

# **One Good Attempt Doesn't Deserve Another:**

***What Happens When You  
Limit ET Tube Placement  
to One Try?***

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# The challenge ...

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

# San Diego Trial

- 13 minute LONGER scene time when RSI used on scene vs. en route
- Unrecognized 22% decrease in SpO<sub>2</sub> in 57% of reviewed cases, lasting ~160 sec.
- Intubation described as “easy” by paramedic in 84% of desaturated cases
- Hyperventilation?

# **Out-of-hospital endotracheal intubation and outcome after traumatic brain injury**

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**Out-of-hospital (vs emergency department)**  
**ET intubation was associated with**  
**increased adjusted odds of:**

***Death***

*(3.99; 95% CI 3.21 to 4.93)*

***Poor neurologic outcome***

*(1.61; 95% CI 1.15 to 2.26)*

***Moderate or severe functional impairment***

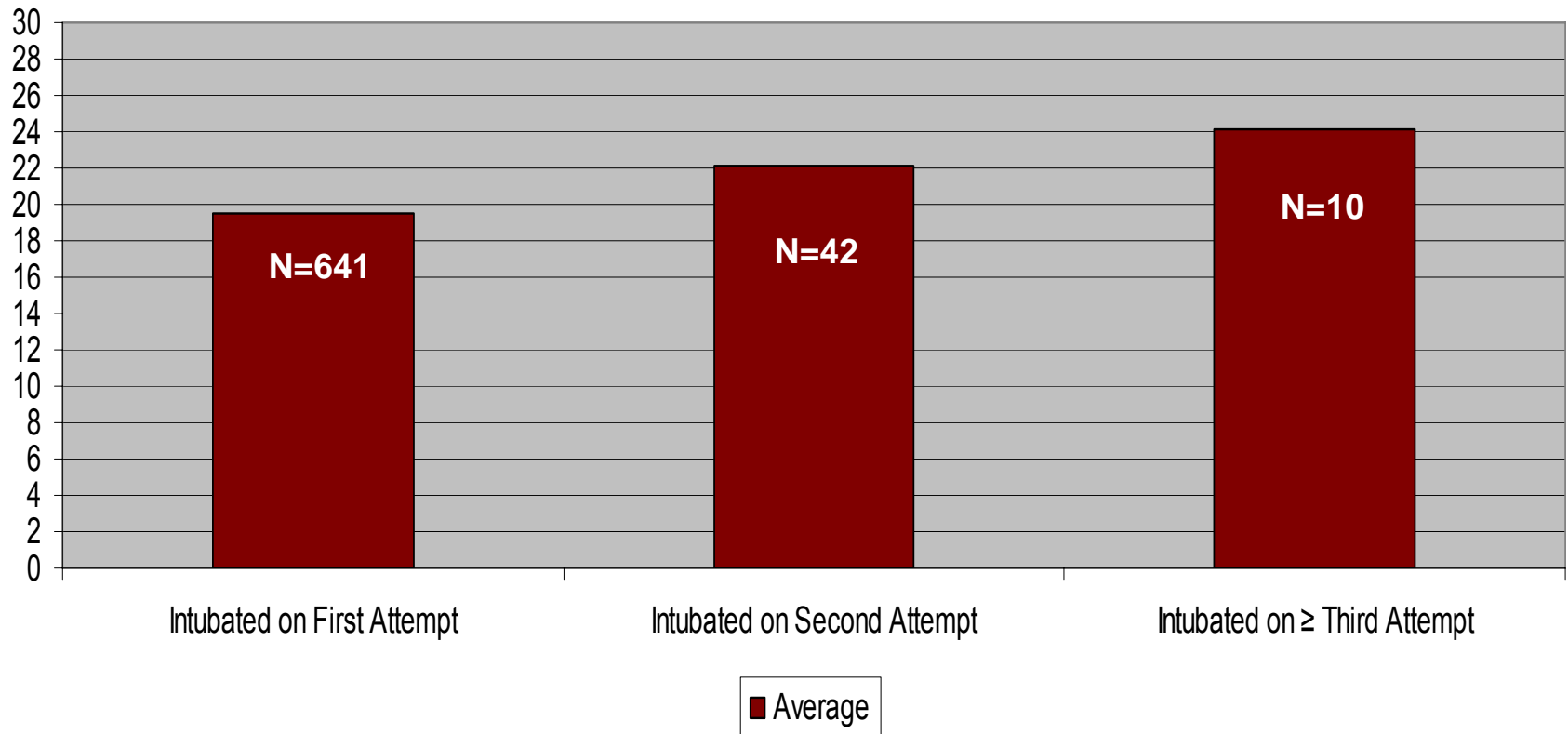
*(FIS 6 to 15; OR 1.92; 95% CI 1.40 to 2.64)*

