

# Five Key EMS Articles Eagles 2011

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Vanderbilt University Medical Center  
Metro Nashville Fire Department  
Nashville International Airport  
Nashville, TN

**A SPECIAL MESSAGE FROM COREY SLOVIS**

- O2 and COPD
- ACLS
- Intubating Easier
- Bougie
- Comp-Decomp and ITD

# Effect of high flow oxygen on mortality in chronic obstructive pulmonary disease patients in prehospital setting: randomised controlled trial

Michael A Austin, honorary associate,<sup>1</sup> emergency medicine registrar,<sup>2</sup> wilderness helicopter, intensive care paramedic,<sup>3</sup> Karen E Wills, biostatistician,<sup>1</sup> Leigh Blizzard, senior biostatistician,<sup>1</sup> Eugene H Walters, professorial fellow,<sup>1</sup> Richard Wood-Baker, honorary fellow,<sup>1</sup> director<sup>2</sup>

*BMJ 2010;341:c5462*

Is oxygen really dangerous in COPD?

Effect of high flow oxygen on mortality in chronic obstructive pulmonary disease patients in prehospital setting: randomised controlled trial

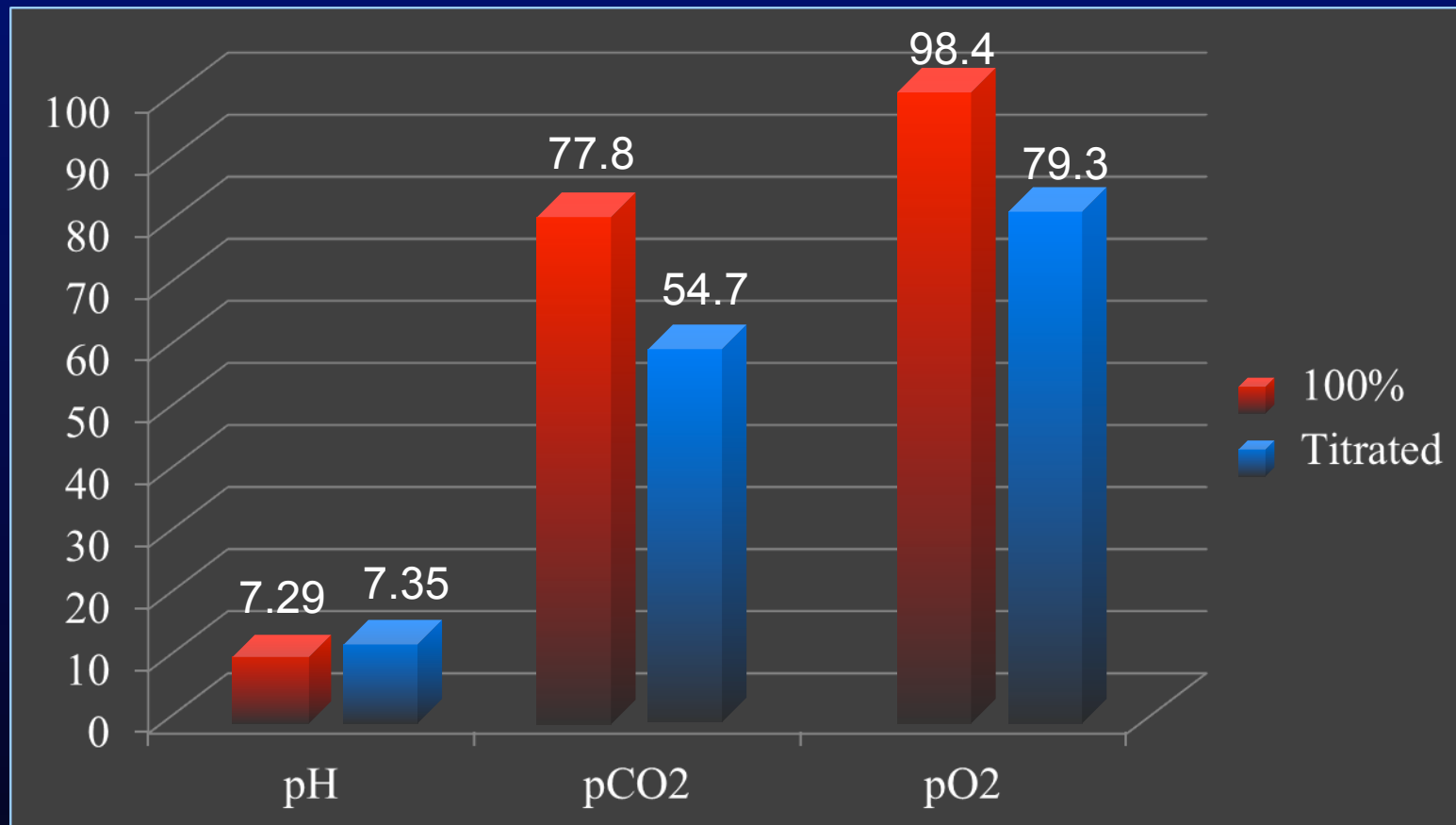
*BMJ 2010;341:c5462*

- High Flow O<sub>2</sub> vs. Titrated Oxygen
- Titrated Oxygen was 88-92%
- 405 pts with presumed COPD exacerbation
- Tasmanian Ambulance Service
- All got bronchodilators and steroids

