



Pre-Lecture Videos as an Adjunct to Student  
Success in Medical School  
**Andrew Piner**

Medical Education Snapshots: Part 2  
February 25<sup>th</sup>, 2021

Disclosure(s): I wish

# Collaborative Team Members

- Dr. Bob Lust, Ph.D.; Department of Physiology, East Carolina University, Greenville, North Carolina

**Team Leader Key Contact Info: Andrew Piner, [pinera17@students.ecu.edu](mailto:pinera17@students.ecu.edu)**

## Rationale/Need

Rationale or need for the educational activity, such as:

- **Education Gap:** Student preparation for a traditional lecture format in a condensed medical school curriculum
- **Population:** 1<sup>st</sup> year medical students enrolled in the M1 Physiology course; possible expansion to other students
- **Educational Strategy:**
  - Video-based lecture preview of the day's high yield topics

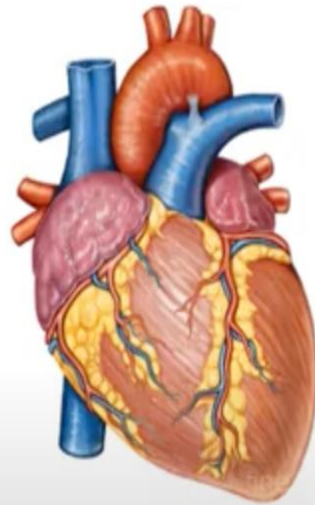
# Why video-based preparation?

- Condensed pre-clinical curriculum without a decrease in course load  
= less study / preparation time
- Subject repetition leads to improved subject retention <sub>1</sub>
- Video-based learning: becoming the “norm”
  - Shorter is better <sub>2</sub>
  - Preferred by professors and students <sub>3</sub>

# Materials: Explain Everything Design App and YouTube

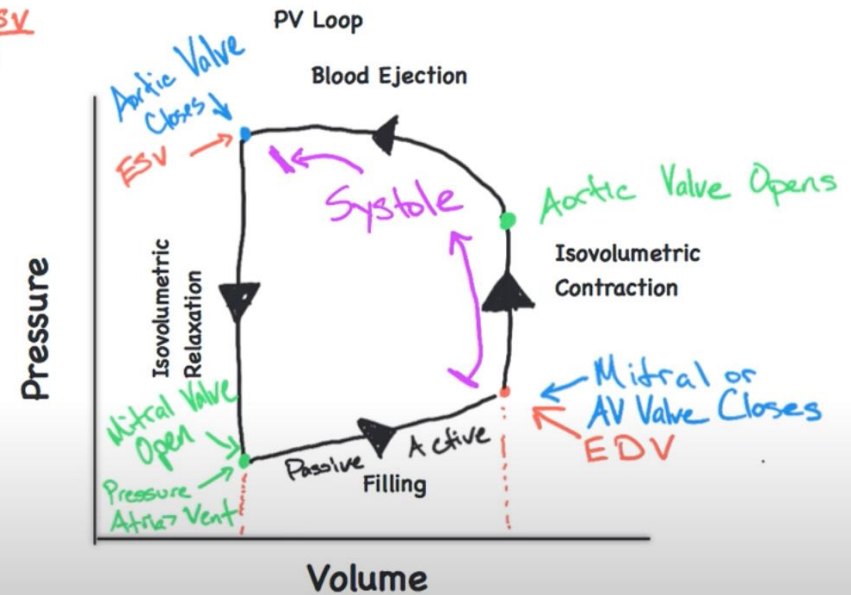
## BSOM M1 Physiology Cardiology Section

Cardiac Cycle and PV Loops



Ejection Fraction = EF

$$\frac{EDV - ESV}{EDV}$$



# Methods

- Participants were 1<sup>st</sup> year medical students enrolled in the medical physiology course
- High-yield 5-minute videos were created for each physiology lecture during the cardiac physiology block
- The videos were watched prior to each lecture as a primer for the day's material
- All students regardless of their consent for the study had access to the pre-lecture videos
- 69 (48: 2019; 21: 2020) students completed the post-course survey

# Evaluation

- Test scores were compared using **independent t-test**.
- **Likert scale survey** to assess attitudes toward the pre-lecture video experience
- Future: Further expansion of the video project within the physiology course with evaluations of students' perception of how this teaching style compares to other courses as well as comparisons of student performance

