

Dinosaur or Unicorn?
Is Prehospital Intubation
Detrimental or Elemental?
THE DEBATE

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Chicago



CHICAGO



Fire Based EMS

2.7 million Population

All ALS Ambulances

1300 Paramedics

600 Intubations per year

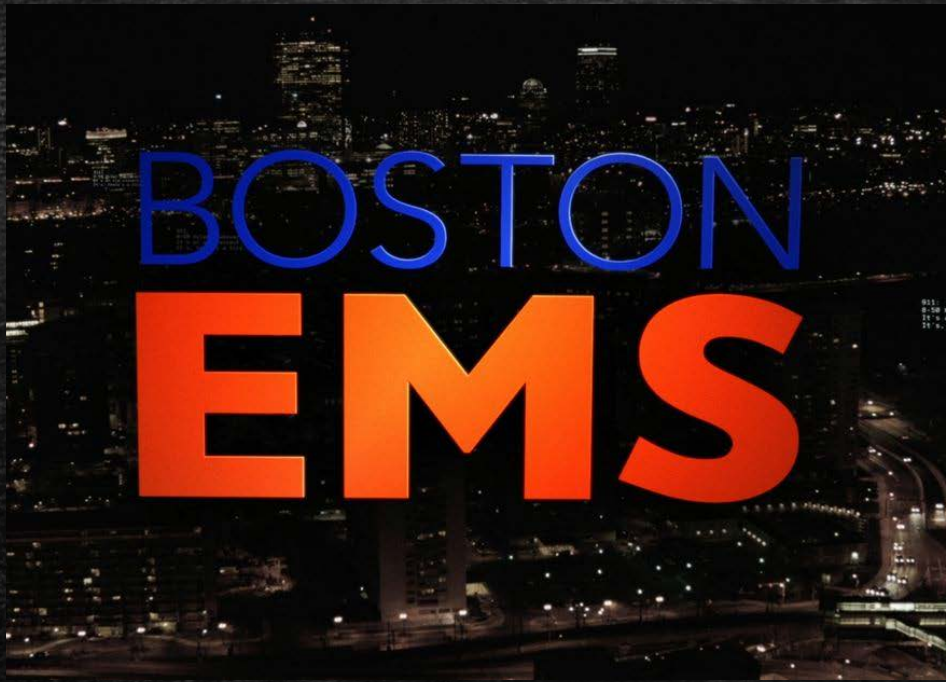
No DAI/RSI

2160 SGA per year

Boston



Boston



Third Service EMS

659,000 Population

Two Tiered Response

50 Paramedics

~500 intubations per year

RSI with VL

Less than 10 SGA per year

Both have Famous Pie



Boston Cream Pie





Intubation is a Dinosaur

Why Keep ETI if SGA is better?

- Research shows better outcomes for cardiac arrest
- Training required to maintain skill proficiency
- System staffing limitations
- *Primum non nocere*

Pragmatic Airway Resuscitation Trial (PART)



What is the effect of an initial airway management strategy using laryngeal tube insertion vs endotracheal intubation on survival among adults with out-of-hospital cardiac arrest?

CONCLUSION Initial laryngeal tube insertion, compared with endotracheal intubation, was associated with greater likelihood of 72-hour survival.

POPULATION

1829 Men
1173 Women



Adults with nontraumatic out-of-hospital cardiac arrest

Median age: 64 years (IQR, 53-76)

LOCATIONS

27 Emergency medical service agencies randomized in 13 clusters



INTERVENTION

3004 Patients enrolled
3000 included in primary analysis

1505

Laryngeal tube



1499

Endotracheal intubation



PRIMARY OUTCOME

Survival to 72 hours after initial cardiac arrest

FINDINGS

72-Hour survival

Laryngeal tube

275 Patients



18.3%

Endotracheal intubation

230 Patients



15.4%

Adjusted difference between groups:

2.9%

(95% CI, 0.2% to 5.6%)

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Wang HE, Schmicker RH, Daya MR, et al. Effect of a strategy of initial laryngeal tube insertion vs endotracheal intubation on 72-hour survival in adults with out-of-hospital cardiac arrest: a randomized clinical trial [published August 28, 2018]. *JAMA*. doi:10.1001/jama.2018.7044

Weighing the Research

- No strong evidence based support of ETI in terms of survival advantage
 - Lowered prioritization in cardiac arrest management
 - No benefit in pediatric patients
- What about trauma, burns, respiratory conditions?

Training Demands

- Intubation is a complex psychomotor skill
- What determines the proficiency of a paramedic with ETI?
 - Quality, orientation, types of experiences in initial training
 - Frequency of performance
 - On-scene oversight and supervision of ETI performance
- SGA is rapid, simple, efficient way to manage airway
- *Are the hours required to keep ETI as a skill worth it?*

System Staffing Configurations

- Frequency of performance is a critical factor
- Skill dilution with higher numbers of paramedics
- Cardiac arrests often receive SGA first by BLS providers

Primum non nocere

- The Failed Airway
- Responsibility of the Medical Director to ensure proper training and Quality Assurance/Improvement

Intubation is a Unicorn

Prehospital Rapid Sequence Intubation Improves Functional Outcome for Patients With Severe Traumatic Brain Injury

A Randomized Controlled Trial

Stephen A. Bernard, MD, ¶, Vina Nguyen, BSc†, Peter Cameron, MD‡, ¶, Kevin Masci, §, Mark Fitzgerald, MBBS*, ¶, David J. Cooper, MD‡, ¶, Tony Walker, B Paramed Std, MEd, §, Paul Myles, MD‡, ¶, Lynne Murray, BAppSc‡, ¶, David, McD, Taylor, MD||, Karen Smith, BSc, MEd, PhD§, Ian Patrick, §, John Edington, MB, ChB§, Andrew Bacon, MBBS§, Jeffrey V. Rosenfeld, MD, MS‡, ¶, and Rodney Judson, MBBS||*

Results: A total of 312 patients with severe TBI were randomly assigned to paramedic rapid sequence intubation or hospital intubation. The success rate for paramedic intubation was 97%. At 6 months, the median GOSe score was 5 (interquartile range, 1–6) in patients intubated by paramedics compared with 3 (interquartile range, 1–6) in the patients intubated at hospital ($P = 0.28$). The proportion of patients with favorable outcome (GOSe, 5–8) was 80 of 157 patients (51%) in the paramedic intubation group compared with 56 of 142 patients (39%) in the hospital intubation group (risk ratio, 1.28; 95% confidence interval, 1.00–1.64; $P = 0.046$). There were no differences in intensive care or hospital length of stay, or in survival to hospital discharge.

Conclusions: In adults with severe TBI, prehospital rapid sequence intubation by paramedics increases the rate of favorable neurologic outcome at 6 months compared with intubation in the hospital.

(*Ann Surg* 2010;252:959–965)

Intubation in Cardiac Arrest




[Journal of Anesthesia](#)

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Tracheal intubation by paramedics under limited indication criteria may improve the short-term outcome of out-of-hospital cardiac arrests with noncardiac origin

Authors

Authors and affiliations

Yutaka Takei, Miki Enami, Takahiro Yachida, Keisuke Ohta, Hideo Inaba 

Conclusion

When subjects with difficult airway are excluded, tracheal intubation according to the limited indication criteria and well-organized protocol in Japan may improve the short-term outcome of OHCA of noncardiac origin. A large prospective study is needed to determine the general effects of tracheal intubation on the long-term outcome of OHCA with disturbed ventilation.

How Many Attempts Are Required to Accomplish Out-of-hospital Endotracheal Intubation?

Henry E. Wang, MD, MPH, Donald M. Yealy, MD

Conclusions: Out-of-hospital rescuers often require multiple attempts to accomplish ETI. A protocol limit of three attempts offers reasonable opportunity for accomplishing ETI within the constraints of the out-of-hospital environment.

ACADEMIC EMERGENCY MEDICINE 2006; 13:372-377 © 2006 by the Society for Academic Emergency Medicine

Keywords: intubation (intratracheal), emergency medical services, allied health personnel

Why you might need to ETT?

Trauma, Burns, Respiratory Emergencies

Drug overdose

What all those studies don't account for

- New developments :
 - Apneic oxygenation
 - Bougies
 - Video Scope
 - Better EtCO₂ access

Audience Participation!

My agency uses supraglottic airways as the....

140 out of 142 people answered this question



How do we save the....



**SAVE OUR
ENDANGERED SPECIES**



Conclusion

- Understand the implications of ETI vs SGA research in the setting of your EMS System
- Importance of rigorous training
- Prehospital airway management is only as good as your QA program
- IF RSI-100% case review and be honest for your patients