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

Valerie Clary Muronda, PhD, RNC-OB
Assistant Professor,
Neonatal Resuscitation Program Instructor
Thomas Jefferson University
Alida du Plessis-Faurie, MSN, PhD Candidate
Advanced Neonatal Practitioner, AHA, BLS Instructor
University of Johannesburg

Objectives

- The authors Alida du Plessis-Faurie, and Valerie Clary-Muronda have nothing to disclose and no conflict of interests. After this presentation, participants will be able to:
  - Discuss current challenges in neonatal resuscitation
  - Compare and contrast neonatal resuscitation care skills across health care resource settings
  - Use a TDF to assess the barriers and facilitators to develop an intervention to improve neonatal outcomes
  - Develop a neonatal resuscitation intervention geared to the specific needs of the health setting

Importance of well-coordinated neonatal resuscitation efforts

Delivery room neonatal resuscitations require prompt, well-coordinated interventions for optimal outcomes.

Background

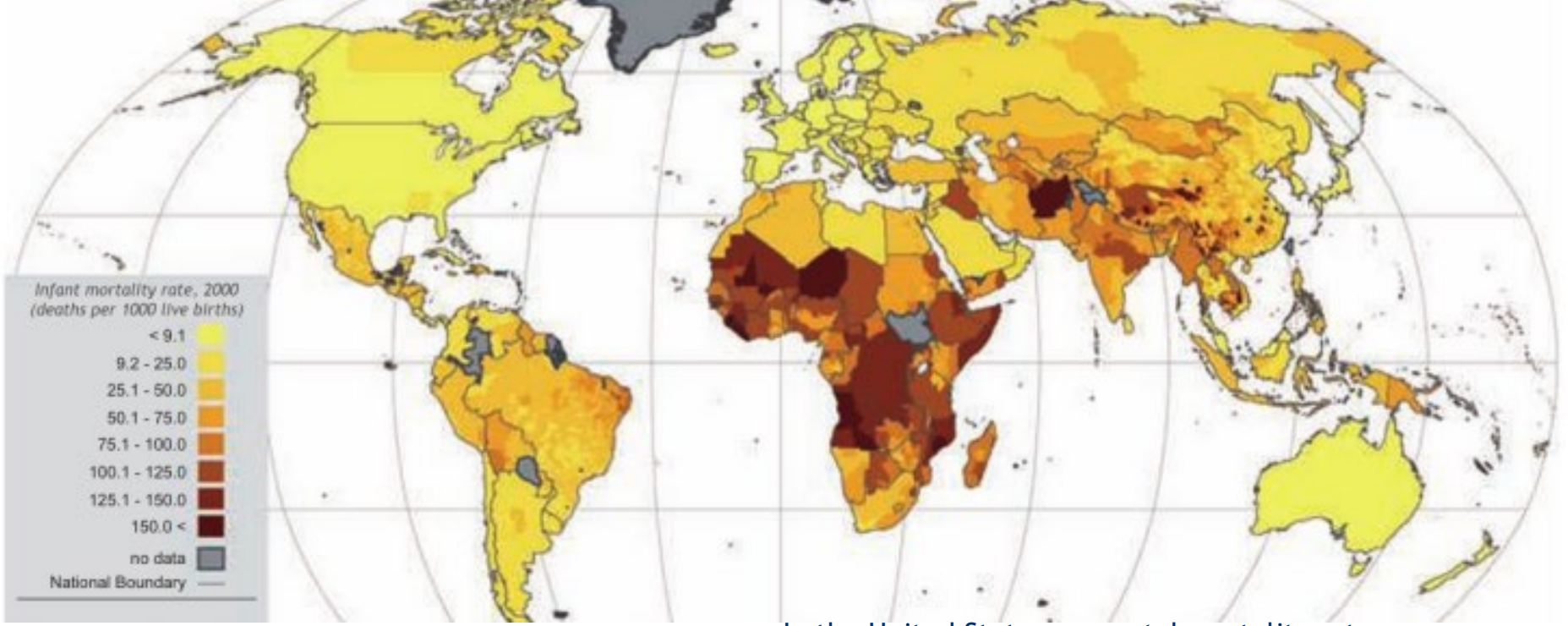
Neonatal resuscitation training has contributed to improvements in neonatal outcomes, however, consistent implementation of best practices has been challenging on a global level, Globally, approximately 2.6 million neonates die within the neonatal period. Most neonatal deaths occur in low resource settings Since the advent of official neonatal resuscitation training, global neonatal mortality rates have improved considerably (Cordova et al., 2017).