# ABGs

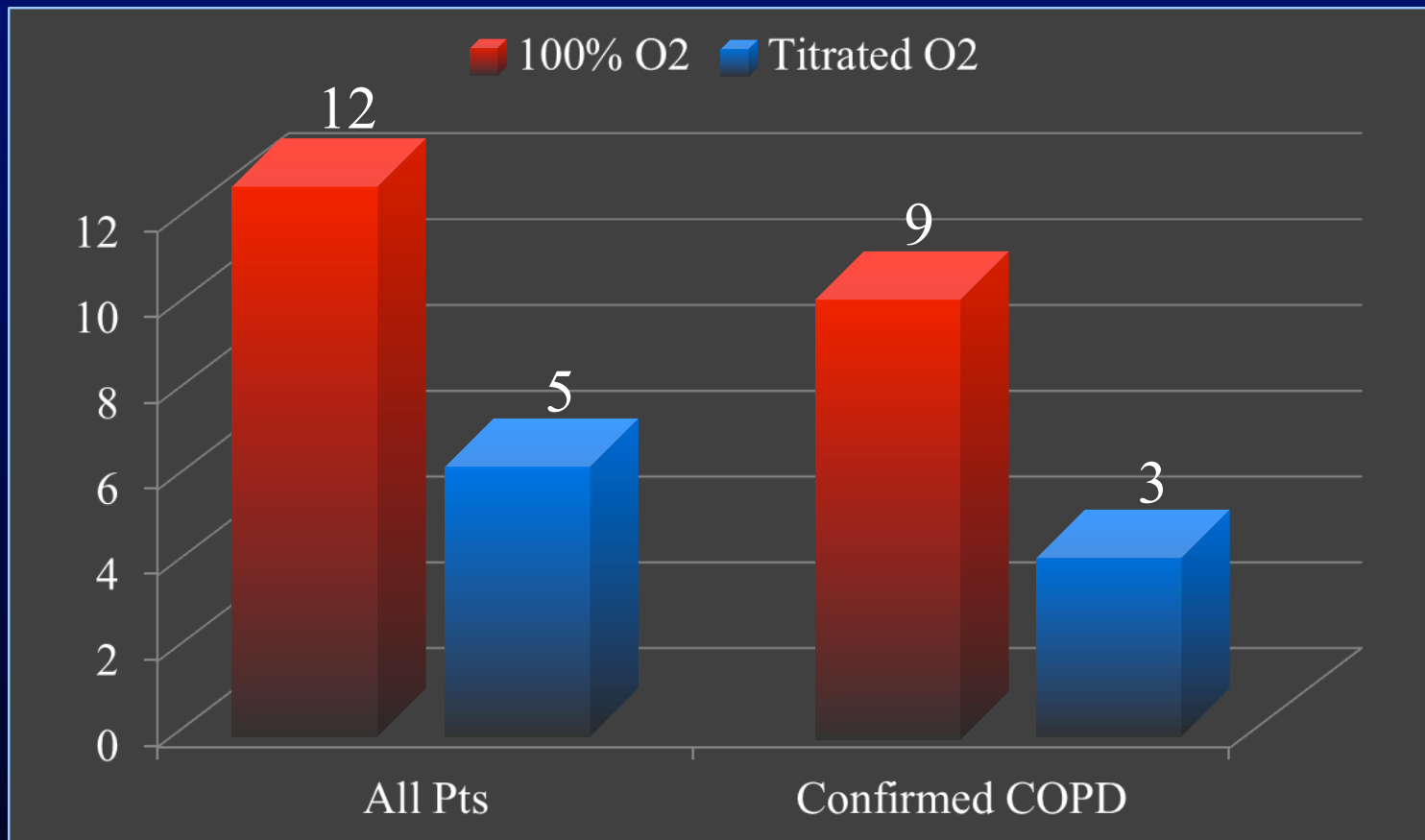
## 100% O<sub>2</sub> vs. Titrated O<sub>2</sub>

