



Flipping the Classroom: Utilizing Team-Based Learning to Redesign Ambulatory Curricula

Jennifer Verbsky, MD
Magali Parisien, MD
Elizabeth Leilani Lee, MD
Alia Chisty, MD



April 19, 2016



1

Hofstra Northwell Internal Medicine Residency Program (formerly NSLIJ)

- Two main clinical hospitals in Northwell Health:
 - North Shore University Hospital: 804 bed hospital
 - Long Island Jewish Medical Center: 488 bed tertiary care center
- Clinical training sites for the Hofstra Northwell School of Medicine; 1500 trainees in entire Northwell System
- 124 categorical IM residents
- 105 fellows in all 11 medicine subspecialties
- 2 ambulatory primary care sites
- 4+1 schedule

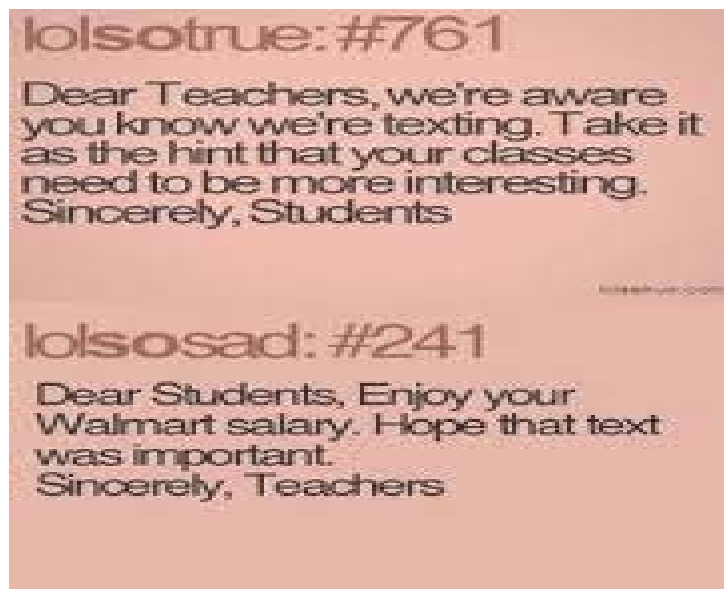
No conflicts of interest to disclose



Internal Medicine Residency at Temple University Hospital

- 722-bed hospital
- Safety-net hospital for North Philadelphia community
- Chief clinical training site for the Lewis Katz School of Medicine at Temple University
- 99 categorical IM residents
- 6 primary care residents
- 1 main ambulatory care site
- 4+1 structure

No conflicts of interest to disclose



April 19, 2016



4

Learning Objectives

1. Define Team Based Learning (TBL)
2. Identify the benefits of TBL
3. Describe the essential principles of TBL
4. Taking it home – List the steps to implement TBL at your institution

What is TBL?

- Small **groups of learners** who interact as **teams** to **apply** content to simple and complex problems with the **feedback** of the instructor as the content expert
- Sequence of Individual followed by group work and feedback
- 1970's Dr. Larry Michaelson – Univ. of Oklahoma
- Passive learning (knowledge transmission) → Active Learning (knowledge application)
- Flipped Classroom – faculty = manager

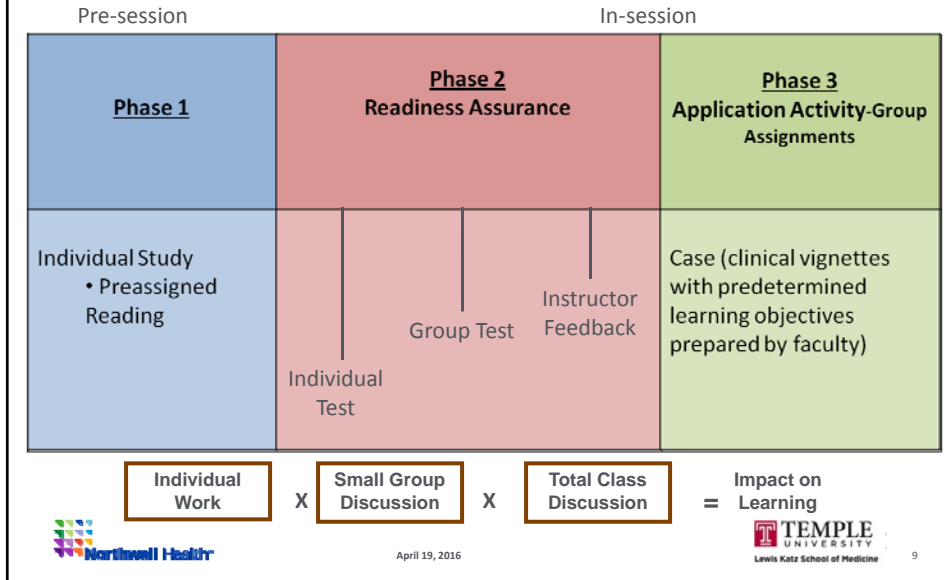
What is a Flipped Classroom?

