

Thesis Project Portfolio

Wireless Heart Rate Detection Device for Neonatal Resuscitation in the Delivery Room

Technical Report

Cambiando Ciclos: The Cultural Inadequacy of CBT for Intergenerational Trauma in the Latine Community

STS Research Paper

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Sociotechnical Synthesis

My Capstone project focused on the development of a heart rate monitor that is suitable for newborns of all sizes. Neonatal resuscitation relies heavily on the ability to accurately read a neonate's heartbeat; however, human error, time, and contact surface conditions may all affect the outcome of the assessment. By creating a device that determines an accurate range of heart rate for the baby, there would be less discrepancies. The idea of this device came from the need our advisors noticed while as doctors at the Department of Neonatology at the University of Virginia. My Capstone team and I were part of the first iteration of this project. We completed a prototype of a device that quickly detects and stabilizes heart rate reading, yet we urge future Capstone teams to address the sterility and contact surface components of the device. These components, we believe, are necessary to get approval to test the accuracy and efficacy of the device onto neonates of all sizes.

In my STS portion of this publication, I investigate the systemic barriers and cultural beliefs of the Latine community that lead to the formation of intergenerational trauma. Additionally, I focus on the approach and research of cognitive behavioral therapy (CBT) and criticize its effectiveness on the Latine community. Methods include autoethnography and literature review comprised of sources found from Google, PubMed, and Research Rabbit. Findings from my research demonstrate a need for more studies to be done towards different therapy methods, testing these methods applicability towards cultures that deviate from the western perspective, and the retainment of programs that will reduce the stressors that affects cultures like the Latine community.