*BMJ 2010;341:c5462*



# Intubation Rates 100% O<sub>2</sub> vs. Titrated O<sub>2</sub>

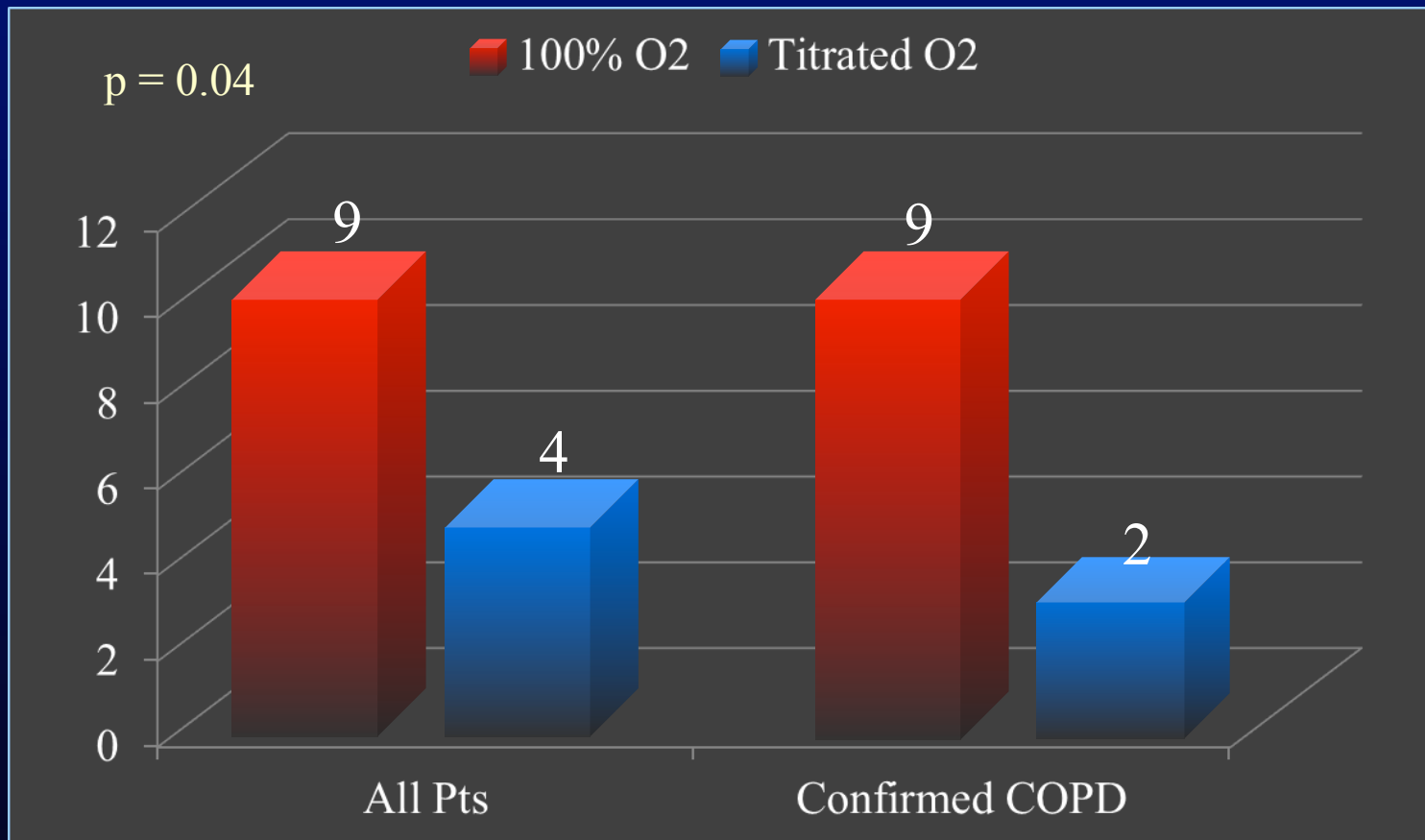
*BMJ 2010;341:c5462*



# Mortality Rates

## 100% O<sub>2</sub> vs. Titrated O<sub>2</sub>

*BMJ 2010;341:c5462*





# Effect of high flow oxygen on mortality in chronic obstructive pulmonary disease patients in prehospital setting: randomised controlled trial

*BMJ 2010;341:c5462*

## Take Home Points

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- Not titrating O<sub>2</sub> sats to 92% is dangerous
- High Flow O<sub>2</sub> should be used with real caution
- Increased mortality, hypercarbia and respiratory acidosis are not just theoretical with O<sub>2</sub> use in COPD

# CPR and ACLS 2011

ORIGINAL ARTICLE

## CPR with Chest Compression Alone or with Rescue Breathing

Thomas D. Rea, M.D., Carol Fahrenbruch, M.S.P.H., Linda Culley, B.A., Rachael T. Donohoe, Ph.D., Cindy Hambly, E.M.T., Jennifer Innes, B.A., Megan Bloomingdale, E.M.T., Cleo Subido, Steven Romines, M.S.P.H., and Mickey S. Eisenberg, M.D., Ph.D.

ORIGINAL ARTICLE

## Compression-Only CPR or Standard CPR in Out-of-Hospital Cardiac Arrest

Leif Svensson, M.D., Ph.D., Katarina Bohm, R.N., Ph.D., Maaret Castrèn, M.D., Ph.D., Hans Pettersson, Ph.D., Lars Engerström, M.D., Johan Herlitz, M.D., Ph.D., and Mårten Rosenqvist, M.D., Ph.D.

## In CPR, Less May Be Better

Myron L. Weisfeldt, M.D.

Fifty years have passed since Kouwenhoven, Jude, and Knickerbocker<sup>1</sup> proposed external chest compression to provide circulation of blood to the brain and heart after cardiac arrest. Shortly thereafter, mouth-to-mouth rescue breathing was

bystanders rather than being provided only when emergency medical services (EMS) staff arrives. The use of automated external defibrillators by bystanders and the use of in-hospital hypothermia in comatose patients have also been found to im-

ORIGINAL ARTICLE

CPR with Chest Compression Alone  
or with Rescue Breathing

Thomas D. Rea, M.D., Carol Fahrenbruch, M.S.P.H., Linda Culley, B.A.,  
Rachael T. Donohoe, Ph.D., Cindy Hambly, E.M.T., Jennifer Innes, B.A.,  
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- Two studies similar results
- “Negative” study results
- Ventilation does not improve outcomes
- Much easier to teach, and to do
- “Compression Only” CPR works

# Ventilations Still Needed!

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- Respiratory Arrests
- Pediatric Arrests
- Drowning
- Asystole and PEA
- Long Down Times

## **Part 8: Advanced Life Support**

### **2010 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations**

Laurie J. Morrison, Co-Chair\*; Charles D. Deakin, Co-Chair\*; Peter T. Morley; Clifton W. Callaway;  
Richard E. Kerber; Steven L. Kronick; Eric J. Lavonas; Mark S. Link; Robert W. Neumar; Charles W. Otto;  
Michael Parr; Michael Shuster; Kjetil Sunde; Mary Ann Peberdy; Wanchun Tang; Terry L. Vanden Hoek;  
Bernd W. Böttiger; Saul Drajer; Swee Han Lim; Jerry P. Nolan; on behalf of the  
Advanced Life Support Chapter Collaborators

*Circulation 2010;122(supp2) s345-421*

- The new “standard of care”
- *Knowledge Gaps*
- 35 text pages; 1,022 ref
- *Consensus of Science*
- Treatment Recommendations

**Part 8: Advanced Life Support**  
**2010 International Consensus on Cardiopulmonary Resuscitation and  
Emergency Cardiovascular Care Science With  
Treatment Recommendations**

*Circulation 2010;122(supp2) s345-421*

## Major Points

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- ETT
- Capnography
- Atropine
- Adenosine
- Therapeutic Hypothermia

# ACLS 2011 Changes

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- ETT

- No evidence to support ETT > supraglottic
- Consider King, LMA, Combitubes
- Especially if rigorous retraining not possible

- Capnography

- Wave form recommended
- Colorimetric acceptable if no wave form



# ACLS 2011 Changes

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- Atropine

- No longer recommended for AS or PEA
- Role unclear in PEA < 60

- Adenosine

- May be useful for PSVT vs. VT
- Can be used in regular monomorphic WCT

# Adenosine Mortality

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- Sinus Tachycardia

- Elderly, dehydrated, fever, pneumonia

- Wide and Irregular

- WPW with aberrancy

# 5 Step Management of Asystole

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2010

- Confirm
- Oxygenate
- Epi: 1mg  
+  
~~Atropine 1 mg~~
- Repeat Epi + ~~Atropine~~  
~~Q 3 min~~
- Consider Termination  
using  $\text{ETCO}_2$

