



Short communication

Design, implementation, and assessment of clinical debate as an active learning tool in two elective pharmacy courses: Immunizations and Pediatrics

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Abstract

Objective: The purpose of this article is to describe the clinical debates implemented in two elective courses and to discuss the results of a quality improvement assessment of student attitudes regarding the debate.

Design: Students enrolled in the electives using the debate format were asked to complete a survey regarding their attitudes toward their achievement of the goals of the assignment (e.g., improvement in knowledge of the topic, self-confidence, and literature evaluation skills).

Assessment: At least 50% of the students surveyed responded positively (i.e., agree or strongly agree) to seven of the 13 objectives measured. Overall, 87% of the students responded positively to the primary outcome of improving knowledge of the topic.

Conclusion: Overall, the clinical debate was well received by the students surveyed. Due to the successful implementation of the clinical debate in our elective courses, this technique has been adopted by other courses at our institution.

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Keywords: Immunizations; Pediatric; Debate; Active learning

Background

Based upon the combined feedback from the University of Michigan College of Pharmacy stakeholders and the Accreditation Council for Pharmacy Education (ACPE) revised standards and guidelines¹ for the entering class of 2010, the curriculum was revised to reflect a transition from a primarily didactic education to one with a greater emphasis on active learning and team-based theories. Prior

to the changes made in 2010, the curriculum consisted of a two-year, four-semester Therapeutics sequence, with each semester containing 34–36 units (1.5 hours) of various therapeutic topics. Pediatric pharmacotherapy and immunizations made up only 0.5 units and two units, respectively, out of the total of 141 units within the Therapeutics sequence. Further, immunization injection technique was not required for all students.

Two 2-credit hour elective courses, Immunization Advocacy and Administration for Health Care Practitioners (Immunizations) and Pediatric Pharmacotherapy (Pediatrics), were offered to third-year students in order to provide them with more in-depth exposure and education beyond the content covered in the Therapeutics sequence. The goals of the Immunizations elective were to provide students with a comprehensive understanding of vaccine-preventable diseases, educate and develop skills and resources to establish an

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immunization service, and teach appropriate vaccine administration under state law. The goals of the Pediatrics elective were to expose, educate, and facilitate development of awareness of the differences in pharmacotherapy for the pediatric population. The Pediatrics elective focused on the pathophysiology of various pediatric medical conditions, evaluation of laboratory values with respect to monitoring specific conditions, understanding the differences in pharmacokinetics and pharmacodynamics, and the development of drug selection skills in the pediatric population.

While these electives were offered prior to the 2010 curricular changes, active learning techniques had already been implemented by the course directors of these electives. Active learning promotes students' independent and critical thinking skills.^{2–4} Many approaches to active learning are discussed in the literature including the use of audience response systems⁵; discussion-based (deliberative) learning^{6–8}; web-,^{6,9} case-,^{6,10} or team-based learning^{6,11}; and patient simulation.^{6,12} Classroom debates have also been described in the literature as another active learning technique. Debates allow for development of communication skills, proactive thinking, and impromptu responses.¹³ Students are challenged by dealing with tension between opposing viewpoints and become more comfortable in the ability to argue either side of an issue.³ The use of debates has also been correlated with more effective assimilation and retention of presented information.¹⁴

This article discusses the design and implementation of the debate process, as well as a quality improvement assessment of student perceptions of the clinical debate assignment in the Immunizations and Pediatrics elective courses. This quality improvement assessment was deemed exempt from requirements for Institutional Review Board approval.

Clinical debate process: Design and implementation

The faculty directors of the two elective courses developed the debate process in place of traditional lectures for select topics during the 2011–2012 academic year. The debate exercise was first implemented in the Immunizations elective, Fall 2011, and then in the Pediatrics elective, Winter 2012. One of the faculty directors was a director in both courses, allowing for continuity, assessment, and improvement on the process throughout the academic year.

Students participating in the Immunizations elective, the Pediatrics elective, or both the elective courses presented a group debate in each course. The primary educational goal of the clinical debate process for both courses was to increase the therapeutic and public health knowledge related to immunizations and pediatric pharmacotherapy. Additional goals included improvement of critical thinking and communication skills, enhancement in self-confidence, as well as further developing the ability to perform literature searches, analyze medical literature, and develop and defend evidence-based opinions. The debate format aimed to

enhance learning in a group setting in order to increase knowledge and to encourage life-long learning strategies.

Full details related to the design and logistics of the debate in the two courses are available in the [Supplemental Index \(Appendix A\)](#). Owing to the overlap of faculty course directors in both courses, continual improvements to the debate process were made in the areas of debate design, implementation, and overall assessment. An important improvement made between the two debate-containing courses that deserves mention was the addition of a reflection paper to the debate in the Pediatrics elective. The reflection paper asked students to respond to three questions: (1) What did you learn from the debate? (2) How did the debate affect your initial opinion of the topic? (3) If someone asked for your professional opinion about the topic, what would you tell him/her? This reflection paper is now used in both the elective courses as a means to assess student perception and learning from the debate process.

Assessment

We assessed student success in achieving the goals of the debate assignments at the end of the academic year via a voluntary, online, quality-assessment survey tool that evaluated students' perceptions of the learner-centered project and post-debate confidence and satisfaction. This was developed by adapting questions from previously published instruments to assess student-reported outcomes.^{2,13} The survey tool contained 14 items on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Students were also asked to provide free text to three open-ended questions: (1) What was the most beneficial aspect of the debate assignment? (2) What should be done differently for the debate(s) in the future? (3) What additional comments do you have? Quantitative and qualitative methods of assessing student perceptions were used in tandem in order to allow for both objective and subjective measures of the outcomes of interest. After completion of the surveys, results were analyzed with basic descriptive statistics using Microsoft Excel.

Results

A total of 37 third-year pharmacy students were enrolled in either or both elective courses. A total of 33 students enrolled in the Immunizations elective and 11 in the Pediatrics elective. Seven students took both the courses. Of the 37 students, 24 (64.9%) completed the survey tool. Overall, 13 survey respondents (54.1%) took the Immunizations elective course only, four (16.7%) took the Pediatrics elective course only, and seven students (29.2%) took both elective courses. Of those students who completed the survey, only three (12.5%) reported previous debate experience.

The outcomes assessed are detailed in the [Table](#). The majority of the students responded favorably (defined as strongly agree or agree) to all assessed outcomes. Two assessed outcomes had greater than 80% of students

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