The challenge ...

How do we take care of the airway needs of our patients without doing harm?
Paramedic Intubation Questioned

- San Diego RSI Study
  - Outcomes Worse

- Wang Papers
  - Outcomes Worse
What to do?
What MedStar Did

• **A** is for Airway Course
  – Classroom
  – Cadaver Lab

• **Single Intubation Protocol**

• **Strong CQI Program for Compliance**
ORAL ENDOTRACHEAL INTUBATION

Indications:
1. Respiratory or cardiac arrest
2. Unconsciousness without a gag reflex
3. Decreased minute volume, due to decreased respiratory rate or volume
4. Possible airway obstruction
5. GCS ≤ 8

Contraindications:
1. None in the presence of hypoxia, unresponsive to ventilation, need for advanced airway or intubation

15. IF ETT Intubation is unsuccessful after ONE attempt, insert a Combitube.

- Grasp the blade handle firmly using the index and middle fingers on the right hand and pull the blade gently to the left
- Move the blade toward midline and advance until its distal end is positioned at the base of the tongue
- The tip of curved blades should be placed in the vallecula while the tip of straight blades should be extended beyond the epiglottis.
- Lift the epiglottis either directly or indirectly, visualizing the vocal cords.
- Slip the endotracheal tube and stylet past the vocal cords about ½ to 1 inch. Gentle, downward pressure on the cricoid cartilage (Sellick’s maneuver) may assist.
- While holding onto the tube, attempt and assess ventilations
- If the chest rises and breath sounds are present, inflate the distal cuff with 5 to 10 ml of air
- Confirm proper airway placement and assesses the quality of ventilations
- Record capnographic change, breath sound locations and chest rise and fall
- Secure tube with an endolock device
- Continuously reassess breath sounds
- If ETT intubation is unsuccessful after one attempt, insert a Combitube.
Advanced Airway Attempts
First Look

- Total Calls With Advanced Airway Attempted: 550
- Total ETT Attempts: 531
- Patients With Combitubes Attempted: 493
- Combitube Attempted First: 451
- Total Number of Patients w/o Definite Airway: 72
- 7/05-3/06
- 4/06-12/06
ETT Intubations
First Look

Intubation Success Rate
Of Patients Intubated - % Intubated on First Attempt

7/05-3/06
- 84.18%
- 77.83%

4/06-12/06
- 92.39%
- 96.30%

Graph shows the intubation success rate and the percentage of patients intubated on the first attempt for two periods: 7/05-3/06 and 4/06-12/06.
BVM Usage Only
First Look

Percent of Airway Calls With BVM Used Only

7/05-3/06: 39.82%
4/06-12/06: 42.67%
Scene Times
First Look

BVM Use Only  All Advanced Airway Calls  Combitube Only w/o ETT Attempt  ETT Only w/o Combitube Use  ETT + Combitube

7/05-3/06  4/06-12/06
Second Look

- 34 months of data after change
  - 17 before/after

- Were the initial outcomes consistent?
Total Patient Contacts Second Look
November 2004 – August 2007
Advanced Airway Attempts
Second Look

Total Airway Calls: ETT/Combi/BVM
Total Advanced Airway: ETT/Combi
Number of Patients With ETT Attempted
Total Combitube Patients
Combitube w/o ETT Attempt First

Group 1: 11/1/04 - 3/31/06
Group 2: 4/1/06 - 8/31/07
Second Look Success

- ETT Overall: Group 1: 85%, Group 2: 74%
- 1st Attempt: Group 1: 90%, Group 2: 95%
- Combitube: Group 1: 15%, Group 2: 28%
- No Definite Airway after Advanced Attempt: Group 1: 7%, Group 2: 5%

Group 1: 11/1/04 - 3/31/06
Group 2: 4/1/06 - 8/31/07
BVM Only Second Look

- Group 1: 11/1/04 - 3/31/06
- Group 2: 4/1/06 - 8/31/07

- 40% for Group 1
- 40% for Group 2
Scene Times
Second Look

[Bar chart showing scene times for different categories such as Advanced Airway Calls, ETT First Attempt, Multiple Attempt, and Combi w/o ETT Attempt. Two groups are identified: Group 1 (11/1/04 - 3/31/06) and Group 2 (4/1/06 - 8/31/07).]
Advanced Airway Calls
Second Look

- 1 in 63 first group
- 1 in 74 second group
Results: Second Look

- 7% Increase in total patient contacts
- 16% Decrease in Airway Calls
- 7% Decrease in Patients with ETT Attempts
Results: Second Look

- 12% decrease in intubation success
- 6% increase in First Attempt Success
- 19% decrease in patients with unsuccessful airway attempts
Results: Second Look

- 94% Increase in Combitube use
- 182% Increase in Combitube use as Initial Airway
“I’m stumped. We’ll have to wait for the autopsy.”
Our Conclusions
Conclusions: Our Experience

- First attempt success improvement may suggest inadequate preparation
- Combitube use increased overall and may reflect a future trend
Conclusions: Our Experience

Intubation attempts can be limited to one without affecting overall airway success rates and improves scene times.
Conclusions: Our Experience

Further study is needed to assess if more accurate ETT use AND increased Combitube use decreases the adverse clinical outcomes reported elsewhere.
Treatment is just not that simple!

"Off hand, I'd say you're suffering from an arrow through your head, but just to play it safe, I'm ordering a bunch of tests."
Our Guiding Principle…

What is the least invasive way to oxygenate and ventilate the patient?

Less is More!
Thanks to
Daniel Ebbett, EMT-P
Ray Fowler, MD
Jeff Beeson, DO
Jon Puryear, NREMT-P

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