



Research

# Students' perception of a paramedic shadowing experience during a critical care Advanced Pharmacy Practice rotation

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## Abstract

**Objective:** To describe students' perception of a paramedic shadowing experience (PSE) incorporated into a critical care advanced pharmacy practice experience (APPE) rotation based in a community hospital.

**Methods:** An electronic survey instrument was developed and distributed to students who completed a critical care APPE rotation and participated in a PSE to assess students' perception.

**Results:** Of 18 students, 13 completed the survey. Students rated the PSE highly in opportunity to be exposed to pre-hospital medicine (mean =  $4.46 \pm 0.66$ ) and as beneficial in enhancing student understanding of interdisciplinary patient care ( $4.69 \pm 0.48$ ). Most students agreed that the PSE encouraged the application of knowledge in a real-world setting ( $4.38 \pm 0.76$ ). The majority of students strongly agreed that the PSE should be offered to future APPE students as part of a critical care rotation ( $4.69 \pm 0.48$ ).

**Conclusions:** The PSE was perceived by pharmacy students to be a beneficial experience and a unique opportunity to apply knowledge to patient care in a pre-hospital setting. A paramedic shadowing experience for APPE students represents a novel method of introducing pharmacy students to interdisciplinary patient care.

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## Introduction

Interprofessional education is an area of growing importance in pharmacy education. The American College of Clinical Pharmacy white paper defines interprofessional education as “an educational approach in which two or more disciplines collaborate in the teaching-learning process with the goal of fostering interdisciplinary/interprofessional interactions that enhance the practice of each discipline.”<sup>1</sup> The Interprofessional Education Collaborative Core Competencies for Interprofessional Collaborative Practice state

the goal of interprofessional learning is “to prepare all health professions students for deliberately working together with the common goal of building a safer and better patient-centered and community or population oriented U.S. healthcare system.”<sup>2</sup> The Institute of Medicine (IOM) report encourages funding for interdisciplinary professional education.”<sup>3,4</sup> The IOM Committee on Health Professions Education Summit in 2003 proposed a set of core competencies that all health clinicians should possess. One of these core competencies is the ability to work in interdisciplinary teams and to “cooperate, collaborate, communicate, and integrate care in teams to ensure that care is continuous and reliable.”<sup>5</sup>

The Accreditation Council for Pharmacy Education (ACPE) standards and guidelines for the professional program in pharmacy leading to the doctor of pharmacy

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degree contain recommendations for interdisciplinary activities as part of the education of Doctor of Pharmacy candidates. The ACPE standards require colleges of pharmacy to develop practice and service relationships and collaborations with organizations and health care providers outside the university. Such collaborations should advance the desired outcomes of the college or school's mission and goals and promote interprofessional and interdisciplinary activities. These relationships should blend educational and patient care activities in various practice settings. Interdisciplinary activities also support the development of postgraduate education and postgraduate training such as residency and fellowship training.<sup>6</sup>

The Center for the Advancement of Pharmacy Education (CAPE) 2013 Educational Outcomes include interprofessional collaboration as part of the curricular priorities of the Doctor of Pharmacy programs. The outcomes consist of four broad domains and 15 subdomains that represent the skills that students should be capable of demonstrating upon graduation from a Doctor of Pharmacy program. Interprofessional collaboration is part of the third domain, "Approach to practice and care." Subdomain 3.4, "Interprofessional collaboration," states that pharmacists should "actively participate and engage as a health care team member by demonstrating mutual respect, understanding, and values to meet patient care needs." One of the examples of learning objectives listed is to "define clear roles and responsibilities for team members to optimize outcomes for specific patient care encounters."<sup>7</sup> The Joint Commission of Pharmacy Practitioners in their Future Vision of Pharmacy Practice in 2015 states, "[Pharmacists] will communicate and collaborate with patients, care givers, healthcare professionals, and qualified support personnel."<sup>8</sup> Data involving implementation of a paramedic shadowing experience into an advanced pharmacy practice rotation is limited. In one previously published account of a postgraduate year two critical care pharmacy resident who accompanied a health system's air ambulance service, both the flight nurse and the pharmacy resident expressed positive feedback about the interprofessional activity and believed that it benefited everyone on the health care team. Incorporation of a paramedic ride-along into an introductory pharmacy practice experience has been documented and found to increase interdisciplinary exposure for pharmacy students and resulted in a positive response from both pharmacy students and paramedics.<sup>9,10</sup>

The purpose of incorporating a paramedic shadowing experience (PSE) into an advanced pharmacy practice experience (APPE) is to expose pharmacy students to pre-hospital patient care. A significant aspect of interprofessional education involves a knowledge and respect for the role of other health care providers. Pharmacy students were expected to develop an appreciation for the role of paramedics in providing pre-hospital medical care and an enhanced understanding of how patients enter the health care system. Ideally, pharmacy students would observe the

administration of emergency medications during the PSE and be able to apply knowledge gained during the critical care APPE. The objective of this study was to describe students' perception of a paramedic shadowing experience (PSE) through the use of a survey (Table 1).

## Methods

An adult critical care pharmacotherapy rotation was initiated at a 355-bed community medical center in October 2011. The purpose of this advance pharmacy practice rotation is to allow students to gain experience in an acute care setting and develop critical thinking skills related to critical care disease states and pharmacotherapy over the course of five weeks. The rotation provides students with an opportunity to apply didactically acquired information in the provision of pharmaceutical care to adult patients in an intensive care unit environment under the supervision and mentorship of a critical care pharmacotherapy specialist. The preceptor reviewed topics, such as advanced cardiac life support and cardiac arrest with students before they completed the paramedic shadowing experience. A traditional critical care advanced pharmacy practice experience does not typically expose pharmacy students to pre-hospital patient care. Collaboration was established between the institution's pharmacy and emergency medical services departments. As part of the critical care rotation, pharmacy students were offered the opportunity to participate in a single eight-hour paramedic shadowing experience. Over the course of the critical care APPE, students were required to shadow non-pharmacy members of the multidisciplinary team. Such members included respiratory therapists, case managers, nurses, and dieticians. In addition to exposure to these key members of the health care team, the PSE allowed students to observe pre-hospital patient care by shadowing paramedics who are highly trained in advanced life support and emergency treatment. Participation in the PSE was optional. Pharmacy students are trained in basic life support prior to the critical care APPE.

The New Jersey emergency medical services are classified into a two-tier system: basic life support and advanced life support. Paramedics provide advanced life support care with state-of-the-art equipment and technology available in mobile intensive care units. Emergency care includes advanced airway management, intravenous therapy, and provision of lifesaving medication. The medical center's emergency medical services department provides advanced life support. The mobile intensive care unit provides 24-hour coverage seven days a week and responds to over 6000 calls per year.

As part of the paramedic shadowing experience, one pharmacy student was paired with two paramedics for a single eight-hour shift. Students were required to complete a waiver form prior to the PSE. There was no cost associated with participation in this learning experience. Pharmacy students were able to observe the role of first responders in providing

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