2011

- Confirm
- Oxygenate
- Epi: 1mg
- Repeat Epinephrine  
Q 3 min
- Consider Termination  
using  $\text{ETCO}_2$

# 5 Step Management of PEA

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2010

- Oxygenate and Ventilate
- Volume Load
- Look:
  - ECG
  - Temp
  - Volume
- Epi 1 mg + ~~Atropine 1 mg~~  
Q 3 min
- Look for all 5 Causes

## **A Comparison of Three Videolaryngoscopes: The Macintosh Laryngoscope Blade Reduces, but Does Not Replace, Routine Stylet Use for Intubation in Morbidly Obese Patients**

Ralph Maassen, MD\*†

**BACKGROUND:** Many manufacturers are producing videolaryngoscopes (VLSs) differing specifications, user interfaces, and geometry. It is clinically relevant

*Anesth Analg 2009;109:1560-1565*

## **The C-MAC Videolaryngoscope: First Experiences with a New Device for Videolaryngoscopy-Guided Intubation**

Erol Cavus, MD\*

Joerg Kieckhaefer, MD†

We studied the efficacy of the C-MAC® (Karl Storz, Tuttlingen, Germany), a new portable videolaryngoscope, in 60 patients during routine induction of anesthesia. It was possible to insert the blade (Size 3) of the C-MAC and to get a view of the glottis on the first attempt in all patients. Tracheal intubation also was successful in

*Anesth Analg 2010;110:473-477*

## **Tracheal Intubation of a Difficult Airway Using Airway Scope, Airtraq, and Macintosh Laryngoscope: A Comparative Manikin Study of Inexperienced Personnel**

Liangji Liu, MD, Koichi Tanigawa, MD, PhD, Shinji Kusunoki, MD, Tomoko Tamura, MD, Kohei Ota, MD, Satoshi Yamaga, MD, Yoshiko Kida, MD, Tadatsugu Otani, MD, Takuma Sadamori, MD,

*Anesth Analg 2010;110:1049-1055*

## **COMPARISON OF TRADITIONAL VERSUS VIDEO LARYNGOSCOPY IN OUT-OF-HOSPITAL TRACHEAL INTUBATION**

Marvin A. Wayne, MD, Mannix McDonnell, EMT-P

continuously monitored by capnography. **Results.** Th

*Prehosp Emerg Care 2010;14:278-282*



Anything else you can do to  
make difficult airways easier?



## Emergency Department Management of the Airway in Obese Adults

James Dargin, MD, Ron Medzon, MD

*From the Department of Critical Care Medicine, University of Pittsburgh Medical Center, University of Pittsburgh School of Medicine, Pittsburgh, PA (Dargin); and the Department of Emergency Medicine, Boston Medical Center, Boston University School of Medicine, Boston, MA (Medzon).*

Airway management in obese adults can be challenging, and much of the literature on this subject focuses on

- 2 Handed  
2 Person
- Videoscope
- Early Supraglottic
- Early Bougie
- Nasal O<sub>2</sub>
- CPAP  
BiPap
- Ramp
- Awake
- Ketamine
- Weight Based Meds



# **A Two-handed Jaw-thrust Technique Is Superior to the One-handed “EC-clamp” Technique for Mask Ventilation in the Apneic Unconscious Person**

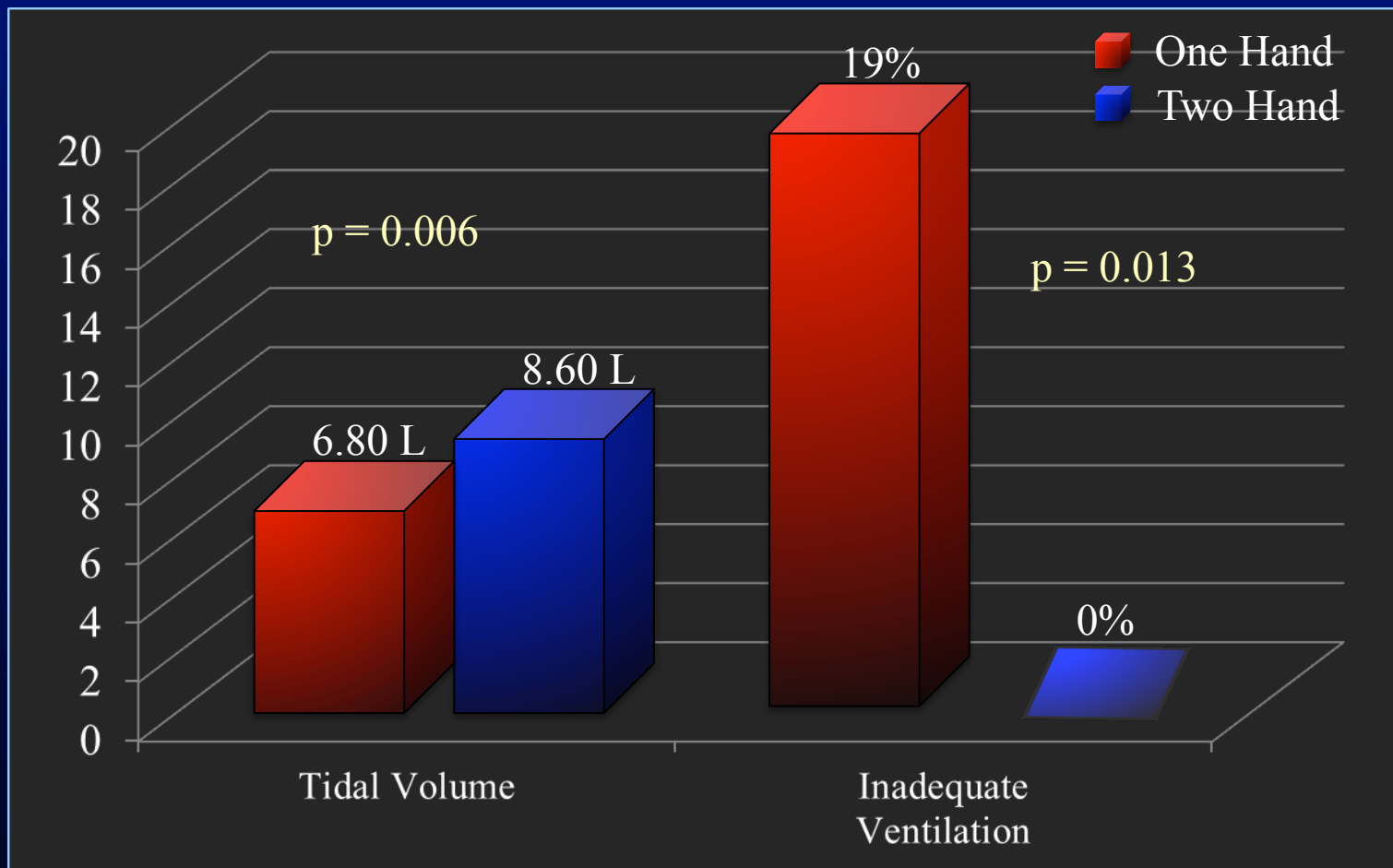
Aaron M. Joffe, D.O.,\* Scott Hetzel, M.S.,† Elaine C. Liew, M.D.‡

