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Development of Maine Ongoing Outreach Simulation Education (MOOSE), a Novel Telesimulation Program, to Improve Neonatal Resuscitation in a Rural Community Hospital

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Development of Maine Ongoing Outreach Simulation Education (MOOSE), a Novel Telesimulation Program, to Improve Neonatal Resuscitation in a Rural Community Hospital

Allison Zanno MD, Misty Melendi MD, Micheline Chipman, RN, MSN, CHSE, Jeffrey Holmes MD, & Alexa Craig MD on behalf of the MOOSE Research Team

Why does Neonatal Resuscitation Program Training Matter?

- >50% of neonates in Maine are born in community hospitals
- 2/3 deliver less than one infant per day
- State-wide database of infants with HIE* revealed a significant outcome disparity for those born at a community hospital compared to a tertiary care center
- Neonatal resuscitation practices contribute to this difference

*Hypoxic ischemic encephalopathy

Simulation

- Neonatal resuscitation training decreases neonatal mortality
- Participant skills improve following trainings but decline over time
- In-person simulations are challenging to access regularly across rural state
- In-situ simulation can identify latent safety threats
- Telesimulation provides opportunity for increased frequency

Objective

To implement monthly neonatal resuscitation telesimulation team training sessions in a rural community hospital delivery room that is feasible, sustainable and replicable at other sites.

Methods

- We trained local simulation experts at the community hospital and utilized debriefing virtually by board certified simulation trained neonatologists and Hannaford Simulation Center experts.
- We identified latent safety threats during simulations and debriefings for immediate feedback to the rural community hospital team.

Simulations

Laerdal SimNewB®, SimCapture®, and Zoom bring neonatal and simulation experts to the delivery room in a rural community hospital.

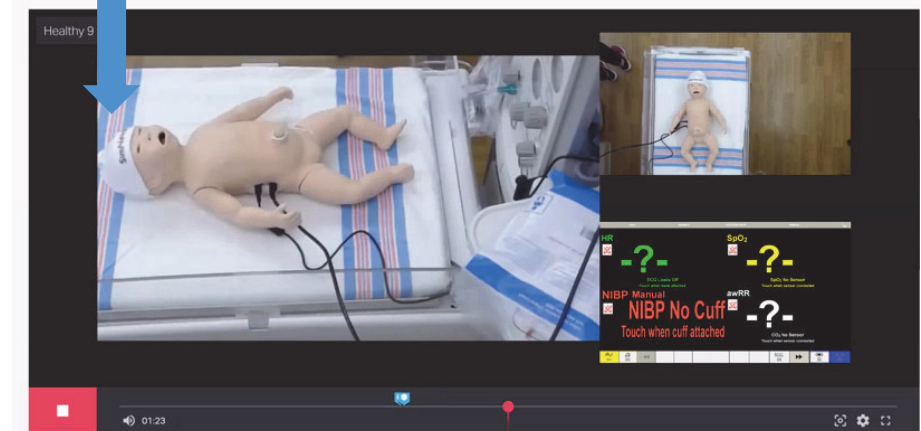
Simulation Cases:

1. Positive Pressure Ventilation (PPV)/Intubation
2. Full Code



B-Line Cameras/Microphones

Sim NewB®



SimCapture® and B-Line Systems, Remote View

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Data Collection Tools

Tools completed prior to the on-site training, immediately post-training, 6 months and 12 months post-training (both for the on-site and telesimulation):

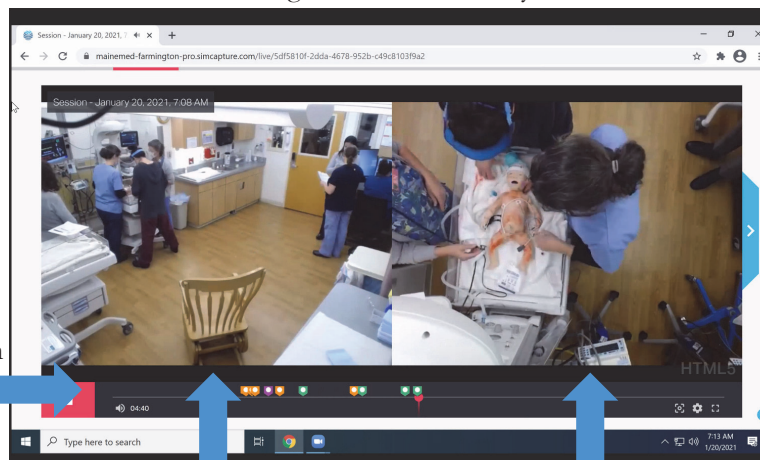
1. Experience Pre-Assessment (self-efficacy pre-assessment)
2. Post-Survey (self-efficacy post-assessment)

Tools completed after each simulation event:

3. Scoring Tool for Adherence to the Neonatal Resuscitation Guidelines
4. TeamSTEPPS 2.0 Team Performance Observation Tool
5. The Mayo High Performance Teamwork Scale

Live Simulation

Watching simulation remotely



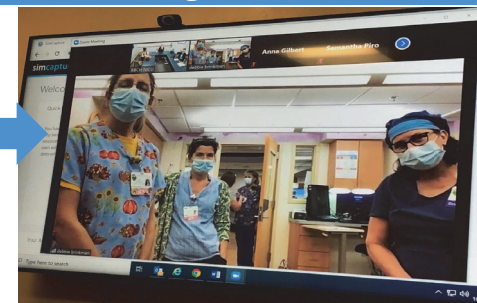
Simulation being recorded

View of entire room, to analyze crowd control, teamwork, and spacing issues

Close up view of infant to analyze NRP skills

Sim Debriefing

Debriefing via Zoom



Latent Safety Threats

- Equipment Needs and Use
- Technical Skill/Knowledge Gaps
- Resource Utilization/Standardization
- Emergency Blood Access/Process
- Medication Dosing and Administration
- Communication and Team Dynamics

Conclusions/Future Directions

- We successfully launched a telesimulation pilot program for neonatal resuscitation at a rural community hospital.
- System evaluation and improvements are identified real time during simulations and serve as the basis for local quality and safety initiatives. Examples include standardizing mechanism for calling in pediatrician, protocols for LMA placement, availability of equipment such as endotracheal tube tape.
- Training of local simulation champions enables sustainability after completion of the telesimulation pilot.
- We plan to expand this program to all delivery room hospitals in Maine.

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