

Teaching Clinical Ophthalmology: Medical Student Feedback on Team Case-Based Versus Lecture Format

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OBJECTIVE: Team-based learning with case presentations in small groups in the medical school education setting allows students to be actively engaged and interactive with their peers to work through real-world clinical scenarios. Our objective is to assess the effects of this curriculum on the medical student experience.

DESIGN: This study was designed to gather feedback from medical students on an ophthalmology elective regarding their experience with our newly developed team-based learning curriculum.

SETTINGS: Feedback evaluations were completed by medical students at the end of their elective and consisted of both a Likert scale rating and a free-response section.

PARTICIPANTS: A total of 30 medical students.

RESULTS: Students rated the case-based sessions significantly better than traditional lecture format with respect to the overall learning experience ($p = 0.004$), enjoyment of learning ($p < 0.001$), and increasing retention and ability to apply knowledge ($p < 0.001$).

CONCLUSIONS: There is a strong preference by medical students for team-based learning within clinical ophthalmology. (J Surg Ed ■■■■■. ©2016 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: Education, Graduate medical education, Team-based learning, Medical school curriculum

COMPETENCY: Medical Knowledge

INTRODUCTION

In medical school education, there is a current trend toward team-based learning methods using case-based approach learning

and away from the more traditional lecture format. To date, team and case-based learning has been both nationally and internationally evaluated as an alternative teaching style in a variety of educational settings, including business, law, and medicine. The premise is based on methods originally developed by Dr. Larry Michaelson in the 1970s as a mode of involving business student groups in active learning, simulating real-world scenarios.¹ More recently, within the arena of health professional education, studies have been published evaluating the efficacy of variations on this model in areas including basic science,² nursing,³ and clinical medicine.⁴

Although some have found that implementing a team case-based team learning approach requires increased faculty preparation and curriculum development, as well as more student preparation and willingness to actively participate in group learning,³ most have shown through student feedback evaluation and performance review that it is effective in training students to be engaged in real-world problem solving in group settings.⁴ In addition, several studies showed that long-term quantitative testing outcomes were also improved with this teaching modality.^{2,4} Specifically in the field of ophthalmology, Altintas et al., based in Turkey, described a team case-based teaching curriculum for educating medical students on a cornea rotation. In this setting, the approach was found to be a generally effective and preferred method over didactic lectures.⁵

In an effort to support the incorporation of this teaching style in nation-wide medical student education in the area of ophthalmology, this study aims to share a newly designed case-based curriculum for a medical student ophthalmology rotation and to report the evaluation of this curriculum by medical students.

MATERIALS AND METHODS

Description of the Team Case-Based Sessions

Beginning in June 2012, our ophthalmology faculty transitioned from lecture-based teaching sessions to team case-based teaching sessions for the clinical ophthalmology

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elective. Before this, students attended traditional lectures during their elective. Upon review of student evaluations of these lectures, there appeared to be a strong desire from students for more interactive learning. This was the motivation to restructure our curriculum. Currently, every group participates in 4 sessions, each based on a general ophthalmology topic. The format of the sessions consists of 3 phases, a modified version of the classic team-based learning process⁶: (1) preclass assigned reading with listed learning objectives; (2) an individual self-assessment quiz at the beginning of the session, with faculty-led postquiz review; and (3) faculty-led case vignettes (1–3 cases per session) during which the medical students are chronologically presented with clinical data such as exam findings, slit lamp photos, and test results, and work as a group to determine the diagnosis and treatment plan. The students are encouraged to “teach each other” by explaining findings and answering each other’s questions, under supervision of the faculty lead.

Quality Improvement Project

This observational study was reviewed by the Duke University Institutional Review Board and found to be Exempt. The study data were obtained from postcourse anonymous feedback from medical students who completed the clinical ophthalmology elective at our institution between July 2014 and November 2015. All medical students participated in the team case-based sessions during their elective; the traditional lecture format was no longer used for the elective. During this period, 57 total medical students completed the elective, with 38 fourth-year medical students (18 were visiting medical students) and 19 second-year medical students; 30 students (53%) completed the postcourse feedback sheet.

The feedback sheet consisted of 8 questions (Supplementary material 1), covering overall satisfaction with the elective, quality of the learning experience, and rating of the case-based format and traditional lecture-based formats used in other electives, along with a free-response comment section. A 5-point Likert scale was used for each quantitative question, with “5” representing the most positive choice. After completion of the clinical elective, the medical students were requested to complete the feedback sheet via the course website; they were informed that their anonymous feedback would be used to improve the course and be shared with education community.

Descriptive statistics are used for the demographics and general review of the elective, including mean, standard deviation (SD), and number/percentage of each rating. The ratings of the case-based format are compared with the ratings of the traditional lecture format by comparing means, with *p* values based on Wilcoxon signed rank test of median difference between each student’s ratings of the case-based sessions and traditional lecture.

RESULTS

Overall, the medical students were very satisfied with our ophthalmology elective, with 29 of 30 students indicating that they were satisfied with the learning experience; 87% were “completely satisfied.” In addition, the ophthalmology clerkship was rated higher than similar clerkships (mean score of 4.7, SD = 0.53, ophthalmology, versus 4.1, SD = 0.88, similar clerkships; *p* = 0.004) by the medical students.

To assess the case-based format specifically, the medical students rated their enjoyment of the case-based sessions and whether the case-based sessions would help them retain and apply the clinical information (Fig. 1). Regarding their enjoyment of the case-based sessions, most of the students “enjoyed very much” the case-based sessions (25 of 30, 83%) compared with only 9 of 30 (30%) students who “enjoyed very much” the traditional lecture format used in other electives. Regarding retention and ability to apply the information, the student ratings favored the case-based sessions, with 20 of 30 (67%) students indicating that the case-based sessions would help, compared with only 3 of 30 (10%) students indicating that the traditional lecture format would help increase their retention and ability to clinically apply the information presented.

When asked to directly compare traditional lecture format to the our case-based format, the students showed a substantial preference for the case-based format (25 of 30 students, 83%, preferring the case-based format, versus 3 of 30, 10%, preferring the traditional lecture format; Fig. 2).

Although we are not able to retrospectively statistically compare student evaluations of our lecture-based teaching prior to June 2012 to our current feedback sheet because of

Rating of Case-based versus Lecture Format

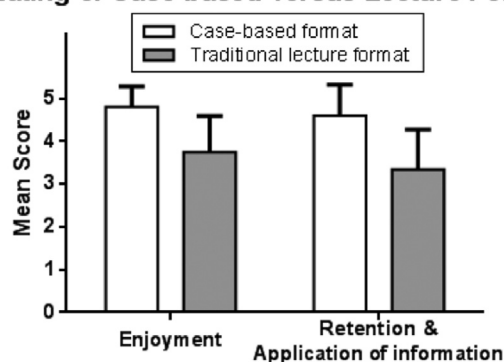


FIGURE 1. Rating of case-based versus lecture format. Medical students were asked to rate the team case-based format versus the traditional lecture format in terms of their level of enjoyment, whether they believed that the format would increase their retention and ability to clinically apply the information presented using a 5-point Likert scale. Means and standard deviations (error bars) were calculated for each question and are shown on the graph, with the case-based format depicted in white and the traditional lecture format in gray. The medical students rated the case-based format higher than the lecture-based format both on the basis of enjoyment and retention. *p* < 0.001.

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