*Anesthesiology 2010;113:873-879*

- Should we mask with two hands rather than one?
- How often is one handed inadequate?
- 42 paralyzed elective surgery pts

# One Hand vs. Two Handed

*Ann Emerg Med 2010;56:481-489*



## AN INNOVATIVE APPROACH TO OROTRACHEAL INTUBATIONS: THE ALEXANDROU ANGLE OF INTUBATION POSITION

Nikolaos A. Alexandrou, MD,\* Benson Yeh, MD,† Paul Barbara, MD,† Mark Leber, MD,†  
and Lewis W. Marshall, Jr., MD, JD\*

\*Department of Emergency Medicine, Brookdale University Hospital and Medical Center, Brooklyn, New York and †Department of  
Emergency Medicine, Brooklyn Hospital Center, Brooklyn, New York

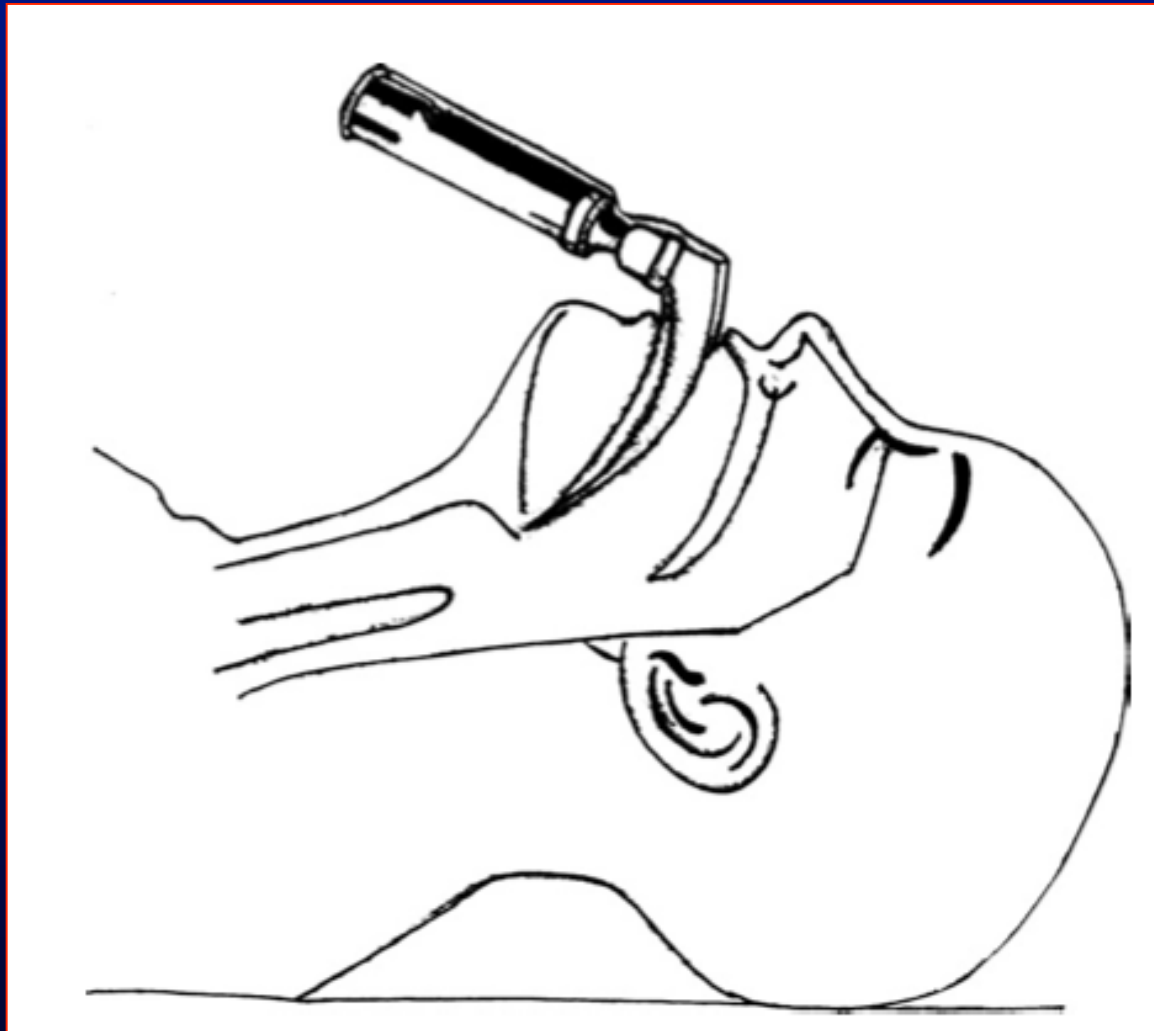
Reprint Address: Nikolaos A. Alexandrou, MD, Department of Emergency Medicine, Brookdale University Hospital and Medical Center,  
1 Brookdale Plaza, Brooklyn, NY 11212

