Development of a Simulation of Neonatal Respiratory Distress Syndrome for a Resource Limited Setting

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Pediatrics
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Development of a Simulation of Neonatal Respiratory Distress Syndrome for a Resource Limited Setting

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**BACKGROUND**
- Prematurity-related complications are the leading cause of neonatal mortality worldwide.
- A major contributor of neonatal mortality due to preterm birth is respiratory distress syndrome (RDS).
- Bugando Medical Center (BMC) is a tertiary referral center for the northwest region of Tanzania.
- BMC has access to a limited number of ventilators, bubble CPAP, and surfactant.

**OBJECTIVE**
We sought to create a simulation to teach the identification and initial stabilization of an outborn baby with RDS using the resources available to providers at BMC.

**METHODS**
- Informal needs assessment performed in conjunction with BMC staff to determine opportunities for simulation development.
- The BMC NICU was observed to understand the available resources and current practices.
- The simulation was designed using recommendations from the European Consensus Guidelines for Management of RDS and the WHO Pocket Book of Hospital Care for Children.

**MATERIALS**

*Figure 1: NeoNatalie mannequin

*Figure 2: Pulse oximeter

*Figure 3: Sample chest x-ray of RDS. Note underinflated lung fields, bilateral granular opacities, & air bronchograms.

*Figure 4: Bubble CPAP machine

**KEY LEARNING POINTS**
- Recognize infant in respiratory distress and initiate initial evaluation and stabilization (obtain SpO2, consider CPAP, start workup – CXR, and CBC).
- Recognize that respiratory distress in an infant may not just be sepsis and start and adjust respiratory support.
- Interpret CXR and lab values as RDS.
- Recognize that treatment of RDS requires surfactant as well as invasive ventilatory support.

**FUTURE DIRECTIONS**
- Virtual or in-person implementation of the simulation to elicit feedback with further optimization.
- Testing to assess simulation effectiveness.
- Pre and post testing to assess knowledge retention.
- Monitoring uptake of RDS best practices within BMC after establishment of simulation curriculum.
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Collaborators and Thanks

- Bugando Medical Center and Staff
- Colleen Fant, MD
- Elizabeth Groothuis, MD