



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

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 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 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/Objective

The SETRAC Perinatal Education Collaborative, a quality improvement collaborative among birth 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, improving ambulance readiness for providing neonatal resuscitation, and improving specific implementation of NRP in OOH birth and neonatal emergencies.

Intervention

The SETRAC Perinatal Education Collaborative provided NRP training classes for various EMS agencies in the region. 162 EMT/paramedics (EMS) successfully completed NRP training with NRP instructors from SETRAC member hospital NICUs. Scenarios involved OOH situations that included a focus on thermoregulation and airway support for providers without in-hospital tools and resources. Deidentified prospective data was collected through a pre/post-questionnaire administered on site. Statistical analysis of the exported data comparing the pre-and post- NRP certification training was performed for objectives-based metrics.

Outcomes/Impact

Provider-rated confidence in providing neonatal resuscitation improved from an average of 6.68 (on a 10-point scale) pre-NRP training to 8.64 post-training. Confidence in their ability to perform effective positive-pressure ventilation to neonates improved from 7.67 pre- to 8.93 post-training. Confidence in safely transporting neonates improved from 6.74 pre- to 8.63 post-training. Their ability to correctly identify and use the appropriate NRP equipment needed to provide neonatal resuscitation improved from 6.59 pre-training to 8.74 post-training. Correct cardiac compression initiation/cessation and correct compression technique improved from a pre-training rating of 7.72 to a post-training rating of 9.01.

Conclusion

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 with the EMS provider population involved. 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 completion for EMS providers is an opportunity in the provision of best possible care to this vulnerable population that should be addressed.

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