



# Team-Based Learning in an Internal Medicine Residency Infectious Diseases Curriculum: A Feasibility and Acceptability Study

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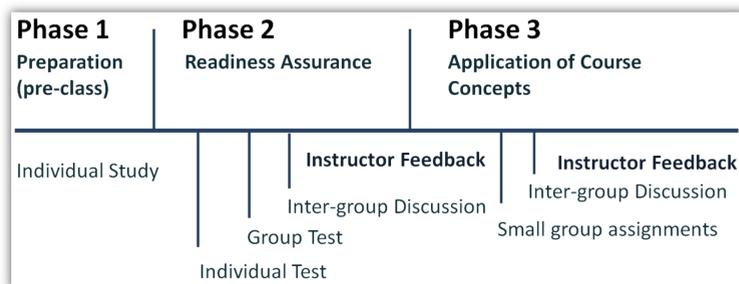
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## Background

- Medical educators have relied heavily on traditional didactics however recent literature suggests this is much less effective than active learning strategies
- Team-Based Learning (TBL), a structured flipped-classroom pedagogical method that uses active learning within it's 3 phases and 7 key elements. (Figure 1 and 2)
- TBL has resulted in increased knowledge retention in non-medical and medical undergraduate students.
- TBL has been implemented in various modified forms in graduate medical education (GME) thus the feasibility and acceptability of un-modified or complete TBL is unknown making direct comparisons to UME outcomes speculative.

### Figure 1: TBL Phases



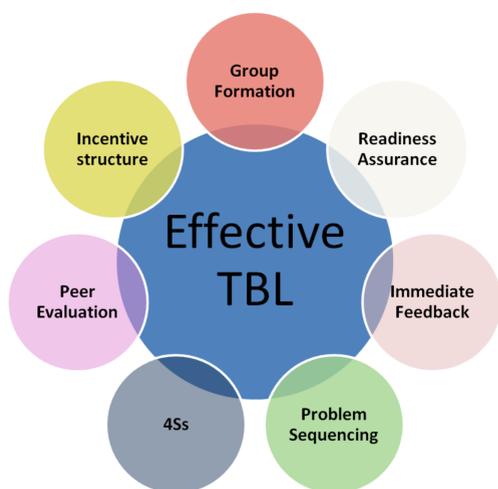
## Methods

- Prospective mixed-methods design (Figure 3)
- Participants: 101 IM residents and 8 TBL naïve faculty
- Setting: mid-sized university with a 3+1 system
- Intervention: 9 ID focused TBL sessions developed and delivered with 1 TBL Coach (EMB) and 8 faculty members over 5 weeks (Figure 3).

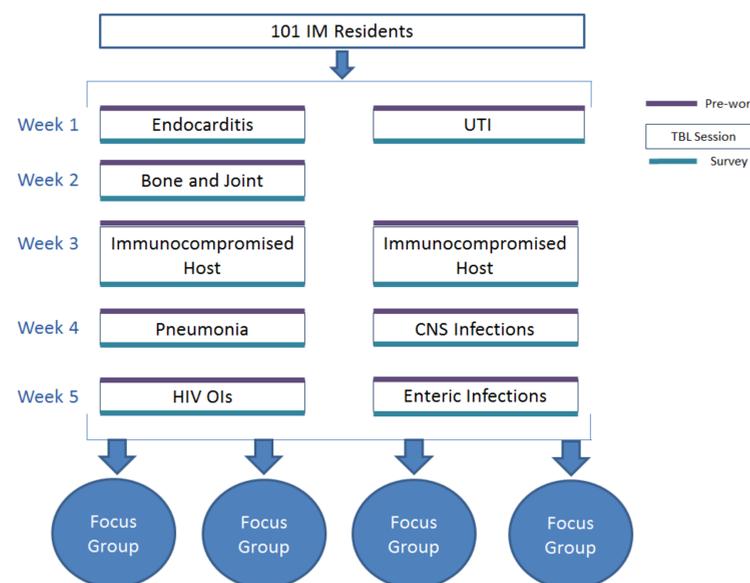
## Methods

- Incorporated all TBL elements and phases (Figures 1 and 2).
  - Phase 1: 20 min PowerPoint set pre-work
  - Phase 2: Individual Readiness Assurance Test (IRAT) 5 MCQs submitted online before TBL session. Group test (GRAT) first 5 min of session. Intergroup discussion and feedback followed.
  - Phase 3: Three case scenarios presented with multiple choice answers.
- Participants surveyed after each session.
- Resident Focus groups: held once/week x 4 following last TBL session. Held one faculty focus group.
- Feasibility variables : Use of pre-work, IRAT submission, use of all TBL elements
- Acceptability variables: attendance, global effectiveness rating and attitudes and perceptions of TBL
- A priori feasibility met if all TBL elements implemented
- A priori acceptability met if attendance equaled standard practice (>25 residents on average) AND >50% participants rated Global Effectiveness as facilitating their learning “very well” (4) or “extremely well” (5).
- Quantitative data analyzed using chi square and t-test