- An instructional strategy that **reverses** the traditional educational arrangement by delivering instructional content outside of the classroom
- **Learner-centered** model
- Redefines in-class activities
- Requires the learner to be an **active** participant in knowledge acquisition and in construction and evaluation of self and peer performance
- Faculty are facilitators – provide expert insight and feedback

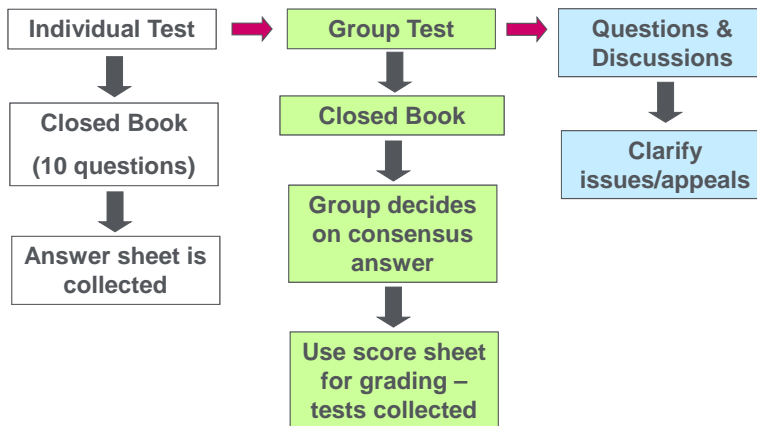
Key Principles

1. **Team Formation**
 - 5-7 members/team
 - Heterogeneous
 - Permanent/Managed
2. **Accountability**
 - Responsible for both individual/group work
3. **Feedback**
 - Frequent and timely
4. **Application-Focused Team Assignments**
 - Helps group achieve learning and team development

3 Phases of the TBL Process



Readiness Assurance



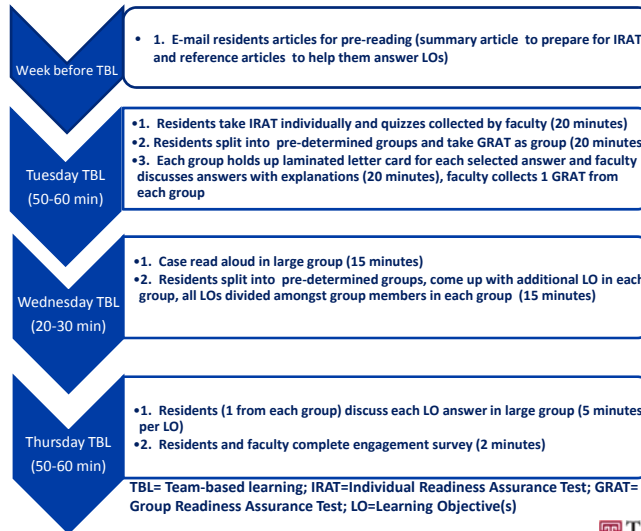
Application Activity – Case Vignette

- Groups **apply** the fundamental concepts of the module to a case vignette to answer pre-determined Learning Objectives (LO) and to develop their own LO's
- **4S's:**
 - Significant Problem
 - Same Problem
 - Specific Choices
 - Simultaneous Reporting

Materials Needed

- Review article (usually NEJM, Annals “In the Clinic”)
- Supporting articles
- 8-10 question IRAT/GRAT (MKSAP questions)
- Answer key with descriptive answers
- Clinical vignette with 8 pre-determined LO's
- Answers to LO's

Weekly TBL Conference Workflow



TBL= Team-based learning; IRAT=Individual Readiness Assurance Test; GRAT= Group Readiness Assurance Test; LO=Learning Objective(s)



April 19, 2016



13

Journal of Graduate Medical Education

EDUCATIONAL INNOVATION

Use of Team-Based Learning Pedagogy for Internal Medicine Ambulatory Resident Teaching

