Team Based Learning: Lessons Learned
Creating & Implementing a Hands-On Interactive & Practical Medically-Oriented MS2 Training
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Introduction

Team Based Learning (TBL) emphasizes individual accountability and team collaboration. The challenge of this popular method of medical education is to create sessions that are engaging, content rich, and able to provide opportunity to apply clinical knowledge.1-2

To teach medical students about pediatric short stature and ensure their ability to apply attained knowledge, a creative learning opportunity was developed that adhered to the classic hallmarks of TBL: backward design, the 4 S’s (Significant Problem, Same Problem, Specific Choice, Simultaneous Report) and the Readiness Assurance Process (RAP) with appeals.1,3

The lead facilitator reflected on the 2 TBL offerings with solicited feedback from student participants and medical education specialists. Students reported learning experience improvement in multiple areas as a result of changes made to the activity.

Materials and Methods

Essential TBL components developed using backward design3,4

1. A 2-hour session was presented to 207 second year medical students (MS2) with one previous year of TBL exposure. The lead facilitator plus a consulting pediatric endocrinologist and a biochemist provided content and method expertise.

2. Design Decisions:
   - Team formation: 34 Teams of 6-7 learners are pre-established yearly by the Office of Undergraduate Medical Education.
   - RAP: Identical individual and team Readiness Assurance Tests (RATs) were administered at the start of class. Outside resources were not allowed during the RAT. Teams had the opportunity to engage in the appeals process.
   - 4 S’s: All teams simultaneously worked on an application exercise, involving verbally reporting findings, populating visual tools with display on a document reader, answering multiple-choice type questions and using simulated clinical materials.
   - Incentive structure: Application exercises were not graded but RAT scores did contribute to students' overall module grade.
   - Peer Review: TBL peer review is not a part of the curriculum.

Activity Design

After each TBL session, the lead facilitator reflected on personal knowledge of best practices and feedback from student participants and medical education specialists. Resultant changes to the TBL activity led to improved understanding of the material and promotion of intra-team collaboration and critical thinking.

Design Modifications

Readiness Assurance Process:

- The reading requirements for TBL were streamlined and focused.
- Learning goals were better specified to reflect expected learning outcomes and new application exercises reflected these goals.

Organization:

- For improved TBL organization, application exercises were divided into 3 broad categories: presentation, physical exam, diagnosis.
- Summation slides were placed after application exercises to stress key learning points.

Application Exercises:

- Less emphasis placed on text based reporting and more on the verbal discussion. Teams referred back to refined lists throughout the session and the ensuing dialogue was viewed as rich and less stressful.
- Team responses were more diverse and robust due to inclusion of more challenging questions stressing the evaluative process more so than the ultimate diagnosis.
- All team members presented teaching tools to promote the "team mentality".
- Teams engaged in hands-on learning activities with simulated clinical materials. Studies were ordered and interpreted and used to refine differential diagnosis lists. This activity was well-received.

Post-TBL Activities:

- Each team submitted a 2-minute MP4 video role-playing a physician discussing a patient evaluation and diagnosis. Facilitator provided feedback based on ability to discuss the case without using medical jargon. Student feedback reported scheduling and technological difficulties, plus uncertainty about the activity objectives. Resultant changes will clarify the activity assessment criteria and increase student flexibility to fulfill objectives.

Conclusions

- TBL is a rich and interactive method of education. Educators benefit from using TBL to teach complex medical topics and foster advanced clinical reasoning skills.
- TBL allows for innovative and diverse teaching tools.
- Adhering to best TBL design practice and reflection on constructive feedback resulted in an overall improved learning experience, as revealed in evaluative data.
- TBL activities benefit from integrating technology but cannot be at the expense of efficiency and effectiveness.

References