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Global Challenges of Neonatal Resuscitation: Collaborating to Examine Commonalities Across Three Different Patient Care Settings

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Introduction

Birth asphyxia continues to be a leading cause of neonatal mortality globally (Niermeyer, Robertson & Ersdal, 2018). Sustainable Development Goal 3 calls for a reduction of neonatal deaths to at least 12 per 1000 live births (Chong et al., 2018). Approximately 1 in 10 newborns require assistance with breathing at birth (Sawyer, Lee & Aziz, 2018). Delivery room neonatal resuscitations require prompt, well-coordinated interventions for optimal outcomes. Nurses globally receive specialized training in neonatal resuscitation and neonatal stabilization (Sawyer Lee & Aziz, 2018). Since nurses are often responsible for initial neonatal resuscitation efforts, nurses are in a strategic position to make significant improvements in global neonatal outcomes.

Background

Neonatal resuscitation training has contributed to improvements in neonatal outcomes, however, consistent implementation of best practices has been challenging on a global level (Kamath-Rayne et al., 2018). Globally, approximately 2.6 million neonates die within the neonatal period (Mildenhall & Isayama, 2018). Most neonatal deaths occur in low resource settings (Mukhtar-Yola et al., 2018). Since the advent of official neonatal resuscitation training, global neonatal mortality rates have improved considerably (Cordova et al., 2017). The Helping Babies Breathe Program has the potential to decrease neonatal birth asphyxia related deaths significantly. While improvements in neonatal mortality rates are evident since the implementation of the program, gaps in implementation continue to exist (Kamath-Rayne et al., 2018). In the United States, neonatal mortality rates are significantly higher than those of similarly resourced countries (Chen et al., 2016). Assessment of facilitators and barriers across settings may be useful for the development of strategies that may potentially improve neonatal outcomes across settings.

Historically in the United States, the emphasis of neonatal resuscitation has been placed on knowledge and technical skills. However, the Joint Commission reported that nearly 75% of all neonatal deaths have been related to ineffective communication, calling for a change of focus to teamwork and behavioural competencies (Joint Commission, 2004). Recent changes in neonatal resuscitation training include the integration of communication and teamwork skills. In health care settings with limited resources, the Helping Babies Breathe initiative has been responsible for improving the neonatal resuscitation knowledge of birth attendants globally; however, implementation of best practices remains a challenge (Kamath-Rayne et al., 2018).

Purpose

The purpose of this research was to examine the facilitators for, and barriers to, neonatal resuscitation in three separate global health settings, using the Theoretical Domains Framework (TDF). This study addresses neonatal resuscitation from the contexts of nurses working in tertiary health facilities in South Africa, a rural clinic in Zimbabwe, and in a hospital in the United States to identify potential areas for improvement that may be similar across resource settings.

Theoretical Framework

A framework with evidence-based underpinnings tailoring interventions to meet the specific needs of the learner, the TDF provided an intuitive guide to frame this research. The importance of evidence-based practice is well emphasized in the literature. However, behavior change is a challenging and complex process affected by numerous variables and factors (Cane, O'Connor, & Michie, 2012). Specifically created for use by interdisciplinary researchers, the TDF creates a means to bridge the knowledge-practice gap by using theory to guide intervention implementation (Michie et al., 2005; Francis et al., 2012). Designed to answer a need for an explicit, methodological, theory-informed guide for intervention implementation, the TDF addresses an extensive range of potential barriers and enablers that may impede or facilitate such interventions (French et al., 2012).

Methods

Ethics committee approval was granted from all three sites, the Zimbabwean government, the University of Johannesburg in South Africa, and Virtua Health in the United States. From March of 2015 until February 2016, nurses working in a rural district clinic in Zimbabwe, 3 different tertiary health facilities in South Africa, and a community hospital in the USA, were interviewed to explore perceptions of facilitators for, and barriers to, effective neonatal resuscitations in delivery room settings. Individual semi-structured interviews using an interview guide were conducted. Interviews were audio-recorded and transcribed verbatim for analysis. Using a Theoretical Domains Framework as a guide, data were analysed using qualitative description with a direct content analysis approach.

Findings

Contextual barriers specific to each setting affected delivery room neonatal resuscitations. The lack of resources in the Zimbabwe setting was identified as the most prominent barrier. Resuscitation skills for delivery room nurses were identified as the most prominent barrier for nurses working in the United States. In South Africa, the most prominent barrier identified was a lack of delivery room staff skilled in neonatal resuscitation skills. Additionally, similarities were identified across settings such as a need for improved competency in neonatal resuscitation, ongoing continuing education, and frequent skills review. Nurses in the Zimbabwean setting use simulation to reinforce neonatal resuscitation skills on a regular basis.

Interpretation

Consistent resources are crucial for the implementation of best practices in neonatal resuscitation. In addition, high frequency, targeted bag-mask ventilation training with frequent practice outside of routine training may improve nurse comfort with the crucial skill of positive pressure ventilation and may improve neonatal outcomes across settings.

Conclusion

Moving forward: Nurses must continue to work collaboratively across the globe creatively and strategically to address commonalities and inequities that negatively affect neonatal and maternal outcomes. Potential strategies to improve collaborative research across settings include:

- Virtual live interactive meetings using classroom technology
- Connecting like-minded researchers at international conferences and meetings
- International journal clubs to connect student and faculty colleagues internationally
- Development of stronger partnerships between nurse clinicians and nurse researchers (currently a significant gap persists)

Title:

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Keywords:

global, neonatal and resuscitation

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Abstract Summary:

Nurses from 3 different countries were interviewed to examine facilitators and barriers of effective neonatal resuscitation using a systematic approach, the Theoretical Domains Framework. Several barriers and facilitators were common across global health settings. Collaborative nursing partnerships across global patient settings are crucial for significant improvements in neonatal outcomes.

Content Outline:

I. Introduction

- Birth asphyxia
- Sustainable Development Goal 3

II. Body

A. Neonatal resuscitation training

1. Specialized training in neonatal resuscitation is necessary for an improvement in outcomes

- Helping Babies Breathe (limited resource settings)
 - Neonatal Resuscitation Program (NRP) training (high resource settings)
2. Preparation for a neonatal resuscitation at every birth is crucial
- Adequate resources are necessary for the best outcomes
 - Competent practitioners and consistent implementation of best practices are necessary for optimal outcomes

B. Challenges persist globally in neonatal resuscitation

1. Global implementation of Helping Babies Breathe has yielded mixed results
2. Neonatal Resuscitation Program training in higher resource settings

- A joint commission report on sentinel events revealed frequent errors due to lack of communication
- Neonatal resuscitation training in high resource settings has shifted the focus on teamwork and behaviour skills

C. A systematic examination of facilitators and barriers to effective neonatal resuscitation

1. Theoretical Domains Framework (a framework designed for intervention implementation studies)

- Commonalities were identified among care settings
- Implementation strategies may be applicable across care settings
- High frequency low fidelity skills training is effective in maintaining skill competency across settings

III. Conclusion

A. Collaboration across global health settings has the potential to guide improvements in clinical practice and neonatal outcomes

B. Global nursing collaborative efforts can take several forms:

- Sharing of information at conferences and meetings
- Technology driven global meetings to address implementation challenges by means of virtual meetings/conferences
- Faculty facilitation of collaboration at the undergraduate level to facilitate professional partnerships, supporting life-long learning to develop partnerships between nurse clinicians and nurse researchers (currently a significant gap persists)

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