospective, cross-sectional study of critical care pharmacy residents used a 53-item web-based questionnaire to evaluate resident satisfaction and the exposure frequency, self-perceived competency, and satisfaction rates for the provision of clinical, administrative, educational, and scholarly pharmacy services. Satisfaction and competency were rated on a scale of –10 to +10. The survey was distributed via email and reminder email to 98 critical care residency programs in May 2012. Descriptive statistics were used to categorize responses.

Results: A total of 45 (54.1%) respondents, representative of all 98 programs, completed the questionnaire. The majority of residents reported feeling somewhat or very satisfied with both the program and their mentorship (91% and 76%, respectively). With the exception of managing nutrition support, respondents felt competently trained to provide most clinical services and educational activities. In contrast, trainees were infrequently exposed as well as uncomfortable providing many administrative and scholarly services.

Conclusion: Most critical care pharmacy residents were satisfied with their overall experience and mentorship and felt competent providing routine clinical and educational functions. Programs should enhance administrative responsibilities of their residents to adequately prepare them for real-world practice. Additional scholarship may be outside the current resident requirements.

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Introduction

This original research was presented as a poster at the Society of Critical Care Medicine annual congress meeting January 19–23, 2013.

* Corresponding author: Mitchell S. Buckley, PharmD, FCCM, BCPS, Department of Pharmacy, Banner Good Samaritan Medical Center, 1111 E. McDowell Rd, Phoenix, AZ 85006.

E-mail: mitchell.buckley@bannerhealth.com

The role of critical care clinical pharmacists has evolved over the past several decades to assume greater responsibilities of direct patient care, resulting in beneficial clinical and economic outcomes.^{1–21} Several organizations, including the Society of Critical Care Medicine (SCCM), American College of Clinical Pharmacy (ACCP), and American

Society of Health-System Pharmacists (ASHP), acknowledge the value of the services provided by clinical pharmacists in the intensive care unit (ICU).^{1–6} As a result, critical care clinical pharmacists are recognized as an essential member of the multidisciplinary ICU team.^{1–6}

A joint publication of ACCP/SCCM and another separate ASHP white paper have published position articles on critical care pharmacy services.^{1,22} The scope of clinical pharmacy functions are characterized as relating to patient care, administration, education, and scholarship. Components of these services are further delineated as fundamental, desirable, or optimal activities.^{1,22} The definitions of each level of activity (fundamental, desirable, and optimal) have been previously reported.¹ A nationwide, hospital survey of critical care pharmacy services found that ICU pharmacists frequently provided patient care and administrative services, but activities that involved education and scholarship were much more variable.⁷ Moreover, fundamental functions were much more likely to occur than desirable or optimal services. Ultimately, this survey demonstrated the heterogeneity of clinical pharmacy services rendered in the ICU, highlighting the disparity between current practice and ideal patient care.

Residency training appears to be an effective pathway in developing competent and skilled pharmacy practitioners.^{23–27} Postgraduate year 2 (PGY2) residency programs in critical care should prepare independent clinicians with advanced knowledge and skills to provide the full scope of clinical pharmacy services and enhance patient care.^{2,22,24,28} Established training standards and recommendations have been approved for PGY2 critical care residencies.^{29,30} Experiences offered by programs may influence the ability of trainees to feel comfortable providing services in an independent manner. Several national surveys of postgraduate year 1 (PGY1) pharmacy residency training sites have shown significant variability in learning experiences and requirements despite established ASHP accreditation standards.^{31–33} A national assessment of current PGY2 critical care residency training characteristics has not been conducted. The purpose of this survey was to compare the learning experiences and expectations of PGY2 critical care residency training programs in preparing graduates to independently provide critical care pharmacy services pertaining to patient care, scholarly, and administrative activities.

Methods

Survey development and measures

The research design consisted of a cross-sectional evaluation using a web-based 53-item questionnaire primarily assessing the residents' perception of their ability to practice independently. The survey questions were categorized according to (1) program and practice site characteristics, (2) perceptions of comfort level to independently render pharmacy services, (3) satisfaction with the overall program

and the extent of mentoring, and (4) employment after training. Respondent identifiers and institution-specific details were not collected. The pharmacy functions evaluation represented all domains of practice, including patient care (11 functions), administration (ten functions), education (five functions), and scholarship (six functions) across fundamental, desirable, and optimal levels of service.^{1,7} For statistical analysis on categorical responses pertaining to level of exposure for various activities, exposure frequency was converted into a 1–7 scale (1 = never; 2 = once a year; 3 = few times a year; 4 = once a month; 5 = once a week; 6 = several times a week; and 7 = daily). Their perceived level of preparedness to perform each activity as an independent practitioner was assessed on a scale of –10 to +10, with descriptive anchors of –10 representing that they felt completely unprepared, +10 that they felt completely prepared, and zero as being neutral. Survey validation was carried out by questionnaire review and feedback from five PGY2 residents of programs with a critical care emphasis but not as the primary focus (e.g., transplant and infectious diseases), three critical care pharmacists who had completed a PGY2 residency within the past year, and two critical care pharmacists with > 10 years of experience.

Recruitment methods

The study protocol was approved by the investigational review board at the primary study institution. The weblink to the questionnaire was distributed via email in May 2012 to the program directors of the 98 PGY2 critical care residency programs identified on the ASHP residency directory webpage.³⁴ Program directors were requested to forward the email and weblink to their respective PGY2 critical care resident. A reminder email was sent to the program directors eight weeks later. Instructions specified confidentiality and implied consent with the completion of the questionnaire. All responses were blinded to the program director and investigators. Incomplete survey responses were excluded from data analysis.

Data analyses

It was anticipated that 33% of the questionnaires would be completed by eligible respondents. Responses were not weighted and missing data were not imputed. Data were collated into an Excel spreadsheet (Excel 2007; Microsoft Corp., Redmond, WA) for determination of frequencies, mean, median, standard deviation, and interquartile ranges.

Results

Institution and residency program characteristics

A total of 98 PGY2 critical care programs involving a total of 115 potential PGY2 critical care residents were surveyed with 53 independent responses. Eight responses were excluded because of incomplete survey answers

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