

## Notes on Observing the November 14, 2013, Patient Clinic session on Restrictive Pathophysiology led by Dr. David Roberts at HMS

Course: IN757.RES -- Human Systems – Respiratory

Course Directors: Jeremy Richards, MD; Barbara Cockrill, M.D.

Teaching Format: Flipped Classroom Approach

*Student Assignment Pre-Session:*

*Please review the attached 20 minute video **PRIOR** to the 11/14 Patient Clinic session on Restrictive Pathophysiology. The video includes 15 minutes of history and discussion with a very interesting and unusual patient, followed by 5 minutes of physical exam data to help us think about this case.*

*During the 11/14 in-class session, we will use this patient's case to build on the concepts introduced in the preceding session (Clinical manifestations of restrictive pathophysiology). We will work through this patient's condition and try to understand his pathophysiology and clinical data from a mechanistic and hypothesis generating approach.*

*This is a "real life" case and there are lots of complex aspects to it - our goal will be to **apply** what you've been learning in the course to date to a real patient and his clinical problems.*

<http://ecommons.med.harvard.edu/MediaPlayer/Player.aspx?v={7A7E68C7-48AE-43DA-B657-BE2ABD51DCEA}>

### **In-Class Observation:**

1. Introduction: David talked about metacognitive, learning & teaching issues:
  - a. The flipped classroom is an innovation that he is experimenting with today, which is why he asked them to watch the video.
  - b. The purpose of today's exercise is to think about a respiratory case in mechanistic terms.
  - c. The goal of exercise is to bridge what they are learning in the course to a real patient case, with specific reference to Jeremy Richards' lecture "Introduction to Restrictive Pathophysiology." This will help students transfer what they are learning this year in the classroom to their PCE clinical experiences next year. When seeing patients in real time, they will need to pull from their knowledge base and apply it at hyper-speed.
  - d. Even if they hadn't watched the video it's alright as it's important to be curious (had someone say what the Latin root meant: to care)

Comment section:

2. Conducted Readiness Test and Demonstrated Instructional Flexibility

- a. David explains that in preparation of the session, he asked the students to watch a video of a history and discussion with an interesting and unusual patient.
- b. Quickly determines that only 1/2 of students had watched the video. Makes decision to show parts of the video to the entire class. This was easily executed.
- c. Had planned to have students summarize case, but due to lack of time, David explains why he chose this patients and sums up case.

Comment section:

3. Is transparent about the complexity of the case and the need to seek others' opinions. Role models essential skills of asking others for their input, admits that he doesn't know all answers to all clinical questions, explains what cognitive anchoring is, and demonstrates curiosity about patient's condition.

Comment section:

4. Elicits questions and thought processes about the patient from 17 students, which he notes on the board.
- a. Called on students in the top rows when they raised their hands; looked around the room for volunteers.
  - b. Repeated students' questions so all could hear, but tried to capture their words as closely as they said them. Sometimes associates a student's name with a question or comment (e.g. Graham). Noted when he rephrased a question into "doctor language."
  - c. The students' questions were of a higher order in most cases: why; what's happening with; if this then what would change; what's the connection between X & Y; why did he wait; how does; why does?
  - d. Students also offered hypotheses (e.g. could his ulcerative colitis be a contributing factor?)
  - e. Highlights the importance of asking a lot of questions.

Comment section:

5. Shows sense of humor and seems to put the students at ease:
  - a. Interlaced references to pop culture throughout
  - b. Joked about students not having seen the video
  - c. Hummed game show tunes while the students were voting or chatting among themselves

Comment section:

6. Engages students in “team-based learning”:
  - a. Showed chest x-ray, CAT scan – reminded them of their class on obstructive lung disease
  - b. Had students vote on questions – emphasizes that the exact answer doesn’t matter, the point of the exercise is to work through reasoning with colleagues
  - c. Had students discuss among themselves their votes; told them to find someone who had not answered as they had & to reconcile their differences
  - d. Had students vote again
  - e. Had some students volunteer to explain their reasoning & gave them positive reinforcement for their reasoning even when the answer was incorrect or off target.

Comment section:

7. Active learning:
  - a. Asked students to explain their choices to him. “Explain to me...” or “Someone explain how you can get this ...”
  - b. Connected case to course material – refers to talk on cigarette smoking
  - c. Required application of knowledge – “What would you predict in terms of total lung capacity?”; “What’s the chance...” ; “Let’s get two competing hypotheses going”
  - d. Engaged students in critical thinking – “Let’s talk this through” “What would you tell your mother what is happening?” “What happens to his lungs without a sternum?” “Why didn’t cinching down his chest work?”

Comment section:

8. Provides quick summary due to time constraints:
  - a. "I know you have a quiz" – aware of student's concerns
  - b. Reviewed ventilatory control and phrenic nerve

Comment section:

**Overall comments, questions, suggestions:**

## FLIPPED CLASSROOM THOUGHT QUESTIONS

### *Opening*

- How are learning objectives articulated?
- How does the instructor energize the class as a whole?
- How does the instructor create a learning environment conducive to active participation?
- How does the faculty member conduct a “readiness test” on what the students should have prepared or known by the start of class? How is readiness assessed?

### *Sequencing and Timing*

- Is there a logical flow to the session?
- Is time allocated for student-to-instructor or student-to-student discussion?
- Is the percentage of teacher-talk vs. student-talk time appropriate?
- Does the class structure effectively support the learning objectives?
- Does the instructor provide appropriate closure to the class as a whole?

### *Process*

#### Instructor

- How does the instructor show that he/she is aware of the audience learning level?
- How does the instructor demonstrate enthusiasm about the class?
- Which strategies does the instructor use to foster active student engagement?
- How does the instructor manage the discussion flow while responding flexibly to both individual comments and group dynamics?
- How does the instructor use effective questioning to probe learners’ understanding and critical thinking— factual vs. application questions (e.g. why, what if, suppose, how do we know, what do we know)
- Does the instructor give sufficient wait time after asking a question?
  - Show respect while listening to a response?
  - Ask the student to clarify or elaborate further?
  - Ask others to respond?
- What does the instructor do to check the students’ understanding of key teaching points?
- How does the instructor’s discussion leadership result in students articulating and applying key principles during the class?
- How does the instructor address questions and/or correct or incorrect statements?
- Are the instructor’s call patterns fair and appropriate?

#### Students

- Do students participate throughout the discussion?
- To what extent do students contribute ideas, offer their understanding of a concept, or apply knowledge instead of simply presenting facts?
- How well do the students collaborate with their peers?
- Do students build effectively on each other’s comments?

### *Outcomes*

- What was most impressive about the entire session? (Consider the most positive or most concerning interactions.)
- How does the instructor get the students to think about what they learned beyond this one session?