Sandy Balwan, MD
Alice Fornari, EdD
Paola DiMarzio, PhD, MPH
Jennifer Verbsky, MD

Renee Pekmezaris, PhD
Joanna Stein, MPH
Saima Chaudhry, MD, MSHS

ABSTRACT

Background Team-based learning (TBL) is used in undergraduate medical education to facilitate higher-order content learning, promote learner engagement and collaboration, and foster positive learner attitudes. There is a paucity of data on the use of TBL in graduate medical education. Our aim was to assess resident engagement, learning, and faculty/resident satisfaction with TBL in internal medicine residency ambulatory education.

Methods Survey and nominal group technique methodologies were used to assess learner engagement and faculty/resident satisfaction. We assessed medical learning using individual (IRAT) and group (GRAT) readiness assurance tests.

Results Residents (N = 111) involved in TBL sessions reported contributing to group discussions and actively discussing the subject material with other residents. Faculty echoed similar responses, and residents and faculty reported a preference for future teaching sessions to be offered using the TBL pedagogy. The average GRAT score was significantly higher than the average IRAT score by 22%. Feedback from our nominal group technique rank ordered the following TBL strengths by both residents and faculty: (1) interactive format, (2) content of sessions, and (3) competitive nature of sessions.

Conclusions We successfully implemented TBL pedagogy in the internal medicine ambulatory residency curriculum, with learning focused on the care of patients in the ambulatory setting. TBL resulted in active resident engagement, facilitated group learning, and increased satisfaction by residents and faculty. To our knowledge this is the first study that implemented a TBL program in an internal medicine residency curriculum.



April 19, 2016



Northwell Results: Comparison of IRAT and GRAT Scores

Modules:	IRAT		GRAT	
	n	Mean (SD)	n*	Mean (SD)
Diabetes	75	71 (14)	18	81 (12)
Hyperlipidemia	96	56 (17)	16	87 (10)
Preop Evaluation	96	74 (18)	18	91 (10)
CKD/HTN	93	53 (16)	20	70 (19)
Asthma	95	75 (14)	20	91 (6)
GERD	88	63 (16)	16	77 (10)
Dizziness	87	64 (16)	18	83 (11)

Northwell Engagement Survey

1-5 Likert scale; n= 34 faculty and 258 resident responses
75% agree/strongly agree responses

1	Most residents were actively involved in the sessions
2	I was/residents were mostly passive learners during the sessions
3	I/residents contributed meaningfully to group discussions
4	I/residents talked with other residents in the sessions about the material
5	I was not/residents were not paying attention most of the time in sessions
6	I/residents contributed my/their fair share to session discussions
7	I/residents paid attention most of the time in sessions
8	I/residents participated in the session discussions
9	I was/residents were mostly active learners in the sessions
10	I would like more teaching sessions to be like this one
11	Faculty member was effective as a facilitator
12	Faculty member assumed a lecture model

NGT Data on Strengths and Weaknesses of TBL Curriculum

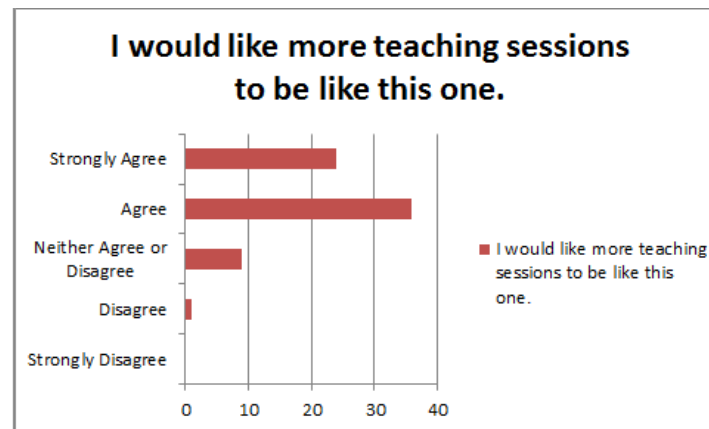
Residents (PGY 3)	Faculty
Strengths	Strengths
<ol style="list-style-type: none"> 1. Group/Interactive Format 2. Topic-Based Approach 3. Dedicated Teaching 4. EBM/Academics/Board Prep 5. Format Allows for ID-ing Knowledge Gaps 6. Competitive 	<ol style="list-style-type: none"> 1. Interaction/Competition/Morale in educational setting/enthusiasm 2. Participation 3. Format 4. In-depth content
Weaknesses	Weaknesses
<ol style="list-style-type: none"> 1. Session Time 2. Article choices 3. Topic choices 4. Learning Objectives 5. Case Use 6. Quiz 7. Group format - vary participation 8. Continuity 	<ol style="list-style-type: none"> 1. Content/Topics 2. Imbalance of Participation 3. Format (assessment)



