WEBER STATE UNIVERSITY

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ANNIE TAYLOR DEE SCHOOL OF NURSING

NEONATAL EDUCATION AND COGNITIVE AIDS FOR EMERGENCY MEDICAL SERVICES PROFESSIONALS

A Project of Empowerment

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ABSTRACT

Emergency medical services (EMS) professionals transport few neonates yearly.[1] They are expected to know all steps and medications needed to assist with transition as outlined by the Neonatal Resuscitation Program (NRP). NRP guidelines are comprised of multiple interventions and medications performed in a specific order to assist the transition of a neonate with fluid-filled lungs into breathing air and circulating more oxygen.[2] The error of not following the NRP algorithm, in conjunction with incorrect medication doses, have caused an increased morbidity and mortality of neonates.[1,2] Highly stressful events, such as resuscitation of a neonate, affect memory and retrieval of working knowledge, causing an individual's brain to insert missing pieces of information with more familiar skills and knowledge.[3,4] In this case, the familiar skills and knowledge is reverting to medications and doses for the adult and pediatric populations.[4] The purpose of this project is to show how effective education of the EMS professionals on NRP guidelines and use of a linear cognitive aid (CA), sized specifically to be worn with their badge, can create empowerment to appropriately care for this patient population. This accessible aid can decrease knowledge decay and prompt recall of the appropriate NRP interventions and medications in high-stress situations.[5] With appropriate interventions, there can be a decrease the morbidity and mortality of the neonates in their care.[5]

PICO QUESTION

In EMS personnel (EMTs and paramedics working in an ambulance or in the field) that infrequently provide neonatal resuscitation, would a small cognitive aid (in the form of an informational card, name badge sized, attached to the person) as compared to current standards of care (information available in NRP books, protocol folders, "Googling" information on their phones) create empowerment by increasing skills and competency of neonatal interventions during the neonatal resuscitation/transition period?

LITERATURE REVIEW

The literature review provided support for increased education and a small, wearable CA. These CAs should be provided to the EMS professionals to provide empowerment in caring for this patient population.

- EMS professionals transport a small number of neonates, yet are expected to adequately care for them.[1]
- A highly stressful event affects memory and working knowledge retrieval. Familiar skills and knowledge are used inappropriately.[3,4]
- Medication errors (giving the neonate adult doses) are the most common issue when caring for a neonate. These errors have cause a high incidence of morbidity and mortality.[1]
- A small CA and easy-to-remember education will assist in the retrieval of appropriate interventions

PROJECT METHODOLOGY

EMS professionals care for a wide variety of patients. A neonate in distress is a high-risk and low-volume patient population. Evidence of a four-year chart review in two large metropolitan areas showed a high morbidity (90%) and mortality (65%) rate for neonates transported by "lights and sirens."[1] Due to unfamiliarity, the need for additional education on neonates is a highly requested lecture in the Intermountain area. Many EMS professionals do not feel comfortable caring for these patients due to the lack of quality education and low frequency of interactions with them.

PLANNING & IMPLEMENTATION

A thorough literature review supported the need for education and a cognitive aid (CA) for EMS professionals.[1,3,4,5,6] With these tools, it was anticipated they would empower them to care for these patients appropriately and efficiently, decreasing the risk of morbidity.[2] Neonatal Resuscitation consisted a four hour class with a 310-page book. The goal was to create an education platform of basic content that covered all salient information in an easy-to-remember manner. A CA was created and reviewed after the class was completed. A survey was sent out before the class and planned to be given six months after the completion of the class.

Teaching Methods and Content

- PowerPoint presentation
- Lecture
- CA card with NRP algorithm, medications, and doses.

Evaluation

A pre- and post-survey were created. The information will be used to evaluate

- Pre-education knowledge of NRP steps and medications.
- Six months post-education knowledge retention of the education and use of the CA.
- Use of the CA in the field and usefulness of this tool.

Follow-up Recommendations

- Improved and simplified education to be performed yearly.
- Provided CA review and mock scenarios with the card in the class.
- Reviewed any "in the field" resuscitation that occurs and review the usefulness of the CA

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FRAMEWORK

The Iowa Model was developed at the University of Iowa Hospitals and Clinics and was developed as a method for an organized approach to help identify issues, find research solutions, and implement changes using evidence-based practices. The systematic multi-step process of this model proved as an important way to produce quality care and awareness of an issue that is life-threatening.[7,8]

CONCLUSIONS

This project was completed with the purpose to highlight awareness of poor outcomes of neonates when transported by EMS professionals who usually transport adult and pediatric populations. Evidence indicated that neonatal population is different in that they are transitioning from a fluid-filled environment to one of air and oxygen. If the neonate is unable to transition, they need immediate respiratory support to assist with this adaptation.[2]

- During highly stressful events, such as a neonatal resuscitation, the brain inserts information and causes erroneous retrieval of working memory.[3]
- When EMS professionals are under stress, their brain reverts to resuscitative efforts for adults and pediatric populations. Neonatal morbidity and mortality are affected by an incorrectly performed resuscitation.[1,3,4,5]
- Educating the EMS professionals creates empowerment. This education includes presenting NRP information via PowerPoint presentation and providing a CA, which shows the NRP algorithm and medications with appropriate doses in the form of a small card attached to their badge.[4,5]

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