### Figure 2: TBL Elements



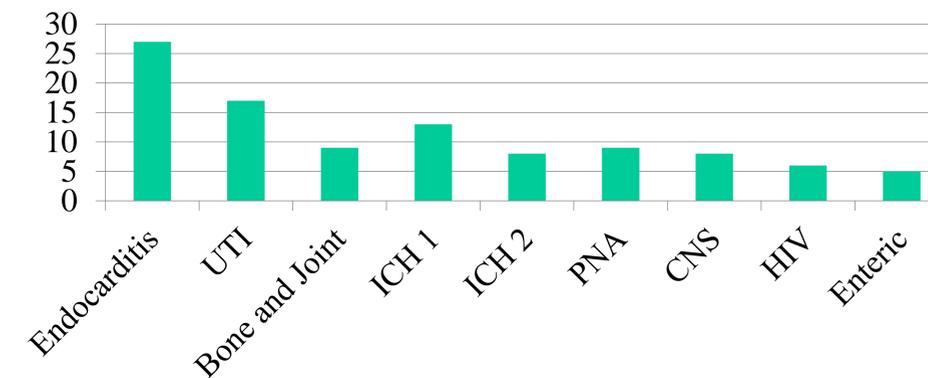
### Figure 3: Study Design



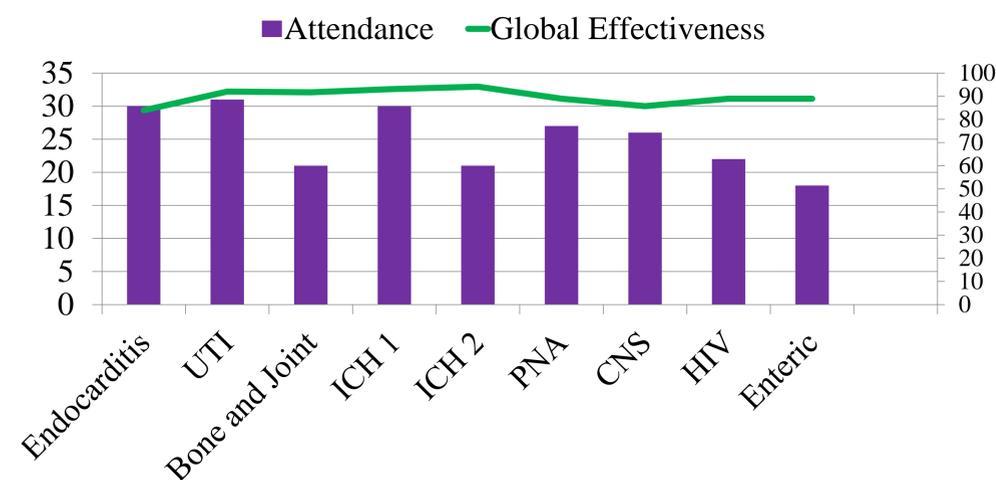
## Results

- 93 of 101 residents available over study period
- 72 (77%) available residents participated
  - Three “off site” residents returned to participate
  - Average attendance rate = 25 residents/session
  - Of the 72 participants, 23 attended 4 or more sessions
  - All TBL elements implemented each session
  - Resident submitted IRATs more commonly at the beginning of the study compared to the end. Focus group data suggest residents began completing them at the beginning of each session.
- 89% of participants completed post-session surveys
- Of those surveyed, 86% rated the sessions a 4 (very) or 5 (extremely) in facilitating their learning on a Likert scale representing the global effectiveness rating (p<0.001)
- The TBL naïve facilitator was rated very (4) or extremely (5) effective in 96% surveyed.
- Preliminary focus group data suggest residents prefer TBL to traditional didactics. Participants prefer PowerPoint pre-work compared to articles and they felt more engaged.

### Figure 4: IRAT Submissions



### Figure 5: Acceptability



## Conclusions and Future Directions

- Attendance and global rating data demonstrate un-modified TBL is acceptable
- TBL is feasible in the GME setting; TBL naïve facilitators can develop and deliver TBL sessions effectively with a coach
- Pre-session PowerPoints are useful and preferred compared to articles
- If given time, residents prefer to complete IRATs at the beginning of each session rather than submitting online prior to the session.
- Future study:
  - We will complete qualitative analysis to enrich our quantitative findings
  - We will begin a randomized controlled study assessing knowledge retention following TBL compared to traditional didactics