April 19, 2016



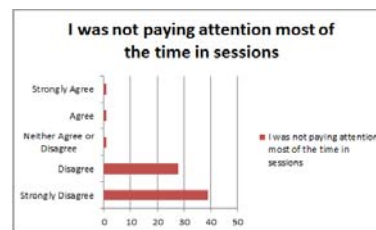
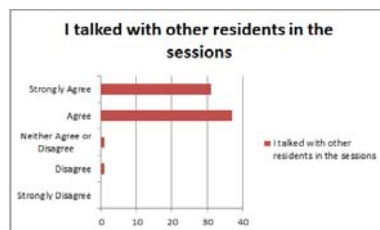
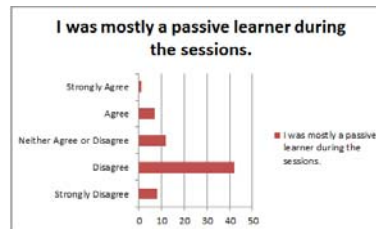
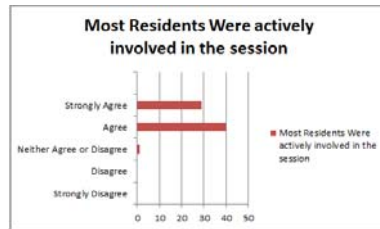
True Story: Survey data from Temple's First TBL Case (n=70)



April 19, 2016



Survey Data from Temple's First TBL Case



April 19, 2016



Resident Comments from Temple's First TBL Case

"Encouraged active participation early in the am instead of just a lecture you fall asleep :)"

"I was most engaged during the session because I had to think about my answers to the questions & then argue my point in the group"

"This is a much better way to get engaged and actively think about the material!"

"Being able to discuss in small groups is better for those who don't prefer talking in the larger group."



April 19, 2016



Overcoming Barriers at Northwell Health

1. Residents didn't want to do conference for 3 days
 - We shortened it to 2 days – incorporated Wednesday's session into Tuesday's session and shortened Tuesday's session to 45 minutes from 60 minutes
2. Logistical issues with administering and monitoring peer feedback form
 - We stopped peer feedback
3. Difficulty with residents staying in their pre-assigned groups, hard to monitor –
 - Groups more fluid now
4. Too many predetermined learning objectives
 - Gave fewer pre-written learning objectives, instead asked residents to formulate 2 learning objectives on their own
5. Homogeneity of content – focused primarily on clinical medicine
 - Made modules more interdisciplinary, including pharmacy and behavioral health components

Overcoming Barriers at Temple University

1. Faculty were uncomfortable and inexperienced with TBL
 - We developed a faculty development program to train faculty in TBL and provide peer feedback
2. Developing cases/curriculum is time consuming for faculty
 - Used a team of faculty to develop each case (shared responsibility and promote team culture)
 - Referenced MedEd Portal for already published cases
3. Residents and students had varied experience in TBL
 - Reinforced a positive team culture, safe learning environment, and provided a brief orientation to the process in the beginning of the year
4. Change in culture is hard
 - Reinforced the TBL mission to faculty, Department Chair, and residents until everyone understood its value
 - Engaged resistant faculty in the process early on
 - Made changes rapidly based on resident and facilitator feedback

Conclusions

- TBL pedagogy can be successfully implemented in GME
- Achieves its goal of higher order learning that shifts responsibility of learning onto trainee
- Promotes interaction and engagement among learners resulting in team learning
- High satisfaction for residents and faculty
- Strongly preferred over traditional ambulatory didactics
- Resident participation can vary

Resources

<http://teambasedlearning.apsc.ubc.ca/>
<http://faculty.ucmo.edu/teambasedlearning/>
<http://www.med.wright.edu/aa/facdev/TBL/>
[Http://www.teambasedlearning.org/](http://www.teambasedlearning.org/)

Thank You!!!



April 19, 2016



25