Effectiveness of Car Seat Safety Training at NICU Discharge
Mitzi M. Wiggin, MS, PT
Sandra Engle (Presenter)
Texas Children's Hospital
Katy Wilkinson, Racelli Caballes, Robin Rae, Melissa Tharp, Rose Toruno, Kristen Beck, Stephani O'Connor, Frank McCormick, Emily Berman

**Problem:** Parents are unaware or misinformed on proper use of Car Restraining Systems (CRS) and underestimate their infant's risk for injury. While National Highway Traffic Safety Administration statistics show 97.1% of infants under twenty pounds were restrained in a CRS, 83.9% were improperly restrained. Car seats can only offer protection if installed correctly. Safe transportation of infants should be a priority in education of parents during discharge planning from NICU. Since parent education levels vary and amount of information parents receive at discharge is overwhelming, providing educational materials alone may not be effective in eliminating CRS installation errors. There is no standardized practice for presenting information to parents.

**Evidence:** With 100% correct use of a CRS, the American Academy of Pediatrics predicts about 53,000 injuries and 500 deaths could be prevented each year from birth to four years of age. Parents do not seek information on car seats but rely on instructions on box and family and friends rather than medical professionals or child seat safety experts. The literature reports current strategies on providing education materials yielded less than two percent increase in improved car seat use.

**Strategy:** A hands-on guided car seat training was implemented in level 2 and 3 NICU nurseries at discharge. Parents were given a pre test on basic car seat knowledge and observed placing infant in car seat and car seat in car based on information provided to them at admission. A hands-on guided training was then provided and parents retested on knowledge and skill. Scores were placed in a data base and results analyzed using SPSS statistical package.

**Practice change:** Parents of NICU infants will receive hands-on guided training on car seat safety and installation of CRS in car and infant in car seat as part of standard practice versus providing educational materials alone. Support for hands-on training was mentioned in literature and provided the basis of our program design.

**Evaluation:** A pretest consisting of 13 questions was given to all parents prior to training. This pretest assessed the information provided to all parents at NICU admission on car seat safety and installation of car seats. A skills test on placing infant in car seat and car seat in car was also given prior to training. Following the hands-on intervention, a posttest and skills test was readministered and scores entered into a data base.

**Results:** A statistically significant difference was found between pre and post test scores, indicating a higher rate of success following hands-on guided training versus reading literature. Car seat safety program will be adapted to reflect the evidence for hands-on training with parents on car seat safety and installation.
Recommendations:
1. Follow-up on parent retention between 6-12 months post discharge to determine if hands-on training impacts parental performance in safely installing car seats and infants in cars long term.
2. Gather additional evidence to assist in determining whether hands-on training should become the standard for evidence base practice in improving parental performance in safely installing car seats and infants in car seats.

Lesson Learned: A statistically significant difference was seen between pretest scores and post test scores following hands-on training. Regardless of education level or economic status, the hands-on training resulted in a marked improvement in parent's ability to safely place their infant in a car seat and car seat into the car. Parents are overwhelmed with the amount of information provided at NICU discharge and do not fully comprehend the safety issues involved with transporting their newborn. The one on one training assisted parents in developing the competence they needed in transporting their infant safely in a car.

Conclusions: Finding the best training method to assist parents in safe car seat installation and positioning will help reduce the number of deaths in motor vehicle accidents in this vulnerable population.

References: