



Short Communication

Pharmacy preceptors views of pharmacy students' competency in pharmacy informatics

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Abstract

Introduction: This study aimed to survey Advanced Pharmacy Practice Experience (APPE) preceptors' perception of students' competency in pharmacy informatics during their APPE rotations or experiences based on the Accreditation Council for Pharmacy Education (ACPE) version 2.0 accreditation standards.

Methods: All APPE preceptors associated with the University of Cincinnati were emailed a link to the survey. Follow-up interviews were conducted on pharmacy preceptors to identify reasons for nonresponse.

Results: In total, 33 surveys were returned from the 288 preceptors contacted. Respondents believed the pharmacy students displayed the highest levels of competency in domain four regarding the benefits and current constraints in using information and communication technology in health care. However, respondents believed pharmacy students had the lowest competency on items included in domain three regarding data in continuous quality improvement initiatives. Half of the respondents believed the students' knowledge was inadequate on all items included in this domain. This corresponds with nearly half of the respondents also rating pharmacy students as having inadequate knowledge of unified medical language system and meaningful use in domain one. Follow-up interviews identified that some preceptors did not feel comfortable with pharmacy informatics themselves.

Conclusions: This preliminary study showed that the majority of responding pharmacy preceptors believed pharmacy students had a reasonable understanding of the reasons for systematic processing of data, information, and knowledge in health care and the benefits, current constraints in using information, and communication technology in health care. However, they felt their knowledge was inadequate surrounding some basic terminology and use of data in continuous quality improvement initiatives.

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Introduction

Technologies like computerized physician order entry (CPOE) systems, electronic prescriptions systems, bar code systems, refill reminder systems, and refill synchronization systems have become standard applications for many pharmacists.^{1–3} Many of these systems utilize

information technology (IT) and automation to process medication delivery.³ With the abundance of information now available to pharmacists and increased industry emphasis on medication safety, many are becoming involved in pharmacy informatics. Pharmacy informatics uses data about how medications are acquired, stored, analyzed, used, and disseminated for the purpose of improving medication-related care and health outcomes.³ As pharmacists' roles in informatics expand, many are also becoming involved in selecting technology and designing medication-related electronic processes in their institutions.³

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Hospitals in particular are increasingly required to show value to their patients and insurers. Many have moved toward the use of electronic management systems to collect this information.³ A 2013 survey of 465 hospital pharmacy departments in the United States highlighted that electronic health records (EHR) have become the foundation for most hospital health systems.⁴ Additionally, 76% of responding hospitals also used CPOE.⁴ As such, pharmacy informatics has become increasingly important in demonstrating value and quality within these institutions.

With more pharmacists entering the informatics field, the American Society of Health-System Pharmacists (ASHP) created a pharmacy informatics membership section in 2006.⁵ Despite the growth in pharmacy informatics, the majority of pharmacists working in this area have reported that they have not received formal training.⁵ Hospitals are now starting to offer ASHP-accredited pharmacy informatics specialty residencies (PGY2). A total of 23 residency programs were available in 2015. Many more are needed to meet the growing demand.

In 2007, the Accreditation Council for Pharmacy Education (ACPE) included pharmacy informatics as an accreditation requirement.⁶ By 2011, the criteria that pharmacy graduates “demonstrate expertise in informatics” became a core domain (Guideline 12.1).⁷ ACPE includes: (1) basic terminology (data, information, knowledge, hardware, software, networks, information systems, and information systems management); (2) reasons for systematic processing of data, information, and knowledge in health care; (3) use of data in continuous quality improvement initiatives; and (4) the benefits and current constraints in using information and communication technology in health care.⁷

Despite the growing demand for pharmacy informatics in practice and education, little research has been published on pharmacy informatics education. A survey conducted in 2006 highlighted that the majority of pharmacy schools had not implemented pharmacy informatics courses.¹ At that time, many pharmacy schools also misinterpreted pharmacy informatics as drug information, highlighting the lack of expertise available at the colleges.¹ Recently, Fuji and Galt⁸ described an attempt to improve accessibility through an elective two-credit semester-length course. The course was originally taught in a traditional face-to-face format, but suffered from low enrollment. Despite the positive feedback received from the online course participants, low enrollment continued to be an issue. The authors concluded that pharmacy student engagement in informatics overall was the issue.⁸

In light of these developments, the University of Cincinnati Doctor of Pharmacy (PharmD) program offered a face-to-face, two-credit, semester-length informatics course to both second and third-year students. Although general pharmacy informatics education is available to all first-year students in a series of lectures, only about 10% of pharmacy students also enroll in the pharmacy informatics elective course. The elective course includes lectures, small

group discussions, and visits to sites where pharmacy health information systems are used. Although students’ knowledge of informatics is assessed during the course, this does not always reflect their competency in the work place setting.

In 1990, psychologist George Miller⁹ proposed a framework for assessing clinical competency. He described a four-staged competency assessment model beginning with assimilation of pure knowledge and progressing to development of real performance in practice (Fig. 1).⁹ Evaluation of student performance in authentic pharmacy settings and situations is required to ensure pharmacy students are demonstrating informatics expertise. Hence, this preliminary study aimed to survey Advanced Pharmacy Practice Experience (APPE) preceptors’ perception of students’ competency in pharmacy informatics during their internships.

Methods

A survey of APPE preceptors’ perception of students’ competency in pharmacy informatics was developed based on the ACPE version 2.0 accreditation standards released in 2011.⁷ Survey items were developed around (1) basic terminology, (2) reasons for informatics in health care, (3) use of data in quality improvement, and (4) the benefits and current constraints in using informatics in health care. The survey also included questions to discern whether previous job experience influenced the student’s competency in informatics and if training on a specific computer system prior to internships was necessary.

For each domain, a five-point Likert scale (none, inadequate, moderate, advanced, and expert) was used to assess the students’ competency. For Domain 1, basic terminology included (1) clinical decision support systems,

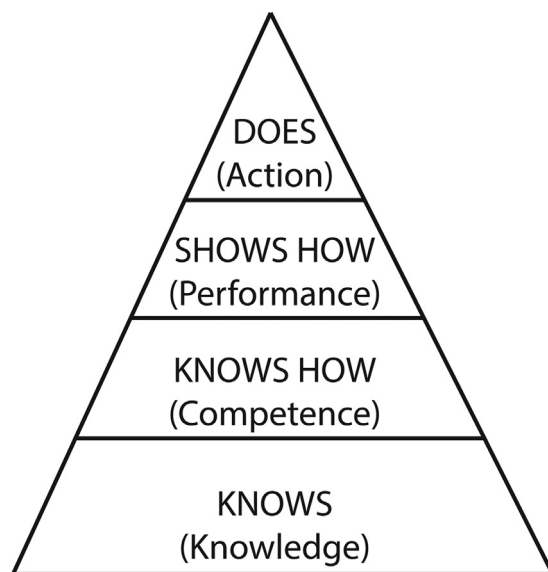


Fig. 1. Miller’s framework for clinical assessment.⁹

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