

AEROMED OUTREACH

FEBRUARY 2017

INSIDE THIS ISSUE:

- RUCK ACROSS AMERICA** 1
- SEBRING FD LZ TRAINING CLASS** 1
- PHYSICIAN'S ARTICLE** 1
- PHYSICIAN'S ARTICLE CONT** 2

UPCOMING OUTREACH ACTIVITIES

- **Guy Expo Wheel-O-Rama March 11th 0830am-2:30pm Bradenton Area Convention Center.**
- **Sebring Races March 15-18th Sebring International Raceway.**
- **Aeromed Community Education Session April 6 at 0900. Contact Jennifer Mefford at jmefford@tgh.org for more information.**

RUCK ACROSS AMERICA

Aeromed crewmembers John Bitner and Auri Miller recently participated in an event called Ruck Across America. They rucked 32 miles in Florida at night carrying a Ruck and a Flag. The Ruck and Flag will be passed from person to person around all 50 states until it ends up at the Special Operations Memorial at MacDill AFB where the event

started. The Ruck Across America event helps build teamwork and leadership. It raises awareness and money for veterans organizations such as Warrior 360, and it brings veterans and civilians together to accomplish a mission. Each person who carries the Ruck may add a patch or coin.



SEBRING FIRE DEPARTMENT LZ TRAINING CLASS



PHYSICIAN ARTICLE

Cuffed Endotracheal Tubes for Pediatric Endotracheal Intubation

Intubation of the prehospital pediatric patient is rare. The decision to intubate

children in the field is a topic of debate. A paper published in the Journal of the American Medical Association (JAMA) in 2000 shows data that performing endotracheal intubation (ETI) may have deleterious effects on neurologic out-

come and overall survival.¹ This article discusses whether we should use cuffed or uncuffed endotracheal tubes (ETTs) once we have made a decision to intubate. In the adult, the narrowest

PHYSICIAN'S ARTICLE CONT.

part of an adult's airway is the glottis. The narrowest part of the pediatric airway is the cricoid cartilage.

Because of this anatomic difference, for many years it was recommended that patients under eight years of age should have uncuffed endotracheal tubes.² The primary concern is that cuffed tubes may injure the subglottic tissues and lead to tracheal stenosis. One benefit of uncuffed tubes is that the diameter can be increased slightly. It is recommended that cuffed tubes be decreased in size by 0.5 mm– 1.0 mm. Considering that Poiseuille's Law states that flow is directly proportional to radius to the fourth power (r^4), an increase in ETT internal diameter will help to improve airway pressures and ventilation. The use of a cuffed tube, however, offers improved ventilatory control and pressure management and monitoring. Flow is also *indirectly* proportional to length. This is why we use short, fat intravenous catheters for

volume resuscitation.

The American Heart Association (AHA) updated their guidelines in 2010 to indicate that the use of either cuffed or uncuffed ETTs is acceptable in infants and children. The newer ETTs have high-volume, low-pressure cuffs that reduce pressure on subglottic tissues, which reduces concern about post extubation complications. The literature indicates that there may be no difference in tracheal injury between cuffed and uncuffed tubes.^{3,4} The use of cuffed ETTs also decreases the need for tube exchange for size adjustment. The use of length-based tape or formulae to choose tube size may not identify the proper size for uncuffed tubes. It has been shown that up to 30% of ETIs with uncuffed tubes require re-intubation for size adjustment.⁵

An informal poll that I conducted with EMS agencies and pediatric trauma centers in the region, indicates that most, but not

all, are intubating with cuffed ETTs. The use of high volume, low pressure cuffed ETTs in children is now commonplace.

References:

1. Gausche M, et al: Effect of out-of-hospital pediatric endotracheal intubation on survival and neurological outcome: A controlled clinical trial. *JAMA* 2000; 283:6:783-790.
2. Newth CJ, et al. The use of cuffed versus uncuffed endotracheal tubes in pediatric intensive care. *J Pediatr*. 2004;144(3):333-337.
3. Weiss M, et al. Prospective randomized controlled multi-centre trial of cuffed or uncuffed endotracheal tubes in small children. *Br J Anaesth*. 2009;103(6):867-873.
4. Deakers TW, et al. Cuffed endotracheal tubes in pediatric intensive care. *J Pediatr*. 1994;125(1):57-62.
5. Taylor C, Subaiya L, Corsino D. Pediatric cuffed

endotracheal tubes: an evolution of care. *Ochsner J*. 2011;11(1):52-56

Marshall A. Frank,
DO, MPH, FACEP, EMT-P
Medical Director,
Tampa General Hospital,
Aeromed
Affiliate Assistant Professor,
Department of Emergency Medicine
University of South Florida
TEAMHealth/
Tampa General Hospital