State of the Science

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).

This is a global problem

Globally, approximately 2.6 million neonates die within the neonatal period. 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).



The problem exists in well-resourced settings

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 might be useful in the identification of strategies that may potentially improve neonatal outcomes across settings.

Current state of the science in the United States

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.

Limited resource settings

In health care settings with limited resources, the Helping Babies Breathe initiative has been responsible for improving the neonatal resuscitation knowledge of birth attendants, however, implementation of best practices remains a challenge (Kamath-Rayne et al., 2018).

Study Purpose

- To explore health provider perceptions of facilitators and barriers to effective neonatal resuscitation (NR)
- To contrast low resource and high resource NR settings and practices
- To identify areas for improvement for potential collaborative global partnership

Why the Theoretical Domains Framework ?

- No one theory has been identified as most suitable for behavior change (French et al., 2012).
- Developed by a team of health psychologists, health care researchers, and psychological theorists, the TDF was designed specifically for implementation behavioral research.
- Specifically created for interdisciplinary researchers, the Theoretical Domains Framework (TDF) creates a means to bridge the knowledge-practice gap by using theory to guide intervention implementation (Michie et al., 2005).

Theoretical Domains Framework

TDF intervention implementation involves a four-step process for identification of the following:

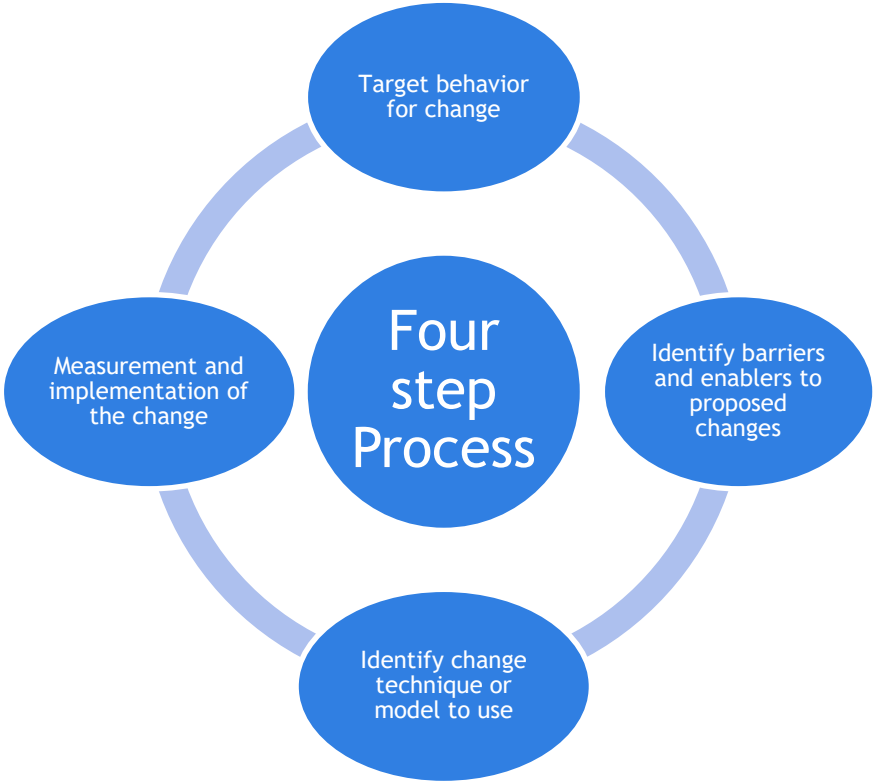
(a) targeted behaviors for change

(b) barriers and enablers to the proposed change

(c) change techniques or models of behavior to use, and

(d) measurement and implementation of the change (French et al., 2012).

TDF Intervention Implementation Process



Study

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 audiotaped and transcribed verbatim for analysis. Using a Theoretical Domains Framework as as a guide, data were analysed using qualitative description with a direct content analysis approach.

(Michie et. a., 2005; French et al., 2012)

Interview guide questions

- What is your role in labor and delivery?
- What happens in a delivery when a baby cannot breathe?
- What other people are available to help with NR and what do they do? (Prompt description of their interprofessional team) Which are professionals?
- Tell me how you learned about NR. (Have them describe any of these they have done below)
  - Class
  - Testing
  - Re-certification
  - Simulation?

