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Does Simulation-Based Education for Cardiac Auscultation Improve Competency and Retention Rate Compared with Traditional Education?


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Does Simulation Based Education for Cardiac Auscultation Improve Competency and Retention Rate Compared with Traditional Education?

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Introduction

Cardiac auscultation is a critical part of clinical examination. Stethoscope allows for early detection of numerous important cardiac pathologies and appropriate referral for further management. Improper use of stethoscopes leads to inappropriate referral resulting in unnecessary financial stress or a delay in proper treatment of time-sensitive pathologies like VSD in children. Multiple studies have documented that competency among medical professionals in cardiac auscultation skills is in steady decline and this is due to the ineffective teaching method of cardiac auscultation starting in medical school.

Objective

To investigate the effectiveness of simulated education in cardiac auscultation.

Significance

Proper training can enhance a physician's ability to diagnose emergent cardiac pathologies. Current research suggests that innovation is needed in clinical auscultation skills. Simulation may provide an alternative, more engaging path to mastery of these skills.

Methods

Database: PubMed (2010 to 2021)

Keywords: "cardiac auscultation", "simulations", and "medical education."

Inclusion criteria: studies that used simulation or 3D components to train medical professionals in cardiac auscultation.

Exclusion criteria: abstracts, poster presentations, and meta-analysis.

Outcomes & Conclusions

Simulation based training in cardiac auscultation has resulted in significant improvement in students' diagnostic accuracy, knowledge, skills, understanding and satisfaction when controlled by its counterpart who did not receive simulation training. Interestingly, when looking at retention rate one study found a significant 6% decline in the diagnostic accuracy at the 1 year follow up after the intervention. However, the intervention group still outperformed the control group.

Future Research

The articles chosen for this review all utilized a singular method of simulation, often the use of a high fidelity simulator or 3D modeling. Although research in this style has yielded positive results. Little research has been performed measuring the effectiveness of a combination of these techniques. Future research could expand on the most effective methods by meshing the most useful components together. A more synergistic education approach might provide valuable insight into the most effective way to help healthcare providers master the art of cardiac auscultation.