

On-the-Go Learning for Pediatric Residents in Cardiology Utilizing App-Based Education

Jonathan Pacella MDa; Ryan A Moore MD, MSc,a,b; Elisa Marcuccio MDa,b; Michael E Kim DO, MEdc



Introduction

- Traditional congenital heart disease (CHD) education methods (i.e. didactics, textbooks, video modules) have demonstrated variable acquisition/mastery of knowledge
- Mobile app development has created a new opportunity for medical education
- Heartpedia™ (HP) is an educational app provides CHD information to patients, families, and healthcare providers
- We present a feasibility and acceptability study of the HP app to assess its utility in improving CHD education

Methods

- Prospective feasibility and acceptability study, 41 first year pediatric residents from 7/2023-3/2024
 - Week 1
 - Pre-test with 2 lesions and survey
 - Lesion test with Perimembranous VSD and Truncus Arteriosus (TA) Type 1
 - Name lesion, describe physiology, clinical and surgical management
 - HP app tutorial
- Post-rotation
 - Post-test with same lesions and post-survey with questions about HP app use
- Post-test scoring done by two cardiologists and resident

Results

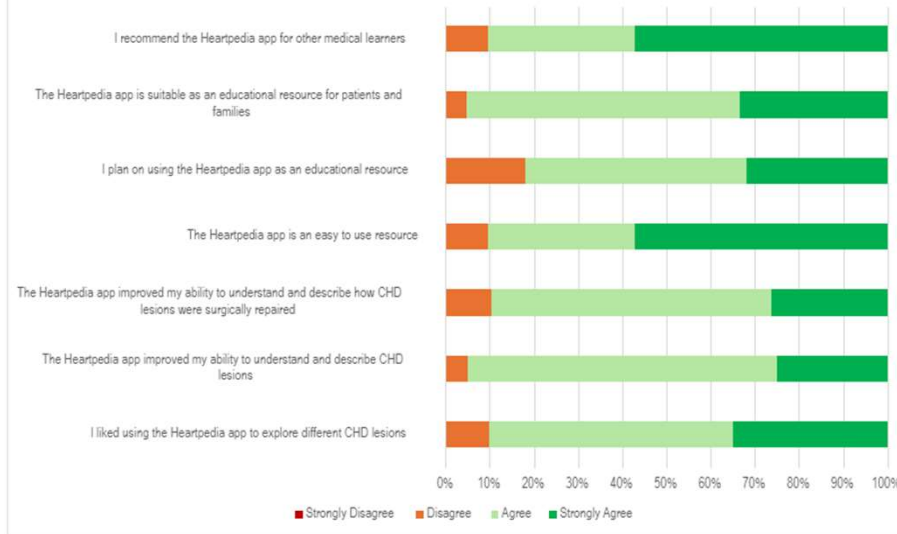


Figure 1. Post-intervention 4-point Likert scale data



Figure 2. Comparison of CHD lesion performances by % change from rotation pre/post testing amongst medical learners who used HP vs those who did not (19 app users vs 13 non-users). Interrater reliability with Cohen's Kappa 0.63 indicating moderate agreement.

Results (cont.)

Respondent Summary

- 41 completed pre-intervention materials, 32 completed both
- All participants were 1st year residents
- 22% had previously used HP app prior to rotation
- 63% of respondents reported some (minutes to hours) use of HP
- The top lesions reviewed were HLHS, TOF and AVSD
- Knowledge Assessments:
 - Most residents self-ratings improved from beginner to competent during the rotation
- Lesion Test Performance
 - Scores improved 10% for the VSD and 19% for the TA lesion

Conclusion

- HP app used by majority of residents during rotation
- Most common features utilized: 3D lesion and repair images and descriptions
- Most learners felt it was feasible and acceptable educational resource
- App use correlated with improved lesion test performance
- Further study needed to assess efficacy of mobile learning in CHD education

References

- Klímová, Blanka. "Mobile learning in medical education." *Journal of medical systems* 42 (2018): 1-6.
- Rogers, Lindsay S., and Meryl S. Cohen. "Medical education in pediatric and congenital heart disease: A focus on generational learning and technology in education." *Progress in Pediatric Cardiology* 59 (2020): 101305.