***Severe functional impairment***

*(FIS 11 to 15; OR 1.80; 95% CI 1.29 to 2.52)*

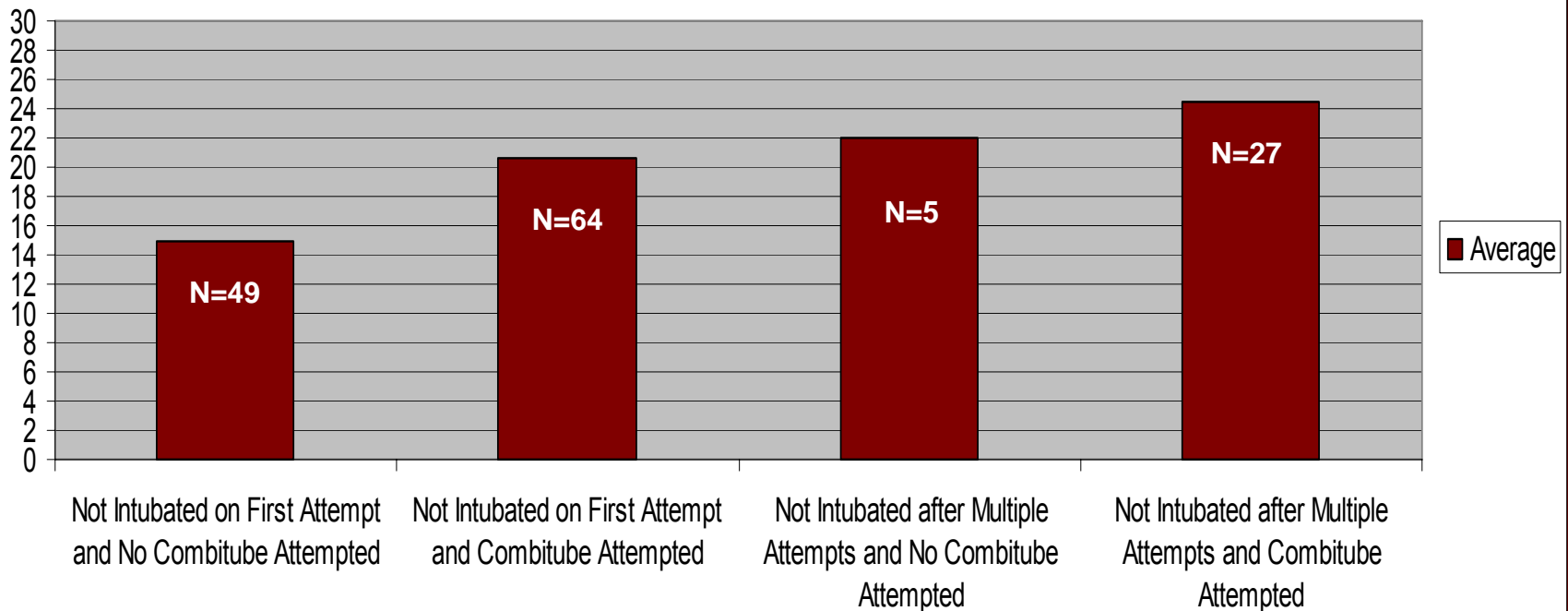
# Average Scene Times

Average Scene Times (January 2005 - March 2006)



# Average Scene Times

Average Scene Times (January 2005 - March 2006)