□ **Abstract—Visualization of the vocal cords is paramount during orotracheal intubations. We employed a novel pa-**

The AAI is a simple technique that may improve and facilitate intubation as well as help visualize the difficult

*J Emerg Med 2011;40:7-13*

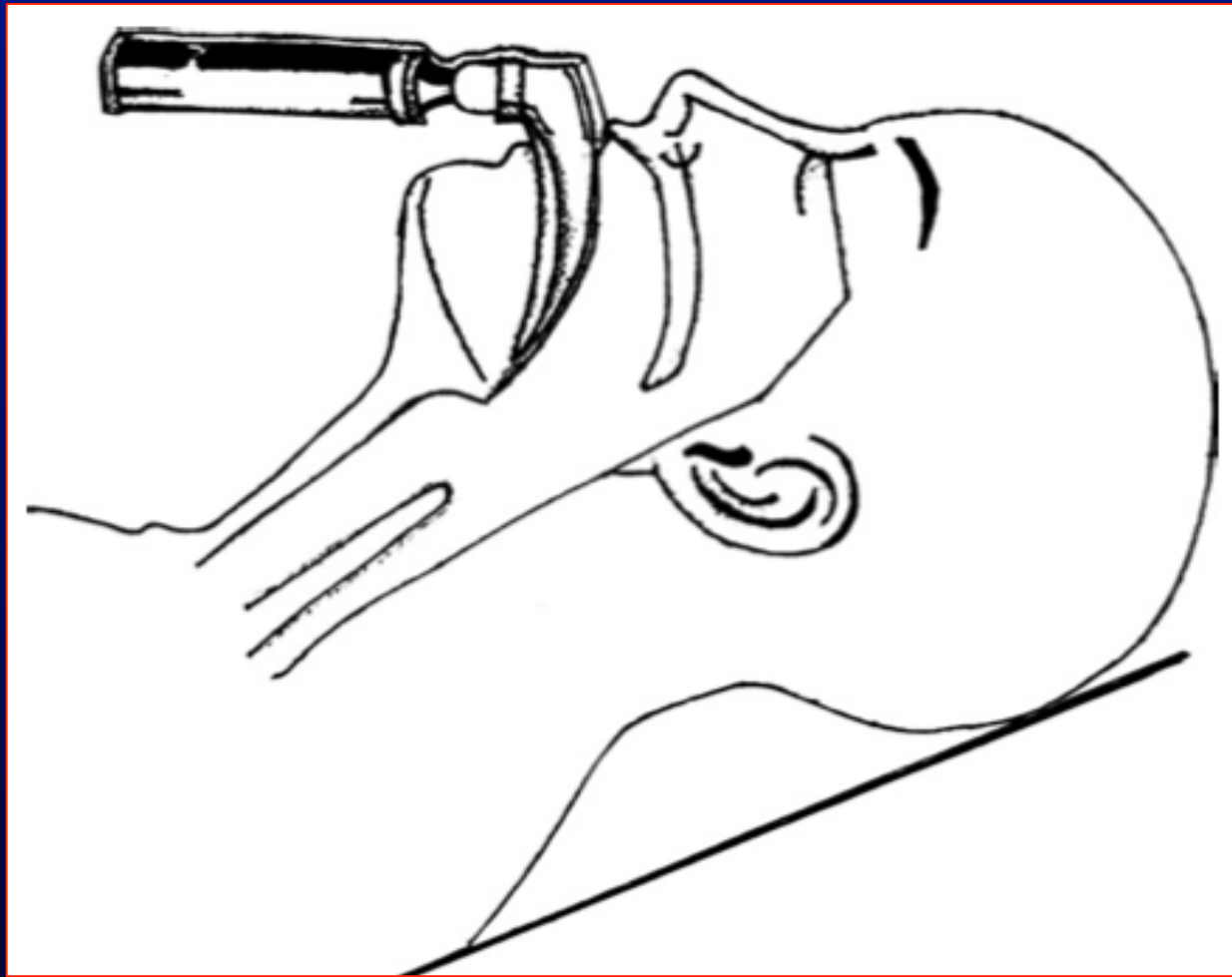
- What is the “best” patient position when intubating?
- Flat vs. Trendelenberg vs. Elevated