Data Collection and Analysis

- Semi-structured, key informant interviews were conducted and analyzed using methods of qualitative description, as described by Sandelowski (2000). Selected for its naturalistic underpinnings, qualitative description is a valuable method that presents the facts by remaining close to the surface of the words rather than delving into the more interpretive realms of other methodologies such as grounded theory, phenomenology, and ethnography (Sandelowski, 2000).

Qualitative Data analysis

With the assistance of *Nvivo* 10, data was coded line by line asking the following questions:

- To what does this data refer?
- What does the data suggest?
- Whose point of view is this**?**

Zimbabwe Data: Teamwork and collaboration/Communication

"….my colleague will be assisting me to resuscitate the baby…"

"Actually, we'll be 2 in the delivery room, since you cannot perform the delivery alone, sometimes the baby might be asphyxia…"

"… when doing the delivery, you don't you don't do it alone, mostly, you need an assistant…"

"…we shout for help, then and there, when a baby cannot breathe. So that we can resuscitate the baby, we can resuscitate the baby then and there."

Facilitation of the bonding process

- “ ...*we put the baby on the abdomen we allow the baby to breast feed ….that’s when we assess that the baby will need resuscitation...does the baby in normal condition, this means when the baby is in good condition, mostly, they cry soon after delivery, that’s if the Apgar score is okay…”*
- *“… make sure the mother is comfortable with the baby and send both of them to the post natal…After I make sure the baby is well, and the mother is also…”*
- *“…we want every mother to breast feed the baby for the first hour after delivery…”*

United States Qualitative Data

- *"…people are afraid to give PPV in resuscitation because they don't do it that often."*
- *"I don't feel like my skills are as good six months after the class as they were right after I just took the class… let alone, a year later."*
- *"I wish that there were more easy drills, so that it is like second nature, because its just we do it so infrequently, it's just not second nature"* (nurse midwife 2
- *"People are afraid to give PPV in resuscitation because they don't do it that often … that's the easiest way to get the baby to come around..."*(NICU nurse 1)

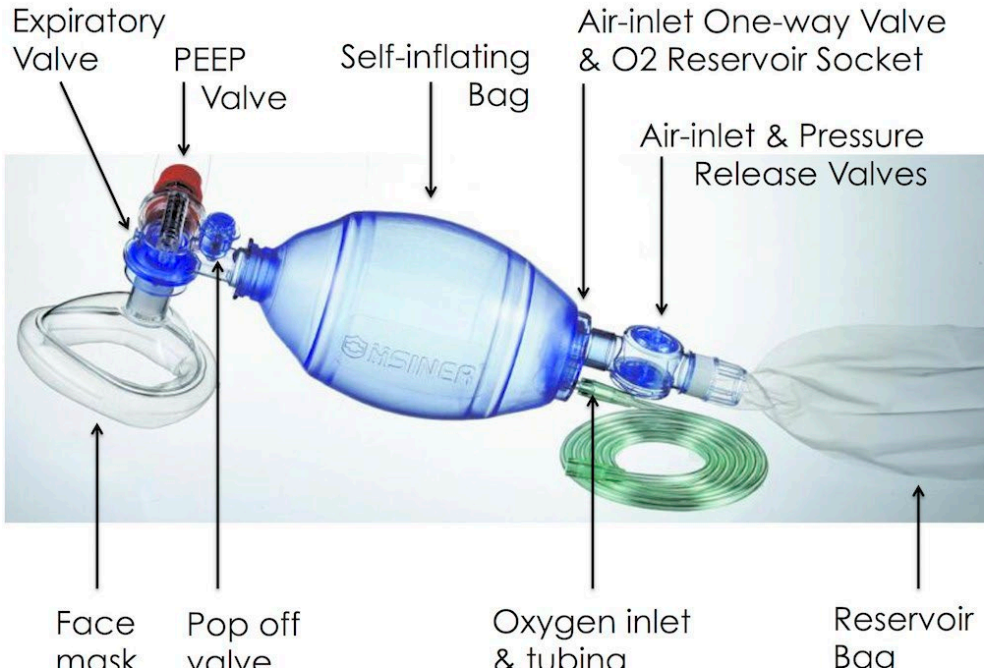
Findings

- 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.

