

The Littlest Emergencies – Successful Implementation of Neonatal Resuscitation Program Provider Training for First Responders to Improve Neonatal Outcomes

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BACKGROUND

Out-of-hospital (OOH) births represent approximately 450 of 93,000 annual births in Southeast Texas Regional Advisory Council (SETRAC) hospitals. Unplanned prehospital deliveries have been linked to increased morbidity and mortality for both the newborn and the mother. Insufficient training among emergency medical services (EMS) providers and lack of appropriate resuscitation equipment needed to effectively resuscitate and stabilize neonates have been cited as contributing factors leading to poor outcomes. Neonatal resuscitation is best achieved through implementation of the American Academy of Pediatrics (AAP) Neonatal Resuscitation Program® (NRP®), the evidence-based standard training and skills to improve neonatal outcomes. Less than one percent of emergency medical technicians (EMT)/paramedics in the SETRAC region are NRP trained.

PURPOSE

The SETRAC Perinatal Education Collaborative, a quality improvement (QI) collaborative among hospitals representing 25% of Texas births, implemented a quality improvement initiative to train EMS in NRP to improve the knowledge base in EMS neonatal resuscitative management. QI goals included improving ambulance readiness for providing neonatal resuscitation and improving specific implementation of NRP-specific skills in OOH birth and neonatal emergencies.

INTERVENTION

The SETRAC Perinatal Education Collaborative provided NRP training classes for EMS agencies in the region.

- 162 EMS providers successfully completed NRP training with instructors from SETRAC member hospital Neonatal Intensive Care Units (NICUs).
- The training included scenario-based simulations involving OOH situations.
- Scenarios included a focus on thermoregulation and airway support for providers without in-hospital tools and resources.
- De-identified prospective data was collected through a pre/post-questionnaire administered on site.
- Statistical analysis of the collected data comparing the pre-and post- NRP certification training was performed for objectives-based metrics.

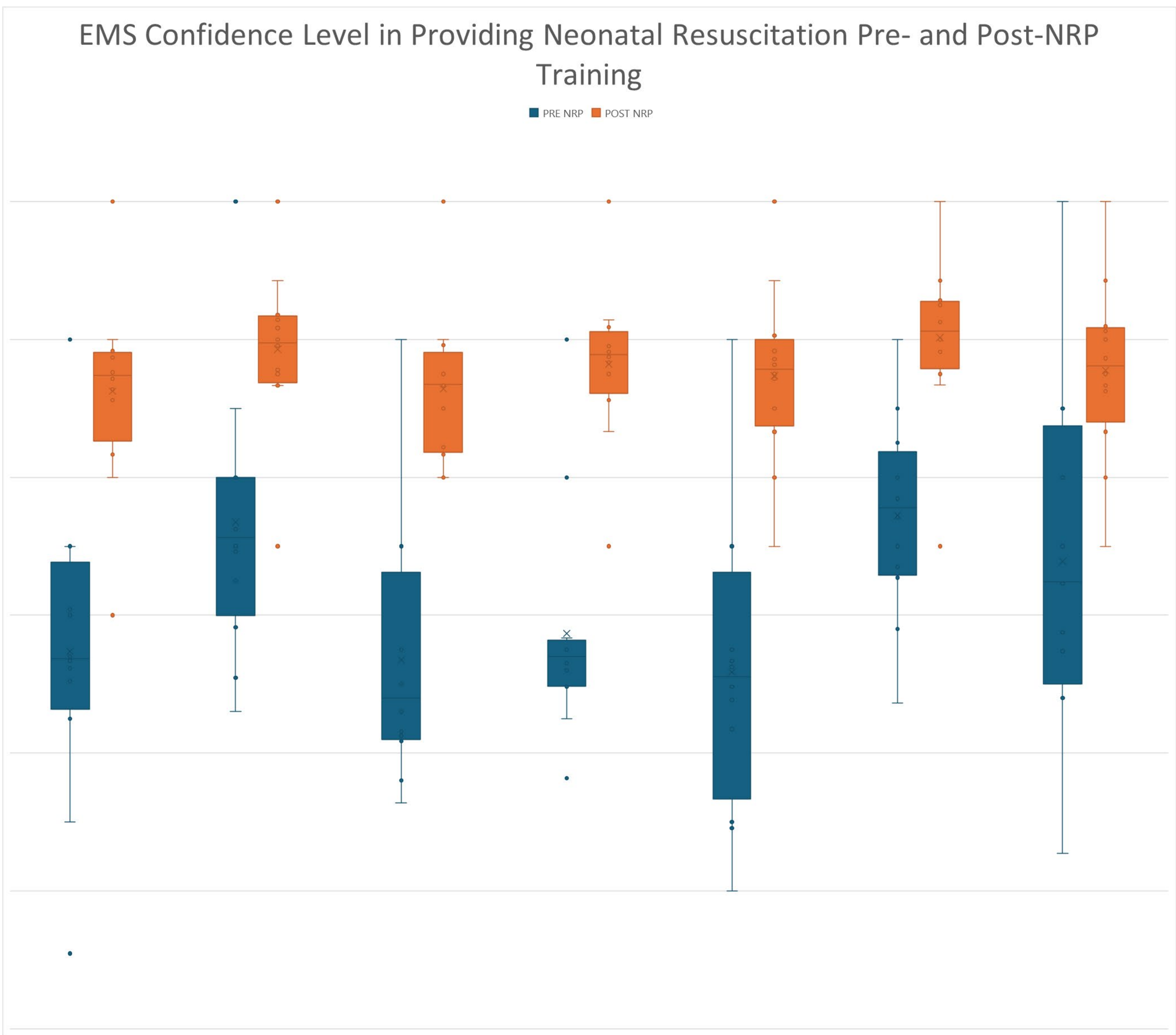


OUTCOMES

EMS providers rated their confidence in:

- Ability to provide effective neonatal resuscitation
- Initial NRP steps
- Identification of appropriate positive pressure ventilation & ventilation pressures in the neonatal population
- Administration of epinephrine and volume expanders
- Correct population to provide NRP interventions
- Identification and use of correct equipment to perform NRP
- Correct cardiac compression initiation/cessation and technique
- Transporting neonates safely

EMS provider-rated (n=162) confidence in providing effective neonatal resuscitation improved 29%. Confidence in their ability to perform effective positive-pressure ventilation to neonates improved 16%. Confidence in safely transporting neonates improved 28%. Ability to correctly identify and use the appropriate NRP equipment needed to provide neonatal resuscitation improved 33%. Correct cardiac compression initiation/cessation and correct compression technique improved 17%.



PRACTICE IMPLICATIONS

This QI initiative highlights the critical opportunity to support EMS providers in the knowledge and skills necessary to perform NRP resuscitation and safe transport for critically ill neonates born outside of the hospital setting. Formal NRP training of EMS resulted in significant improvement in their confidence in their ability to provide neonatal resuscitation to newborns. Literature demonstrates that poor quality resuscitation of OOH born neonates results in substantially worse survival and neurodevelopmental disability. As OOH birth continues to rise in the United States, successful NRP training for EMS providers is an opportunity to provide the best possible care and improve outcomes for this vulnerable population.

PLANNING OPPORTUNITIES

- First Responder schedules
- Class locations
- NRP instructor availability
- First Responder supplies and equipment
- Realistic OOH scenarios

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