***What to do?***

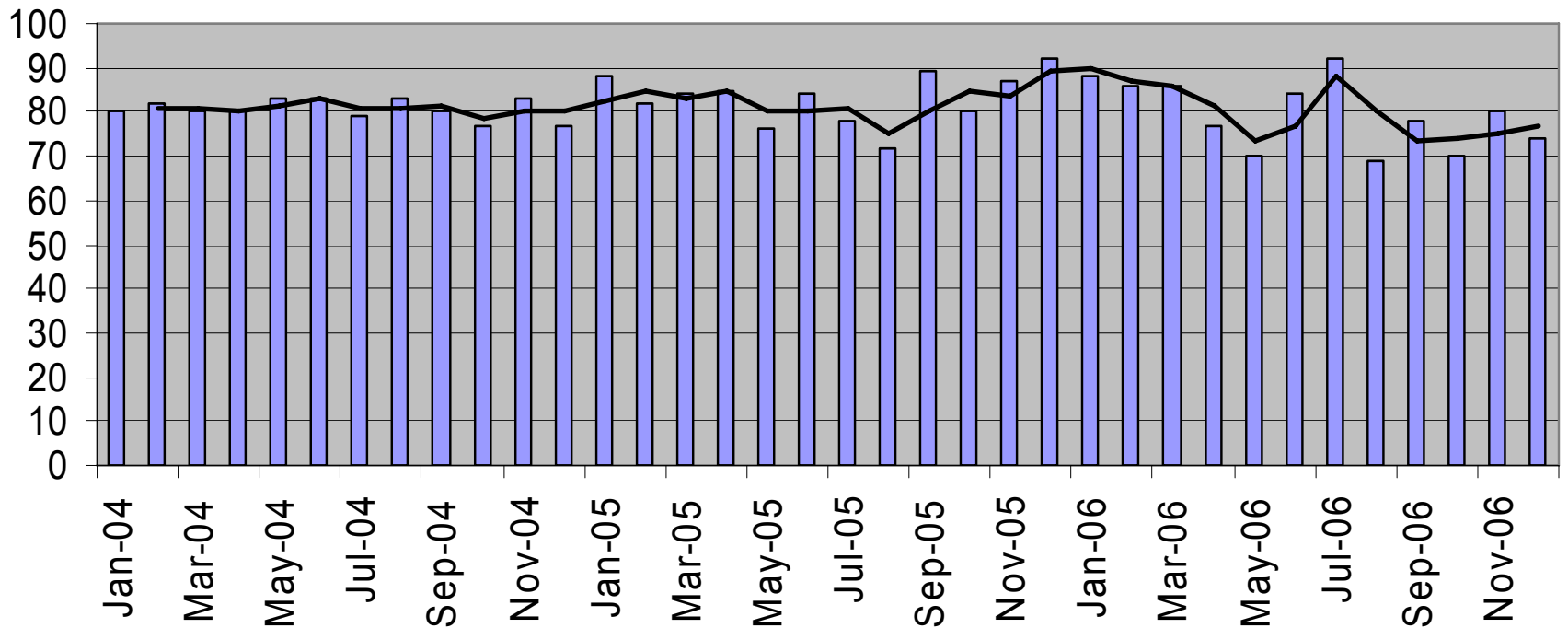


# MedStar

## ET Intubation Success Rates

### 2004 - 2006

Intubation Success Rate



■ % of Patients Successfully Intubated — 2 per. Mov. Avg. (% of Patients Successfully Intubated)

## 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  $\leq$  8

### **Contraindications:**

1. None in the presence of hypoxia, unresponsive to ventilation, need for advanced airway or cardiopulmonary arrest

### **Procedure:**

1. Preoxygenate the patient, if possible
2. Assemble and check equipment

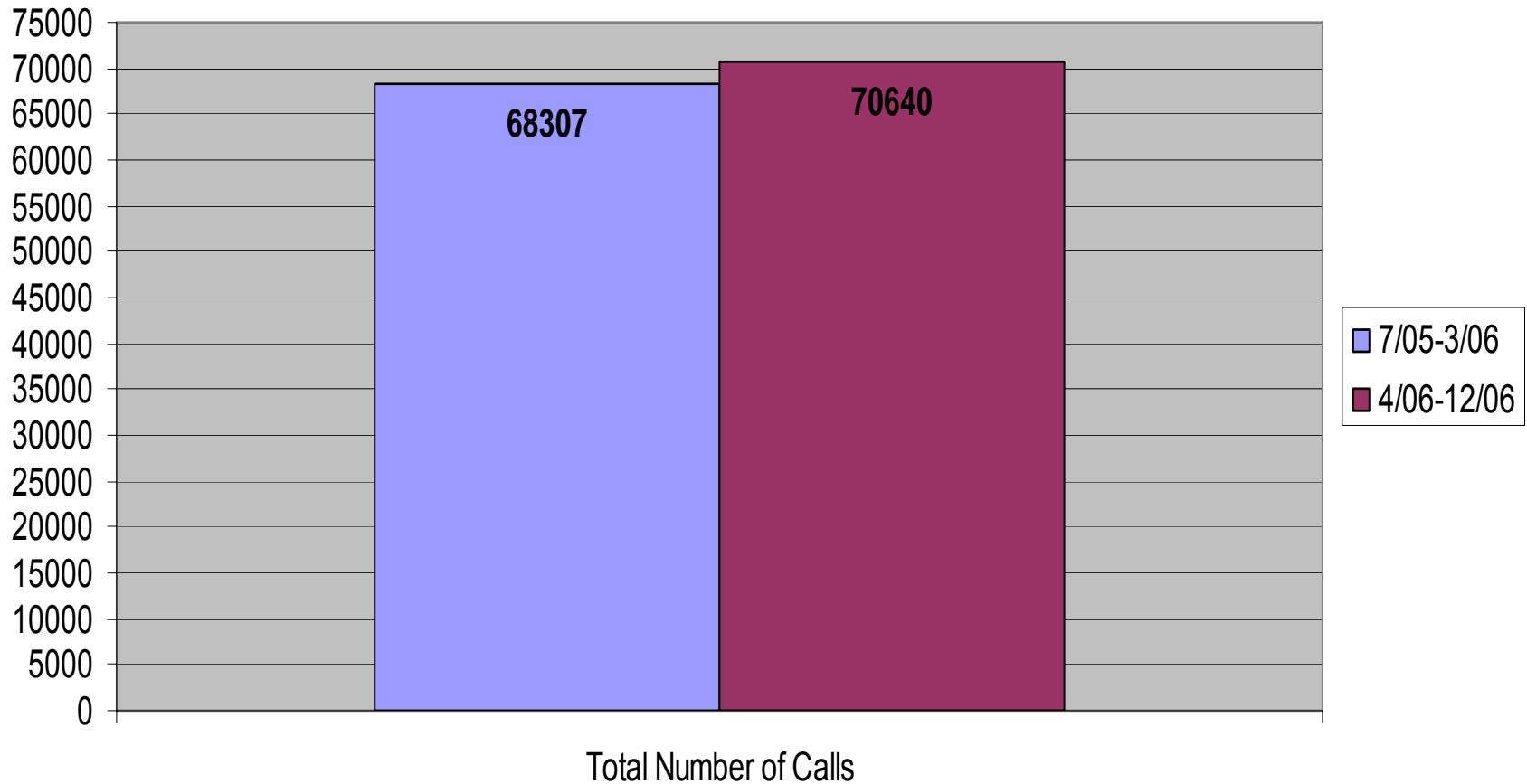
***15. IF ETT Intubation is unsuccessful after ONE attempt, insert a Combitube.***

