Introduction

Background
The performance of bedside cardiac assessment (BCA), a core clinical ability, is deteriorating. Fewer clinical instructors feel comfortable teaching BCA, making the problem urgent and self-perpetuating. 1,2

We hypothesized that a systematic, active-learning approach to teaching BCA would improve student performance and designed a multi-institutional study to test that hypothesis.

The Problem

The Purpose
- Active-learning theories (e.g., Kolb): learners need not just to watch and think, but to do and to feel!
- Hypothesis: a systematic approach, taught with active-learning instruction, will increase competence in BCA abilities

Approach 1,3

1. Design and pilot Flipped Classroom (FC) module
2. Conduct interprofessional two-centered study including faculty and medical students
3. Collection, Analysis, and dissemination of data

Outcomes

Active-Learning Resource - Flipped Classroom

Learning Objectives
- Explain clinical significance of each skill
- Recognize specific physical exam findings
- Use approach to improve diagnostic reasoning
- Determine need for confirmatory testing
- Integrate knowledge, skills and attitudes to communicate with patients in a simulated encounter

Online Pre-Class 1:
- View A: classic and unanchored JVP

In-Class Session 1:
- a) Think-pair-share for decision
- b) JVP peer exercises
- c) JVP peer exercises

In-Class Session 2:
- a) Nurses Heart Sound Team Game
- b) Simulated Cardiac Encounter exercise

Online Pre-Class 2:
- View B: values each unanchored JVP

Discussion

• Cognitive science-based instructional design; encourages self-directed study and peer collaborations
• Curriculum focuses day-to-day clinical competencies, thought use of diagnostic technology, notions of patient trust
• Flipped classrooms v2.0 incorporates expert learner and facilitator feedback
• Pilot data showed just non-inferiority: is "medical knowledge" the primary effect?

Limitations
- Flipped classroom
  o Considerable upfront development effort but easily deployed for successive classes
  o Need precise buy-in and motivation, internet access, willing clinician-facilitators
- Research-to-progress
  o Heterogeneous research sites (culture, control group curriculum, etc.) that may increase generalizability
  o Durability of learning is not captured

Next Steps
• Submit flipped classroom educational resource to MedEdPORTAL®
• Critical and analyze responses to date
• Volume new questionnaire items querying skill mastery and workplace transfer

Critical Impact
Increase effectiveness of clinical skills training to help reverse cycle of clinical skill deterioration

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