*Reprinted from Roy Weeks Illustrations*

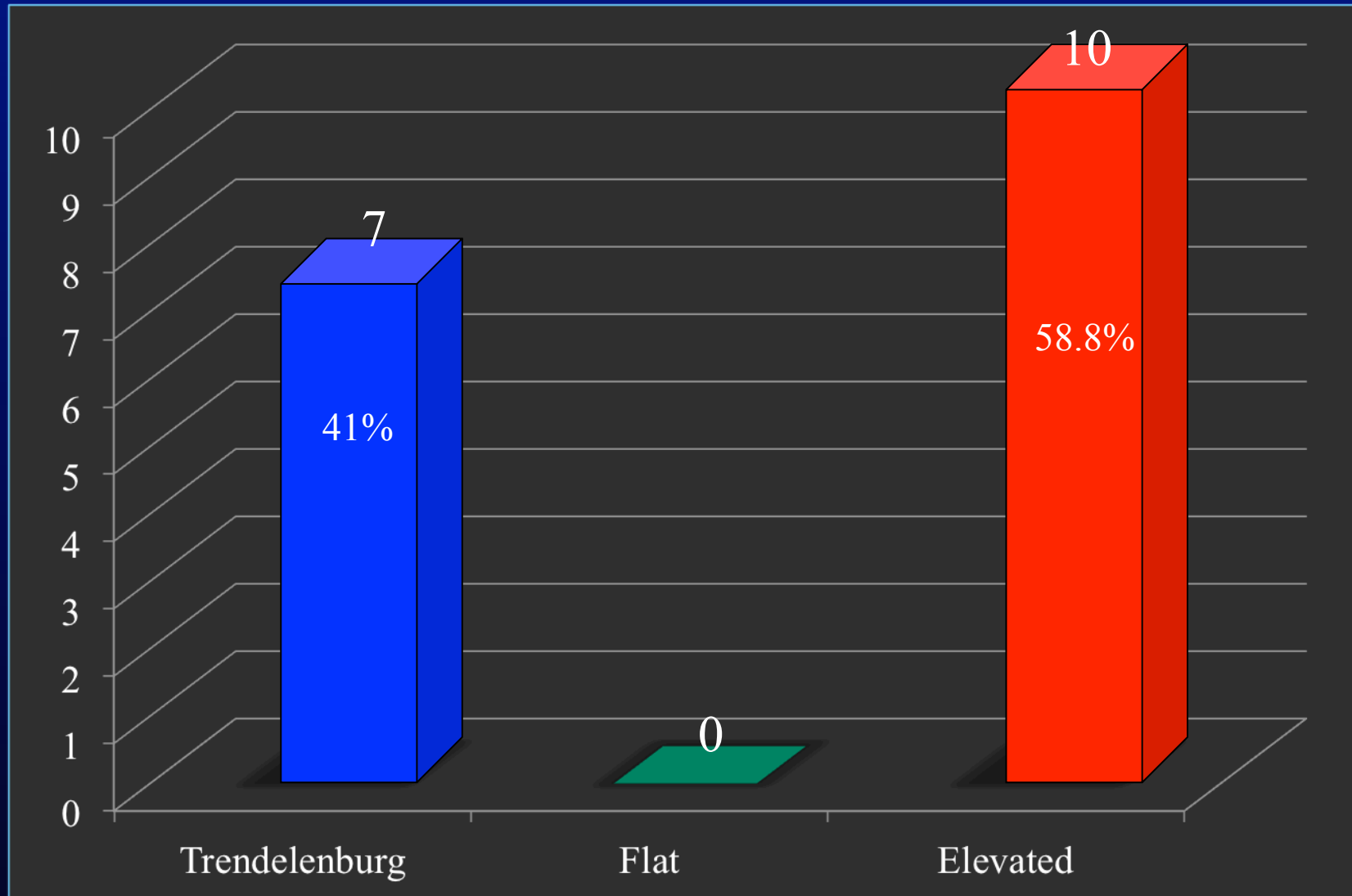


*Adapted from ECC American Heart Association  
2001 ACLS Case 1 Airway*



*Reprinted from Roy Weeks Illustrations*

# Preferred Position



# COMPARISON OF BOUGIE-ASSISTED INTUBATION WITH TRADITIONAL ENDOTRACHEAL INTUBATION IN A SIMULATED DIFFICULT AIRWAY

Matthew J. Messa, DO, Douglas F. Kupas, MD, Douglas L. Dunham, DO

## ABSTRACT

**Objective.** To compare the success and ease of bougie-assisted intubation (BAI) with those of traditional endotracheal intubation (ETI) in a simulated difficult airway (20.4 seconds for BAI vs. 16.7 seconds for ETI,  $p = 0.102$ ). **Meth-**

rate than traditional ETI without increasing the time to successful intubation. Intubators perceive BAI as being easier to perform than traditional ETI in this simulated difficult airway scenario. **Key words:** endotracheal intubation; bougie; intubation; emergency medical services; prehospital; airway management

*Prehosp Emerg Care 2011;15:30-33*

- Does the Bougie help in difficult airways
- Should we routinely use it?
- 35 paramedics, flight RNs, ED residents



# COMPARISON OF BOUGIE-ASSISTED INTUBATION WITH TRADITIONAL ENDOTRACHEAL INTUBATION IN A SIMULATED DIFFICULT AIRWAY

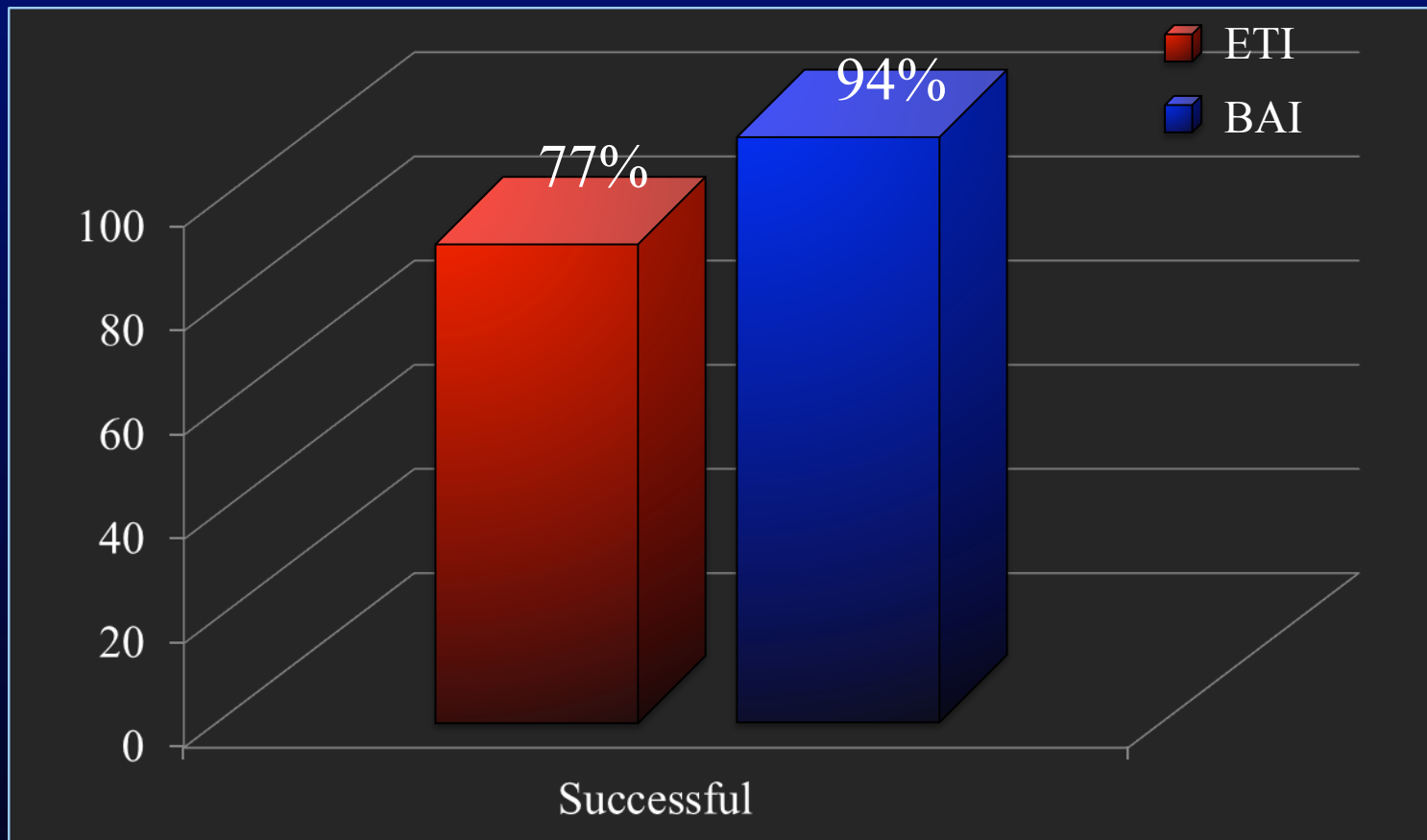
Matthew J. Messa, DO, Douglas F. Kupas, MD, Douglas L. Dunham, DO

