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Research article

# Incorporating an internet-based voicemail drug information assessment in an introductory pharmacy practice course

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## Abstract

**Objectives:** To examine the implementation and student perceptions of an innovative verbal drug information assessment.

**Design:** The drug information assignment in an introductory pharmacy practice course was redesigned and an assessment of a verbal response to a drug information request was added with the use of an internet-based voicemail (IBVM) system.

**Assessment:** Students performed well on both the verbal vs. written assessments. Most students strongly agreed or agreed that completing both assignments was a valuable experience; however, more students agreed that the verbal assignment was useful (90% vs. 83%). More students agreed that the verbal assignment helped prepare them as a pharmacist (97% vs. 85%) and that the verbal assignment increased their confidence (82% vs. 78%). Student comments echoed these results; additionally, many indicated that the verbal assessment was realistic.

**Conclusion:** The IBVM assessment was successful, user-friendly, and this mode of assessment may be useful in other courses.

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**Keywords:** Drug information; Verbal assessment; Pharmacy practice

## Introduction

Providing drug information to health care professionals and patients is a fundamental responsibility of all pharmacists. It is imperative that a pharmacy education provide students with the skills and knowledge to provide requests accurately and concisely, especially given the ever growing amount of medical knowledge and easier access to information. According to the American Society of Health System Pharmacy (ASHP) guidelines on the Pharmacist's role in providing drug information, pharmacists must exercise excellent oral and written communication skills to be an effective provider of drug information.<sup>1</sup> This skill is

incorporated into pharmacy education under the current 2013 CAPE learning objective 1.1.5 which states that the learner should be able to analyze scientific literature.<sup>2</sup>

At the St. Louis College of Pharmacy (STLCOP), drug information education is introduced early in the curriculum to students in the pre-pharmacy curriculum. The course, Introduction to Pharmacy Practice (IPP), is a required two hour course offered to students with a minimum of second-year standing in the six-year curriculum, and is offered in each the spring and fall semesters.

As an introductory level course, IPP is designed to provide students an overview of different pharmacy practice roles and responsibilities. The pharmacist's responsibilities covered in the course include: medication distribution, providing drug information, providing direct patient care, and patient communication and education. Students are also introduced to pharmaceutical calculations needed for compounding, patient assessment and dose determination.

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Students are provided with graded practice assignments for content taught in the course.

This article describes a newly-designed internet-based assignment that was incorporated into this course and student perceptions of this novel assignment. The purpose was to expose students to an additional delivery method of drug information that is utilized in pharmacy practice to achieve two of the course ability outcomes, thinking and decision making (as it relates to drug information) and communication.

## Design

Faculty members from the Department of Pharmacy Practice teach and coordinate the IPP course. Pharmacy practice lecturers and course coordinators are responsible for designing and grading assignments and activities. Historically, the students received two hours of didactic lecture on drug information, consisting of a review of primary, secondary, tertiary references, and a systematic approach to answering basic drug information questions. Lecture was followed by a drug information assignment to be completed outside of class. The assignment consisted of a series of drug information questions that students answered using tertiary drug information references. For ease of grading, the assignment was designed as a fill-in-the-blank worksheet, and students entered answers into the electronic learning management system (Moodle 2.6). The questions were designed to provide an opportunity to demonstrate specific components of the drug information ability outcome. For example, a question may ask students to select a dose of a medication for a patient with renal disease for a given medication.

During the course review process in the summer of 2014, some key issues were identified for improvement of the drug information assignment. The first included differentiating assessment of student learning based on the ability outcomes. As the previous drug information assignment was designed as a worksheet, it did not allow students the opportunity to practice communication skills. Secondly, coordinators identified that the current activity did not specifically differentiate students' ability to communicate with patients and caregivers from communication with health care professionals. Finally, it was identified that this course may provide an opportunity to differentiate communication modes through separate activities for written and verbal communication. After acknowledging these gaps, it was also important to consider the factors that lead to the worksheet styled drug information assignment. Upon reviewing coordinator evaluations from previous semesters, a common theme and impetus to changes in the course was the perceived grading burden for the course. With these limitations in mind, it was determined that there was an opportunity to redesign the drug information assignment to better assess the course outcomes and that the new assessment would be implemented in the fall 2014 semester.

After identifying opportunities to improve the assignment, a literature search was completed to review methods of active

learning other pharmacy schools employed in drug information courses; specifically to identify activities that have been successful for introductory level students in the didactic setting. A search for published literature indexed in PubMed, ERIC, and IPA produced literature that described active-learning assessments, specifically related to role-play, but lacked utilization of technology to implement the assessments. However, there was some overall information that helped guide planning.<sup>3–5</sup>

A survey of pharmacy schools that compared topics covered throughout any didactic drug information course offered to students seeking their first professional pharmacy degree indicates a similarity in the most common major topics that are covered in the didactic portion of the drug information component of the IPP course.<sup>3</sup> Another survey of colleges of pharmacy indicated that the most common activities utilized within drug information courses include advanced literature searching (56.9%), answering a drug information question (52.9%), and advanced literature evaluation (49.0%).<sup>4</sup>

Principles of drug information as a whole is introduced and practiced throughout several courses at STLCOP, including the second-year pre-professional introductory courses IPP and Introduction to Pharmaceutical Care (IPC), there are application-based activities in two fourth-year courses, and the topic is formally covered in two fifth-year courses. As IPP is an introductory course, activities that require more complex pharmaceutical knowledge or advanced literature evaluation skills are in the dedicated fifth-year courses at STLCOP. Since the major topics taught in IPP align with other pharmacy schools, it was determined that the current didactic content would remain, with the following lecture objectives: (1) list characteristics of primary, secondary, and tertiary references; (2) use the systematic approach to answer basic drug information questions; and (3) clarify information needed to answer drug information questions. The use of answering a drug information request utilizing drug information resources was determined to be the best practice opportunity in consideration of the students' knowledge at this point in the pharmacy curriculum. Additionally, practicing drug information retrieval in tertiary references to answer drug information requests has been associated with increasing student-reported confidence.<sup>6</sup>

During the planning process for the updated drug information assignment our goals included: (1) measure students' ability to utilize drug information resources to correctly form an answer; (2) measure students' ability to communicate a drug information response using written and verbal modes; (3) provide a learning experience valued by students; and (4) improve student-reported self-confidence related to drug information retrieval and communication. Additionally, we sought to overcome barriers related to space and time constraints that may arise with updating the drug information assignment to include a verbal assessment. A potential barrier with implementing an assessment of verbal communication was limited faculty availability. The course was not allotted additional resources or faculty to be present for real time grading of traditional communication assignments, such as role-play. Additionally, students in the

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