

The NeoWarm biomedical device: Assessment of feasibility and cultural acceptability, identification of potential barriers and challenges, and stakeholder mapping.

Thomasina Watts¹, Furhan Siddiki², Aakash Savita³

Indiana University-Purdue University Indianapolis

Introduction: Across the globe, approximately 4 million newborns die each year; complications from hypothermia underlie many of these deaths. Regions with fewer resources for neonatal care have higher rates of hypothermia-related death. Kangaroo Mother Care (KMC) is the practice of prolonged skin-to-skin contact to prevent hypothermia among small and premature infants. KMC is cost effective, and proven to reduce hypothermia; however, KMC programs are often discontinued or fail to expand. A built prototype of a biomedical device, called NeoWarm, has been developed to augment KMC initiatives. Identification of potential barriers and facilitators to adoption the NeoWarm technology is urgently needed.

Methods: In order to assess the feasibility of NeoWarm, and to identify current barriers to implementation of KMC and NeoWarm, a comprehensive literature review was conducted. Key barriers and facilitators to existing KMC programs in sub-Saharan Africa, Asia, and Latin America were identified. Stakeholder mapping and analysis in relation to the NeoWarm device for three “target countries” within each of these global regions was performed. Potential stakeholders were identified and categorically ranked in terms of influence and relevance.

Results: Three key barriers to KMC programs were identified. These included: unacceptability among male stakeholders; lack of support from health care providers and insufficient health infrastructure, leading to fears of tuberculosis and other infections spreading in crowded KMC wards. Comprehensive stakeholder mapping for Kenya, India, and Guatemala revealed a complex web of potential influencers and regulatory processes for adoption of NeoWarm technology.

Conclusion: The NeoWarm device may support increased acceptance of KMC among male stakeholders and some health care providers; however, the concerns regarding spread of tuberculosis among KMC mother-baby pairs was an unexpected finding, which will significantly inform subsequent NeoWarm development and testing. Stakeholder mapping and analysis revealed many potential NeoWarm partners within each region whom had not been previously identified.

Mentor(s)

Sherri Bucher⁴, William Combs³

¹Department of Community Health, Fairbanks School of Public Health, Indiana University - Purdue University, Indianapolis

²Department of Environmental Health, Fairbanks School of Public Health, Indiana University – Purdue University Indianapolis

³Department of Biomedical Engineering, School of Engineering and Technology, Indiana University – Purdue University, Indianapolis

⁴Department of Pediatrics, Neonatal-Perinatal Medicine, Indiana University School of Medicine