# Results

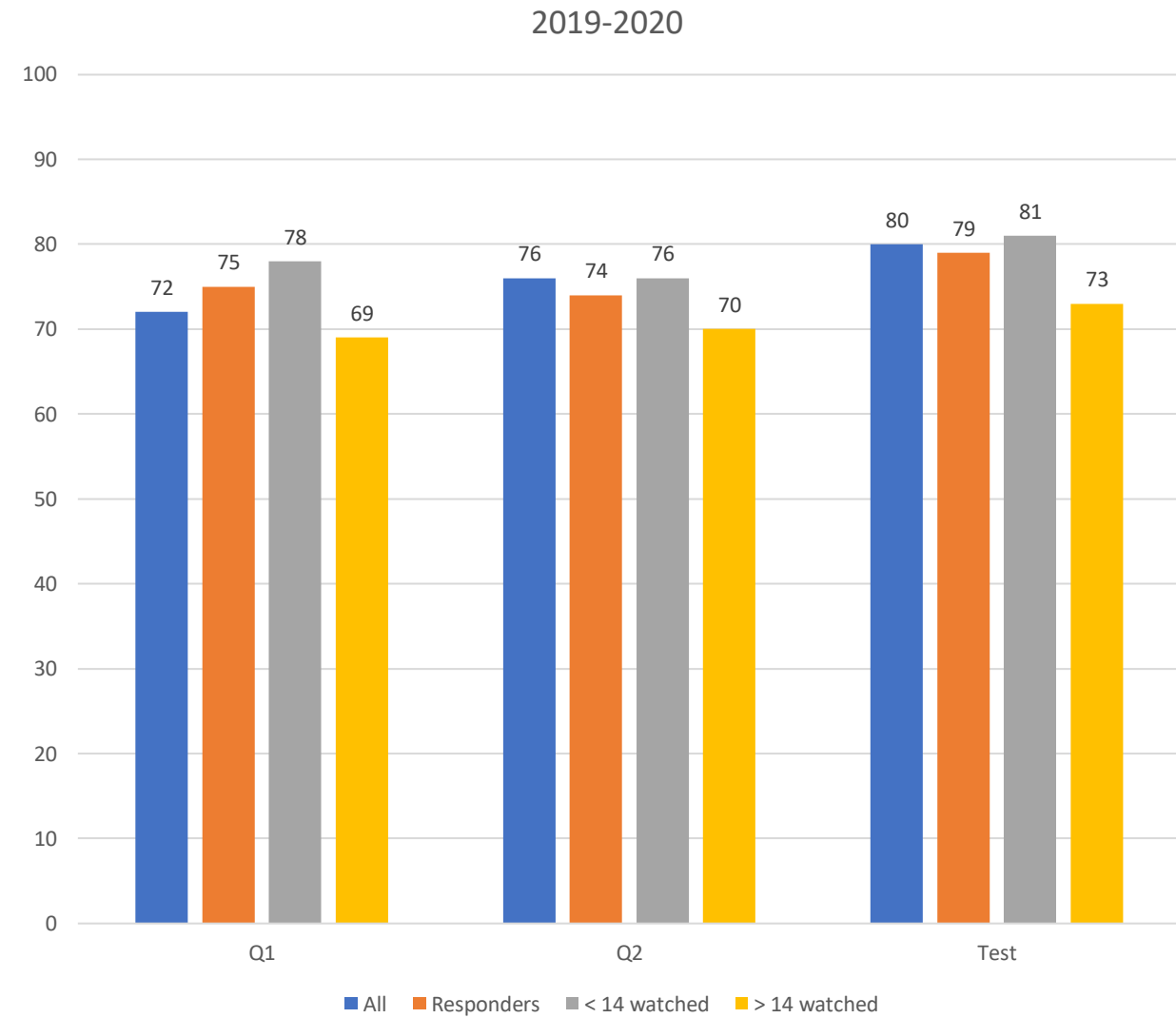
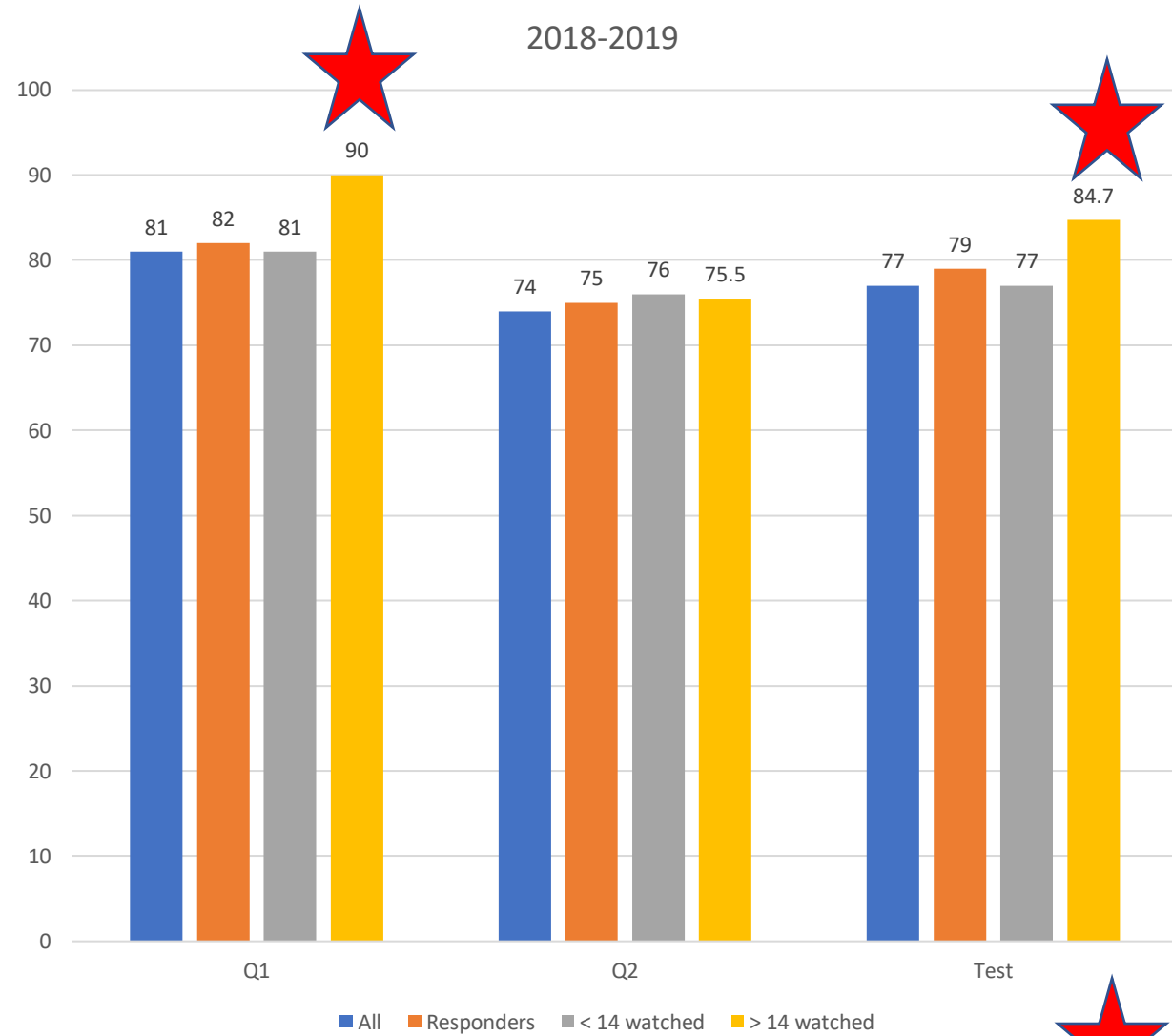
- 69 (48: 2019; 21: 2020) students completed the post-course survey
- 25-33% of medical students prepared for other preclinical courses compared to 61% (2019) and 57% (2020) during the study intervention (p=0.00004 and p=0.0008)

<b>The videos :</b>	<b>2019</b>	<b>2020</b>
Were helpful	4.3	4.5
Were detailed enough	4.1	4.3
Were a good use of my time	4.4	4.6
Gave me a better understanding of the material	4.1	4.3
Helped me enjoy lectures more than those I did not prepare for	4.0	4.0
Instilled confidence	3.7	3.8
I would watch more pre-lecture videos	4.1	4.5

Likert 1-5



# Cardiac Physiology Quiz and Exam Results



P < 0.05

# Challenges Encountered

1. Students were not required to watch the videos before class
  - Participation was not standardized
2. Participation was not mandatory
  - Students were free to watch / not watch videos
  - Surveys were voluntary -> response bias ?
3. Fatigue
  - Viewership declined steadily throughout the study period in both years
  - “Viewership” spikes were seen for “hard” lectures
  - Med school is tiring

# Next Step / Future

- Expansion to other physiology lecture blocks
- Comparison of non-physiology grades during the intervention vs non-intervention period
- Analysis of the Physiology Shelf scores to provide “external validation” of the results

# Acknowledgements

- Thank you to Dr. Tulis for his support of this research and commitment to furthering medical education
- Thank you to the students for their participation and valuable feedback

# References

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