tongue

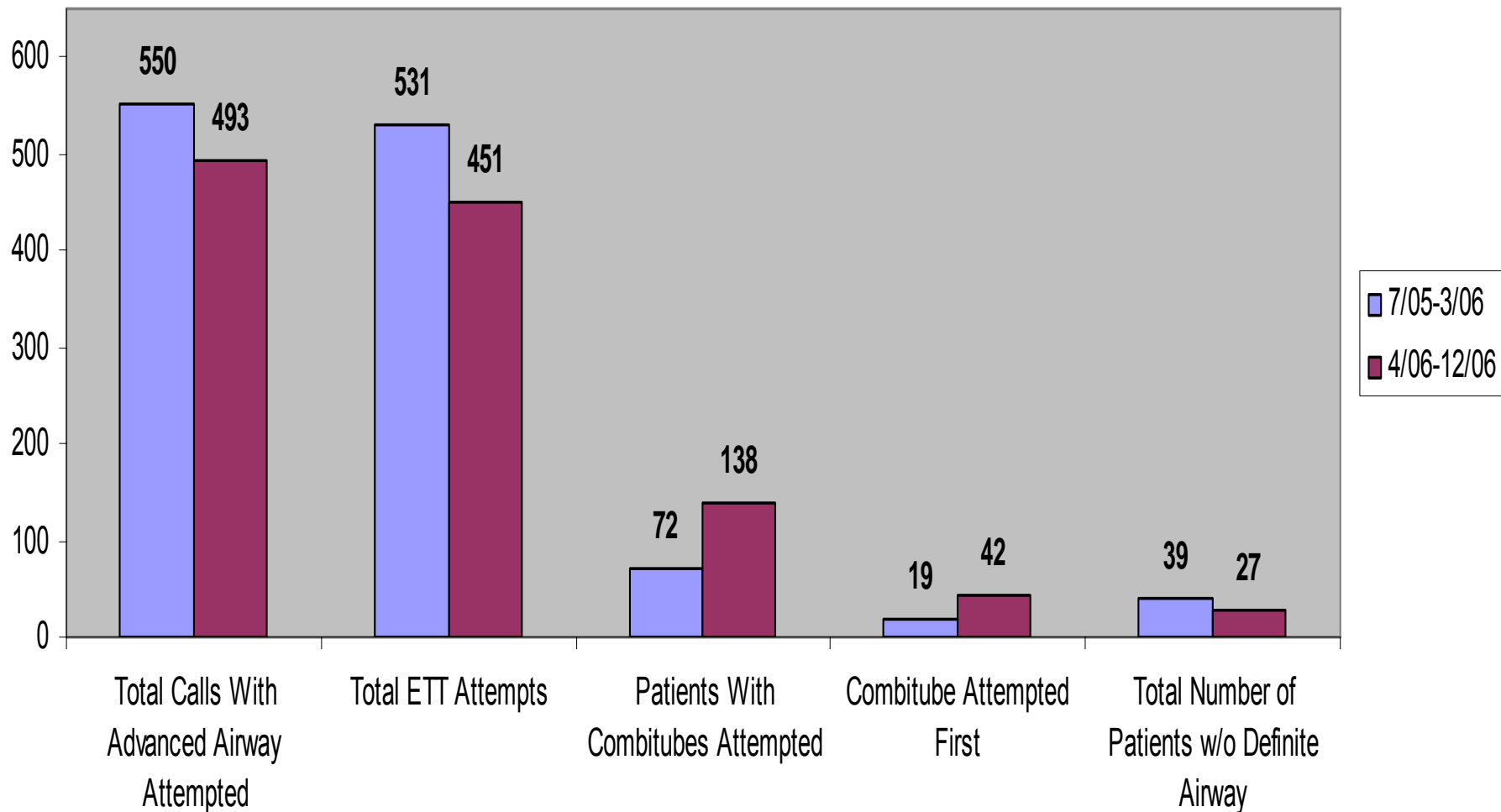
6. The tip of curved blades should be placed in the vallecula while the tip of straight blades should be extended beyond the epiglottis.
7. Lift the epiglottis either directly or indirectly, visualizing the vocal cords.
8. Slip the endotracheal tube and stylet past the vocal cords about  $\frac{1}{2}$  to 1 inch. Gentle, downward pressure on the cricoid cartilage (Sellick's maneuver) may assist.
9. While holding onto the tube, attempt and assess ventilations
10. If the chest rises and breath sounds are present, inflate the distal cuff with 5 to 10 ml of air
11. Confirm proper airway placement and assesses the quality of ventilations
12. Record capnographic change, breath sound locations and chest rise and fall
13. Secure tube with an endolock device
14. Continuously reassess breath sounds
15. If ETT intubation is unsuccessful after **one** attempt, insert a Combitube.

