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Short communication

Use of a team-based learning-influenced approach in an ambulatory care course

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Abstract

Objective: To describe the development of an ambulatory care-focused elective course that used select elements of team-based learning (TBL) and to evaluate students' acceptance and opinions of these instructional changes.
Methods: A three-credit-hour ambulatory care elective course for third-year pharmacy students was transformed from a traditional lecture-based format to an active learning format influenced by TBL. The primary course objectives were for students to be able to assess patient cases and solve pharmacotherapeutic dilemmas using a problem-solving framework.
Results: Results of a survey administered to gather students' opinions of the course format revealed improvement in agreement scores after the second semester of using these new instructional methods. Student evaluations of instructors were more favorable prior to implementation of TBL-influenced methods. However, there was a trend toward consistent improvement in evaluations after the initial year of using TBL-influenced methods.
Conclusions: This instructional method influenced by TBL is a creative strategy to promote active learning in a case-based, ambulatory care elective course.

Keywords: Team-based learning; Ambulatory care; Active learning

Team-based learning (TBL) is an instructional strategy first employed in business schools and more recently implemented successfully in schools of medicine, nursing, dentistry, and pharmacy.[1–13] TBL engages students in teamwork, communication, and shared responsibility, all of which are vital for successful interdisciplinary healthcare teams.[6,7]

The three foundational components common to TBL are advanced preparation, readiness assurance, and group application of course concepts.[7,8] Using the TBL method, students are expected to prepare for each session by completing assigned readings. Their understanding and comprehension of the material is then assessed through the readiness assurance process. This process involves student completion of an individual quiz, followed by an identical group quiz, and immediate instructor feedback to clarify questions. Students are then provided with a challenging case to solve as a group.[7,8]

In 2006, the UNC Eshelman School of Pharmacy at the University of North Carolina at Chapel Hill adopted a strategic plan that included an educational renaissance initiative. The goal of this initiative was to shift the paradigm of pharmacy education from the dissemination of information in the classroom setting to a teaching model with an emphasis on active, problem-based learning.[14,15] An additional goal was to promote instruction at the highest levels of Bloom's taxonomy.[16] At the time of the initiative implementation, students in the ambulatory care elective course were expected to use a problem-solving framework to accurately assess patient cases and solve therapeutic

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problems after receiving foundational information from course instructors via content-rich lectures.

In the spring of 2008, the ambulatory care elective course transitioned to a TBL-influenced approach in order to engage students in a higher level of active learning and simulate real-world practice. The focus of the course was shifted from the transmission of factual information to the application, analysis, evaluation, and communication of knowledge and concepts to solve complex therapeutic problems.

Use of an instructional strategy with TBL components is ideal for an ambulatory care course because it promotes teamwork, communication, and problem-solving skills, all of which are necessary for a successful ambulatory care pharmacy practice. This paper describes the development of an ambulatory care elective course that use select elements of TBL. Students' acceptance and opinions of these instructional changes are also reviewed.

Methods

Course objectives

The ambulatory care course is a three-credit-hour elective offered to third-year pharmacy students. The primary course objectives are for students to be able to do the following: (1) assess patient cases involving disease states commonly encountered in ambulatory care practices (e.g., diabetes, hypertension, congestive heart failure, hyperlipidemia, and asthma); (2) solve pharmacotherapeutic dilemmas in patient cases using a problem-solving framework; and (3) critically evaluate primary literature and apply it to patient cases. The course also provides students with an opportunity to practice writing SOAP notes. The course was originally conducted via a lecture-based format where clinical specialists and assigned students led lectures on various diseases and conditions during each class session. This method did not include team activities or weekly quizzes and was used through the spring of 2007. For the purposes of this paper, the spring 2007 semester was used as the pre-TBL-influenced control group (pre-TBL-influenced course offering). In the spring of 2008, the course was changed to a TBL-influenced format in order to increase the use of active learning (post-TBL-influenced course offering 1). This format also gave students an opportunity to work in teams, write more SOAP notes, express opinions about patient care, and use evidence-based rationale to support their therapeutic decisions, all of which are necessary to succeed as a clinical practitioner.

Course structure

The students in the course met for three hours, once a week, for 15 weeks in the spring of 2008 (post-TBL-influenced course offering 1). They were randomly assigned to teams of 4–6 students, with a total enrollment of 22 students. Four enrolled students were connected by video-teleconferencing technology to a distant campus. There was a faculty course facilitator at the distant campus site whose primary role was to assist with the logistics of the course on that campus. Two faculty members served as course co-directors and alternated in-class oversight responsibilities. Faculty with clinical expertise in a therapeutic topic led each class session with course structure and logistical assistance from the course directors. In addition, each one of the course directors led one session in their respective area of clinical expertise. Students were required to complete readings prior to the class session (advanced preparation), that typically consisted of a therapeutic guideline and a primary literature article. Once in class, students were required to individually complete a ten-question multiple-choice quiz (readiness assurance). After completion of the individual quiz, students completed the same quiz with their team. The quiz questions covered basic principles that students were expected to master from the readings (accountability). Specific reading objectives for each session were not provided. After the readiness assurance phase, the instructor reviewed the quiz and clarified questions from students about the readings. The team and individual quiz grades were averaged for the students' overall quiz grade for the week. If the student failed the individual quiz ($<50\%$), their group quiz grade was not averaged, and their individual quiz grade was used in an effort to ensure individual student responsibility for their knowledge of the material.

For the portion of the course focusing on group application of course concepts, students were presented with a patient case, allotted 20–30 minutes to discuss the patient case, and prepare a written assessment and plan portion of a SOAP note. Only these sections were required as opposed to the entire SOAP note due to time constraints. In addition, these portions stressed thinking at the highest levels of Bloom's taxonomy, synthesis and evaluation.[16] Students were allowed to use notes and references in preparing the assessment and plan for the SOAP note. While traditional TBL methodology requires groups to simultaneously answer using multiple-choice selections, we decided not to include this element because we valued open-ended discussion of the assessment and plan. In addition, we felt students needed more practice writing SOAP notes. Student groups were required to electronically submit their SOAP note simultaneously prior to the group discussion of the note. After all groups turned in their SOAP notes, the instructor facilitated a class discussion of the case where the individual groups actively participated in discussion regarding therapeutic decisions. During this discussion, the relationship of the primary literature article to the patient case and its influence over the students' therapeutic recommendations were reviewed in an effort to practice the application of primary literature to patient care. An additional case or cases were reviewed and discussed by the groups as time permitted. The note was submitted for a portion of the weekly grade and was graded by the session facilitator using a standardized grading rubric (Table 1).