

Simulation Modules for the Identification of Heart Murmurs: Supplementation of a Heart Murmur Flipped Classroom

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Background **Possible Pre and Post-test Questions** Methods The reported prevalence of cardiac murmurs in neonates is approximately 19.26 1. An 82-year-old man is brought to the emergency department by Students will complete the simulation per every one-thousand live births.¹ ambulance after fainting at home. His vital signs are: modules: Prior to attending the simulation, Temperature: 99 °F a. SAM II Auscultation Manikin Auscultation and ultrasound are some of the most important tools in the initial M2 students will complete a Pulse: 115 (Cardonics) is a torso-shaped procedure for identifying a heart murmur.¹ mandatory Pathology flipped Blood pressure rate: 25 simulation tool that is connected to classroom His wife reports that he was hospitalized for a heart attack last week. On Since the transition to pass/fail STEP 1 grading, medical schools have seen a a library of heart murmurs. physical examination, he appears weak, pale, short of breath. Auscultation decrease in student performance on STEP 1 and in rotations in the M3 and M4 reveals bilateral rales, and a new holosystolic murmur at the apex of the vears.2,3 Point of Care Ultrasound (POCUS, a. Students will complete a pre-test heat radiating to the axilla. What is the most likely cause of this murmur. Historically, the cardiology section has underperformed other ٠ Simbionix) simulation to allow to assess their ability to identify sections, not only at Brody but also nationally.^{2,3} students to probe the manikin and heart murmurs This trend is seen not only on Brody made assessments but also on visualize the murmur 2. A newborn infant is being examined. He is acyanotic. He cries when he is STEP 1. not being swaddled during the examination. Cardiac auscultation reveals a Student performance will be murmur (there will be an added audio clip). The physician prescribes Students can expect to have questions related to heart murmurs and their analyzed using a paired T-test to indomethacin and on follow-up examination the murmur has disappeared. clinical presentation on Brody assessments and USLME STEP 1. Students will complete a post-test with ← see if students improved and What is the most likely embryological origin of the vessel that is targeted by These types of questions will require students to listen to or visualize questions like the pre-test. which modality may be better. this therapy. a heart murmur and relate it to a clinical scenario stem. Clinical simulation has been shown to improve basic science curriculum and is **Conclusions and Next Steps** effective at long term retention. Self-directed simulation may also help Simbionix Ultrasound Simulator and Cardonics SAM II Simulation Tool supplement student learning and help alleviate faculty burden.

Purpose Statement

- The purpose of this project is to explore the need for supplemental resources in the cardiology unit at the Brody School of Medicine and to specifically assess if an auscultation and ultrasound simulation may be useful in helping students apply their understanding of heart murmurs to clinical scenarios.
- This study will also explore if auscultation or ultrasound simulations are better for student material mastery.
 - Recent studies have shown that ultrasound may be more useful for long term retention.
 - It's utility in the identification of the pathology underlying heart murmurs for M2 students prior to STEP 1 has yet to be explored.



- The module will be implemented in early September.
 - The goal will be for the module to run in the weeks after the pathology thread congenital heart disease flipped classroom.
 - Content will complement and illustrate concepts covered during the flipped classroom.
 - The module will be entirely self-directed.
 - A follow-up survey on module utility will be implemented after completion of Step 1.
- The greatest concern will be student participation since it is a voluntary session.

References and Acknowledgments



We would like to thank the Brody School of Medicine Interprofessional Simulation Program and the staff who have helped with the implementation of this module