# Total Calls

## July 2005 – December 2006

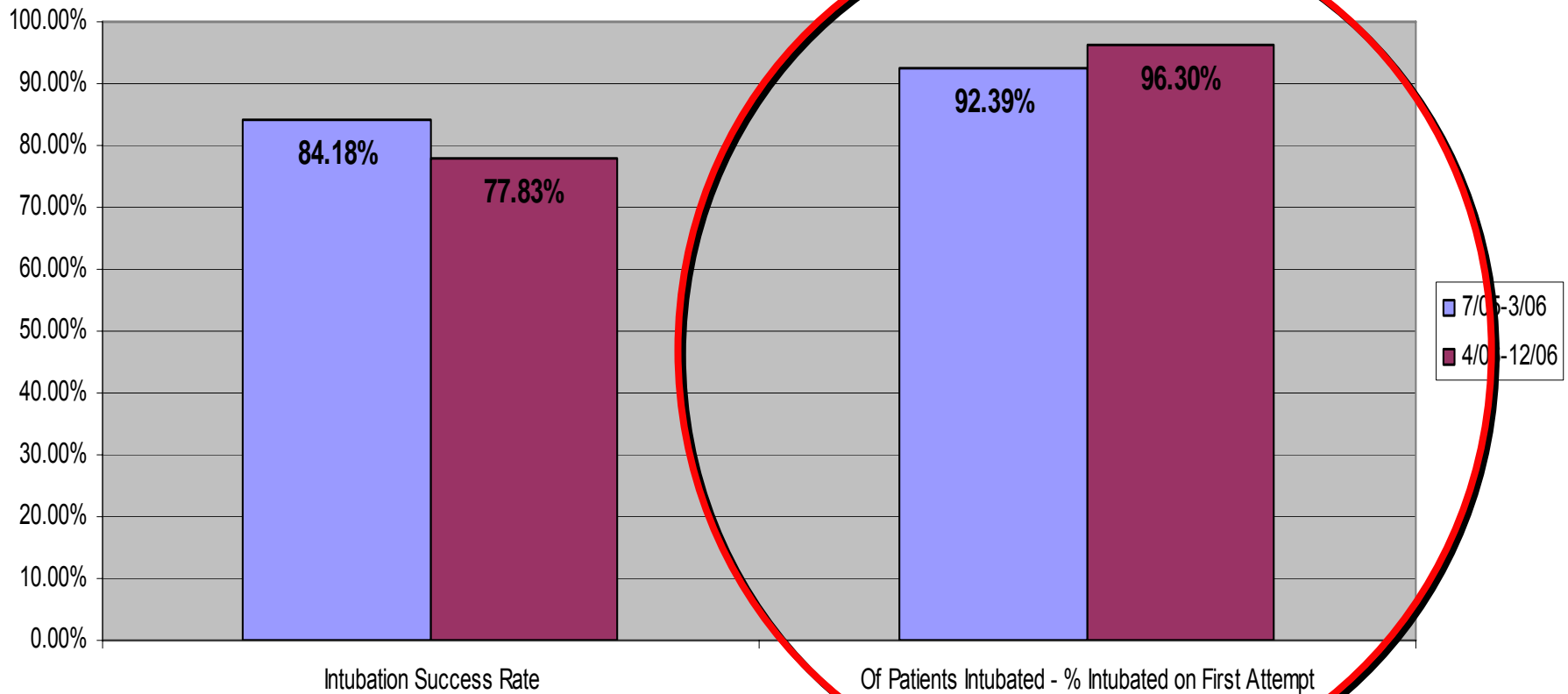


# Advanced Airway Attempts July 2005 – December 2006

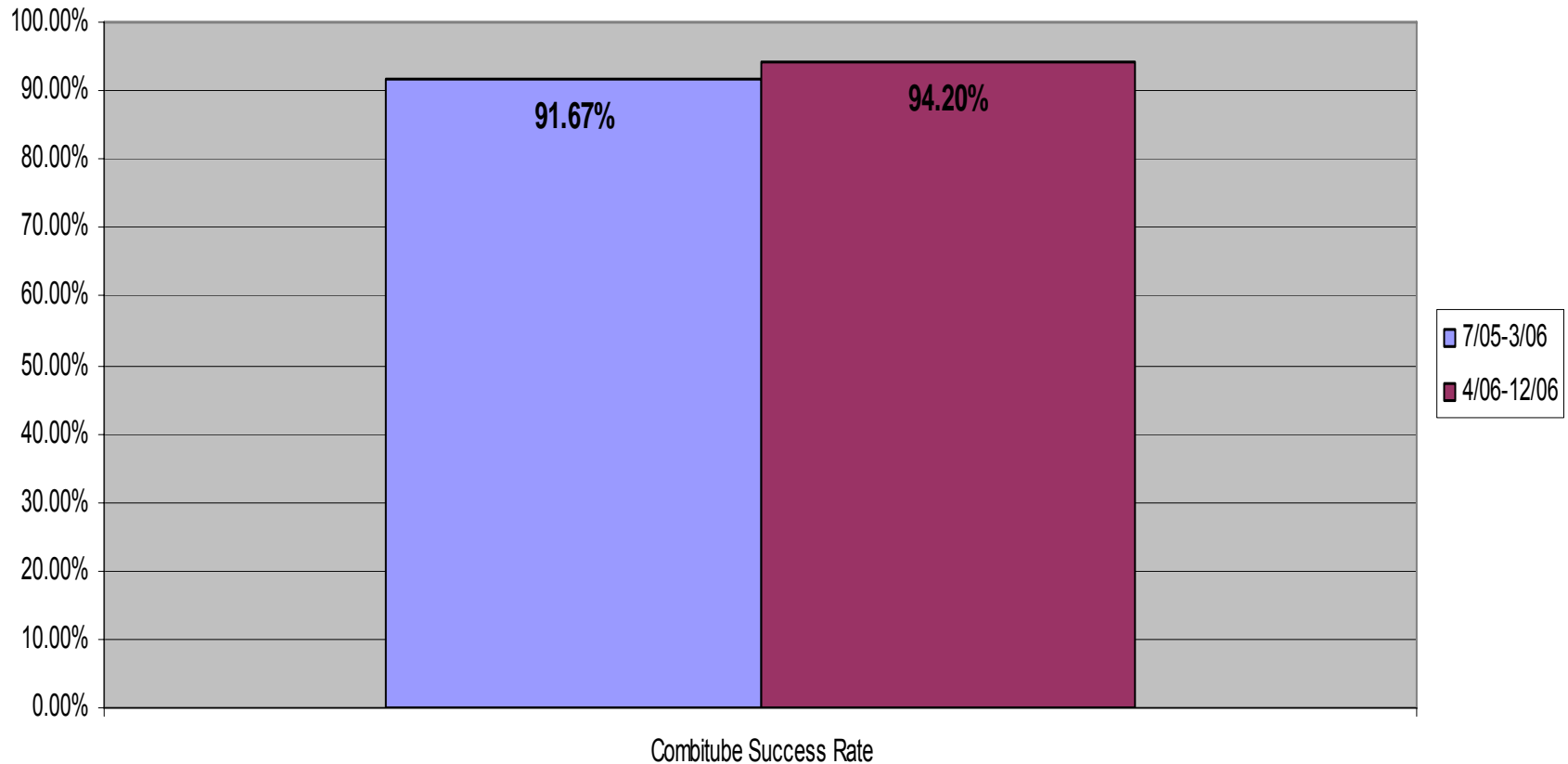


# ETT Intubations

## July 2005 – December 2006

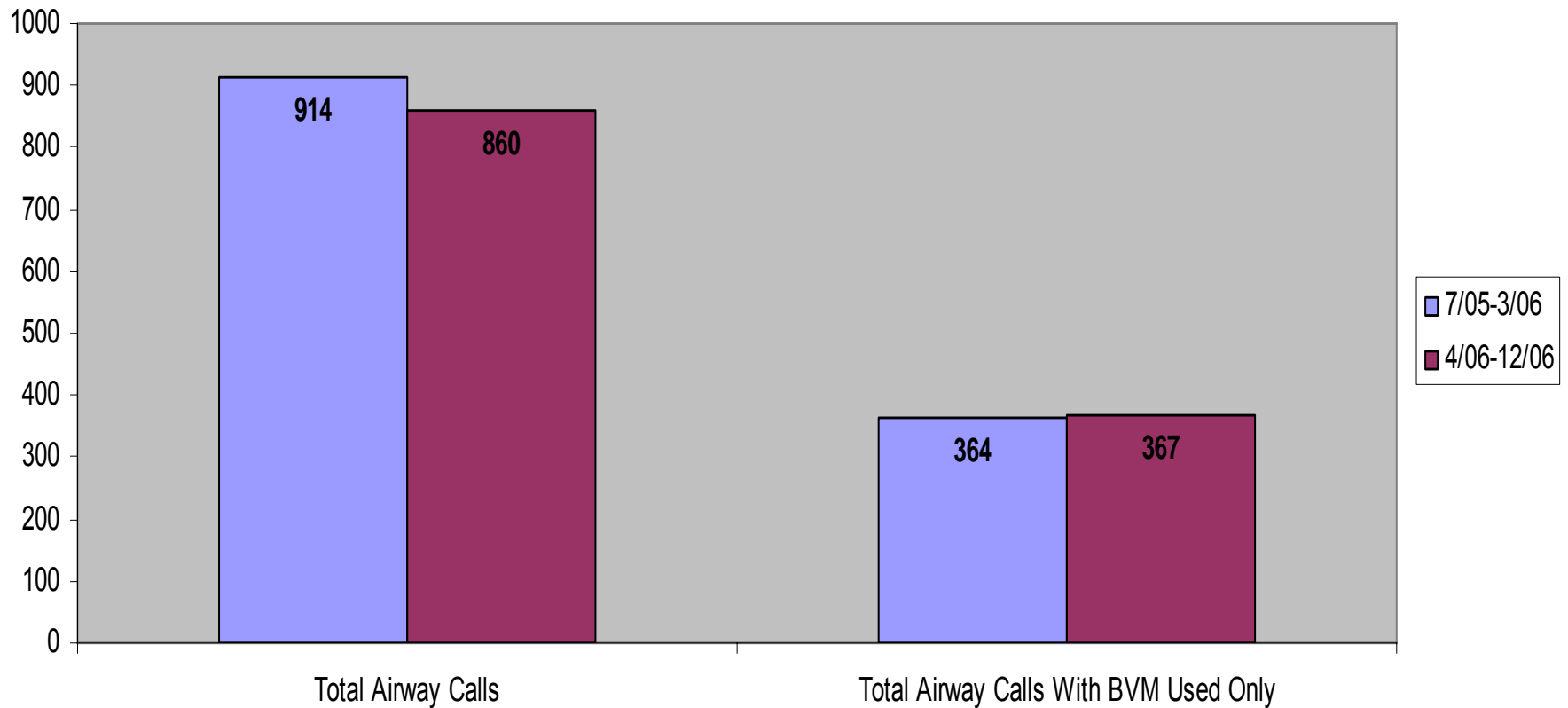


# Combitube Success Rates July 2005 – December 2006



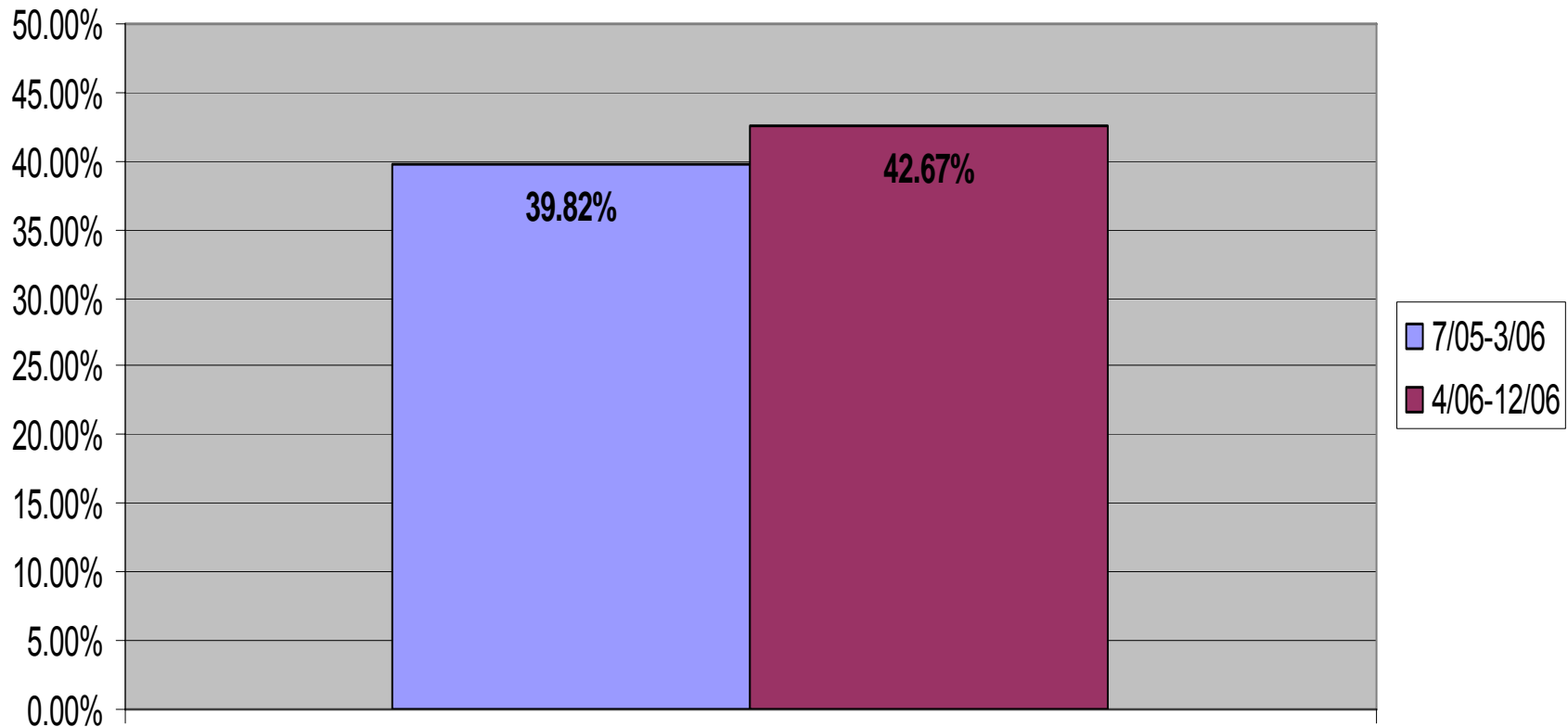
# BVM Usage

## July 2005 – December 2006



# BVM Usage Only

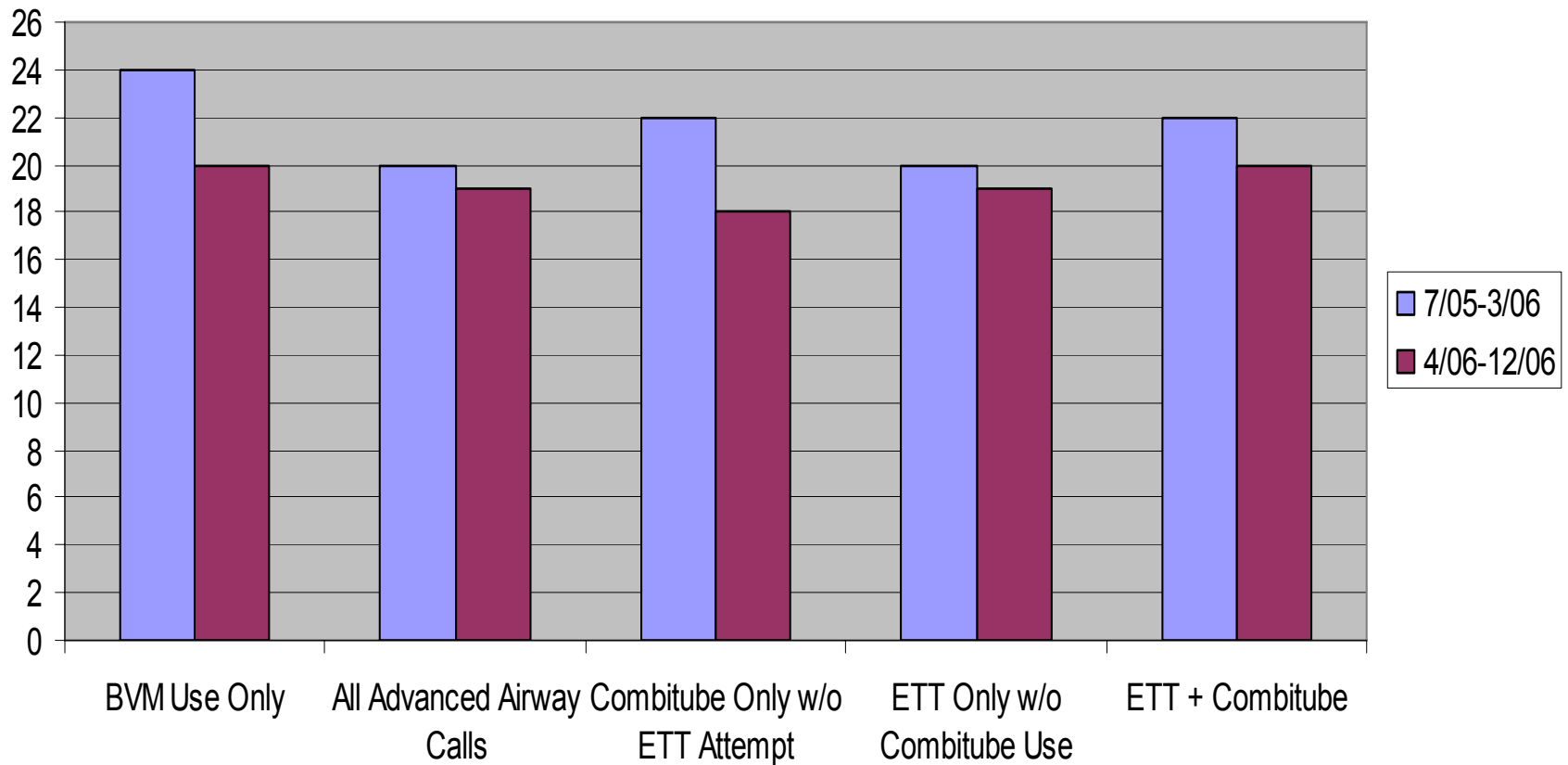
## July 2005 – December 2006



Percent of Airway Calls With BVM Used Only

