# Study identifies challenges to neonatal resuscitation outside of hospitals

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With about 62,000 babies born outside of hospitals each year, and 1 in 10 newborns needing help to start breathing, emergency medical services (EMS) responders must be ready to give expert newborn resuscitation care. However, new research being presented at the American Academy of Pediatrics (AAP) 2019 National Conference & Exhibition found many responders lack recent training in resuscitation techniques for infants and experience in caring for newborns.

The research abstract, "When Seconds Matter: Neonatal Resuscitation in the Prehospital Setting," will be presented on Friday, Oct. 25, at the Ernest N. Morial Convention Center in New Orleans.

"Actions taken during the first seconds to minutes after a child's birth can make the difference between life, death, and lifelong disability," said abstract author Trang Huynh, MD, FAAP, Assistant Professor of Pediatrics and Director of Neonatal Telemedicine at Oregon Health & Science University.

"When EMS responders are called to help with an out-of-hospital birth, they need to be able to act decisively and effectively if the baby isn't breathing," Dr. Huynh said. However, Dr. Huynh said her team's research shows that the effectiveness of neonatal resuscitation by EMS responders may be limited because pediatric EMS calls are infrequent, age-appropriate pediatric equipment is sparse, and first responders face unpredictable settings.

For the study, funded by the National Institutes of Health's National Institute for Child Health and Human Development, 45 EMS teams consisting of 262 paramedics and emergency medical technicians (EMTs) were recruited from public fire and private transport agencies in Oregon. Participants responded to questions about neonatal resuscitation training, which determined that:

- 66% either never had the training or completed it more than 2 years ago.
- 16% reported feeling very or extremely comfortable caring for children under 1 month (compared with 71% for children aged 12-18 years), and 8% were not comfortable at all (compared with 1% for children aged 12-18 years).
- half of the EMTs had not provided cared for a newborn for more than a total 30 days in the last year.

The researchers also analyzed videos of EMS teams responding to out-of-hospital neonatal simulations, in which the team responded to a simulated 911 dispatch to a home for a birth in progress. Neonatal Resuscitation Program (NRP) guidelines, she said, recommend maintaining body temperature by drying and warming the baby, and using a bag valve mask within the first minute after delivery if the baby is not breathing.

The video analysis showed that 20% of the teams dried and 2% of them warmed the newborn within the first 30 seconds, as according to NRP recommendations. While 100% of teams used bag valve breathing assistance, only 9% of the teams provided it within 60 seconds, as recommended by NRP.

None of the teams had neonatal bags; all had either pediatric or adult bags. In addition, 88% of the teams bagged at a rate that was too slow (less than 40 breaths per minute), and 96% bagged with too much

volume. Only 59% evaluated for adequate ventilation with a bag valve mask.

Dr. Huynh said the findings highlight the importance of including the needs of prehospital EMS in efforts to improve neonatal resuscitation. She said potential improvement interventions include EMS-specific neonatal training, refresher trainings and simulations, and EMS equipment specific for the neonatal population.

**More information:** Abstract title: When Seconds Matter: Neonatal Resuscitation in the Prehospital Setting

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