

**Resuscitation. 2014 Mar 15. [Epub ahead of print]**

**An update on out-of-hospital airway management practices in the United States.**

**Diggs LA, Yusuf JE, De Leo G**

**OBJECTIVE:** We characterized out-of-hospital airway management interventions, outcomes, and complications using the 2012 NEMSIS Public-Release Research Data Set containing almost 20 million Emergency Medical Services activations from 40 states and two territories. We compared the outcomes with a previous study that used 2008 NEMSIS data containing 16 states with 4 million EMS activations.

**METHODS:** Patients who received airway management interventions including endotracheal intubation (ETI), alternate airways (Combitube, Laryngeal Mask Airway (LMA), King LT, Esophageal-Obturator Airway (EOA)), and cricothyroidotomy (needle and surgical) were identified. Using descriptive statistics, airway management success and complications were examined in the full cohort and key subsets including cardiac arrest, non-arrest medical, non-arrest injury, children<10 years, children 10-19 years, rapid sequence intubation (RSI), population setting, US census region, and US census division.

**RESULTS:** Among 19,831,189 EMS activations, there were 74,993 ETIs, 21,990 alternate airways, and 1332 cricothyroidotomies. ETI success rates were: overall 63,956/74,993 (85.3%; 95% CI: 85.0-85.5), cardiac arrest 33,558/39,270 (85.5%), non-arrest medical 12,215/13,611 (89.7%), non-arrest injury (90.1%), children<10 years 2069/2468 (83.8%), children 10-19 years 1647/1900 (86.7%), adults>19 years 58,965/69,144 (85.3%), and rapid sequence intubation 5265/5658 (93.1%). Major complications included bleeding 677 (4.4 per 1000 interventions), vomiting 1221 (8 per 1000 interventions), esophageal intubation immediately detected 874 (5.7 per 1000 interventions), and esophageal intubations other 219 (1.4 per 1000 interventions).

**CONCLUSIONS:** Low out-of-hospital ETI and alternate airway success rates were observed. These data may guide national efforts to improve out-of-hospital airway management quality leading efforts to better educate providers on ETI.