# Scene Times

## July 2005 – December 2006



# Results

- 10% decrease in calls with advanced airway attempted
- 15% decrease in ETT attempts
- 113% increase in number of patients with Combitube attempted
- 146% increase in number of patients with Combitube attempt first

# Results

- 22% decrease in patients with advanced airway attempted unsuccessfully
- 7% decrease in intubation success rate
- 4% increase in ETT first attempt success
- 2.7% increase in Combitube success rate

# Conclusions: *Our Experience*

- First attempt % improvement suggests that medics may not prepare as much as they should.
- Combitube use increased overall and may reflect a future trend.

# Conclusions: *Our Experience*

- Intubation attempts may be limited to one while possibly improving overall ETT intubation success rates.
- Further study is needed to determine if increased Combitube use is, indeed, safer.

# ***Complications associated with the Esophageal-Tracheal Combitube<sup>®</sup> in the pre-hospital setting***

Vezina, et al, *Can J Anesth*; Feb, 2007

280 patients

58 patients had 69 complications (13 insertion trauma):

aspiration pneumonitis (n=31)

pulmonary aspiration (n=16)

pneumothorax (n=6)

upper airway bleeding (n=4)

esophageal laceration (n=3)

sc emphysema (n=2)

esophageal perforation and mediastinitis (n=2)

tongue edema (n=2)

tracheal injury (n=1)

pneumomediastinum (n=1)

# Conclusions: *Our Experience*

- Further study is also needed to assess whether these airway management trends of more accurate ETT use AND increased Combitube use decreases the adverse outcomes of ETT use reported elsewhere.



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