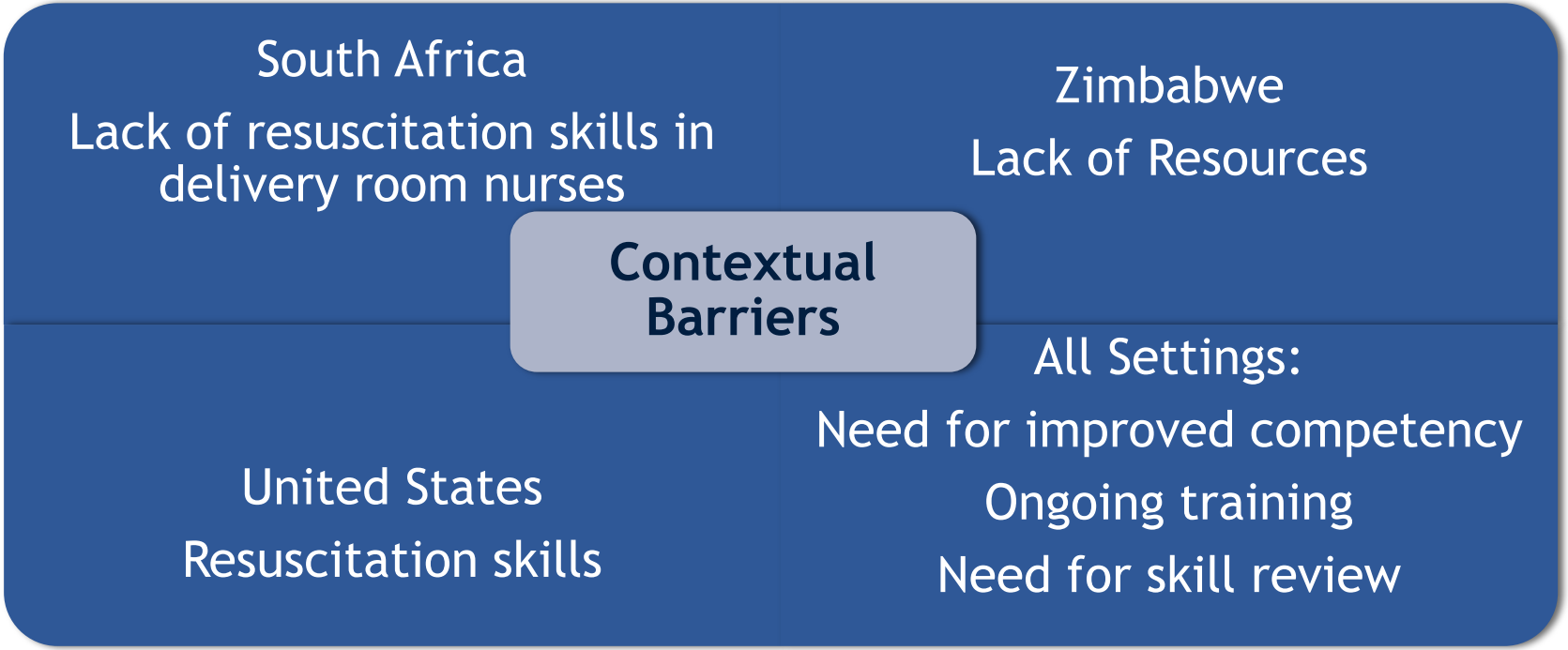
High frequency, targeted bag-mask ventilation training with frequent practice outside of routine training may improve nurse comfort with the crucial skill of positive pressure ventilation and may improve neonatal outcomes across settings.



South Africa Qualitative Data

- *…the midwife, she would start, but usually calls ahead for NICU term…normally the preem babies, fetal distress, if patient has delivered and no problem foreseen, but becomes a problem- this is rare, they will call, and say we need you to come, midwife would start, staff nurses not specially trained for NR, they would be there, but would not actively helped*
- *…normal RN not trained in NR a big shortage in the maternity ward, lacking the knowledge with resusc, they don't get exposed enough to things that go wrong, when they do go wrong the panic…*
- *…Cut off- under a Kg do not resuscitate, O2 warm put in incubator, if they survive great.*

TDF Contextual Barriers to effective neonatal resuscitation



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 meetings
- Connecting like minded researchers at international conferences and meetings
- Virtual live interactive meetings using classroom technology
- 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)

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Questions


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