*Prehosp Emerg Care 2011;15:30-33*

- Simulated difficult airway
- Laerdal manikin
- Difficult Grade III view
- Randomized ETI vs. BAI

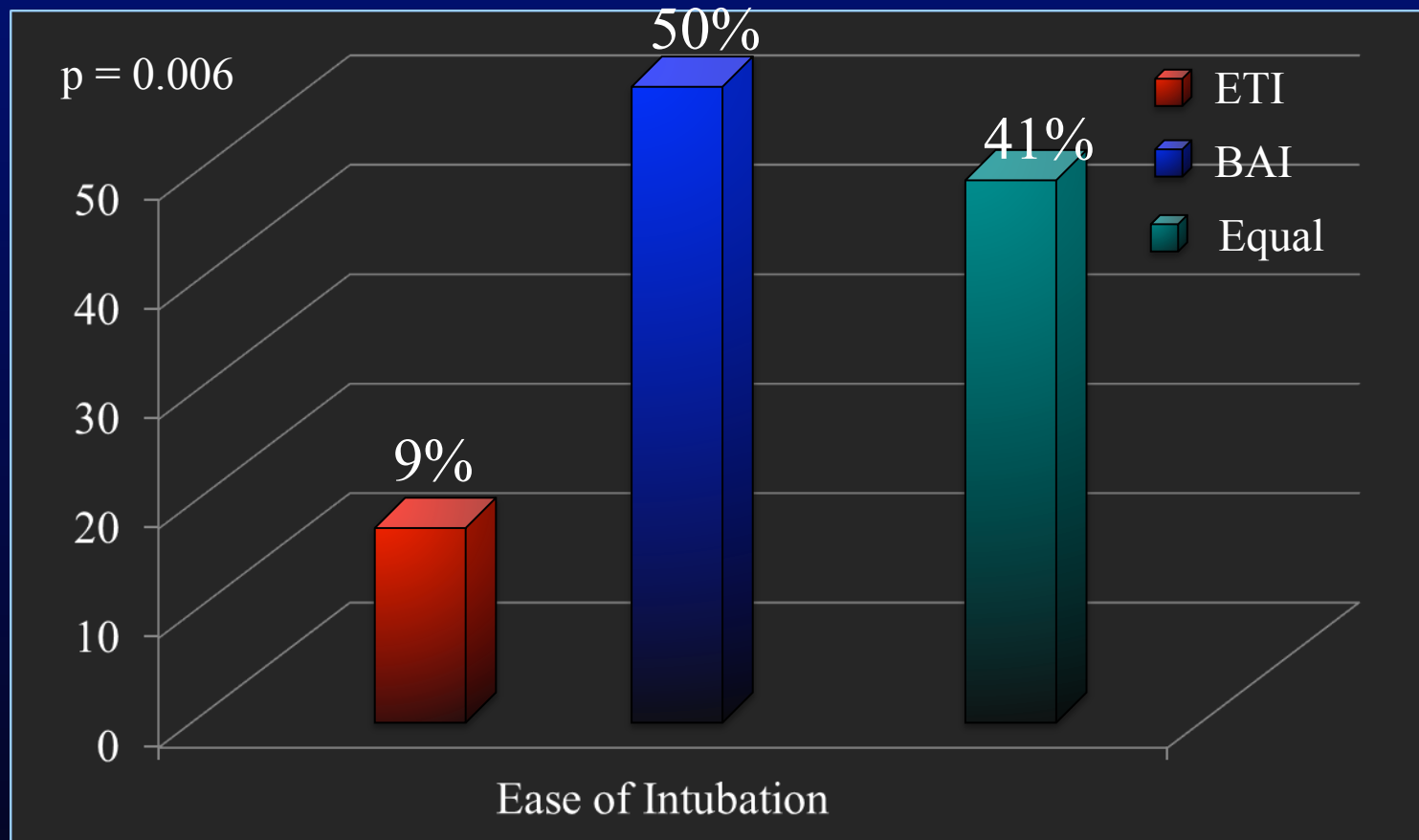
# Successful Intubations (%)

*Prehosp Emerg Care 2011;15:30-33*



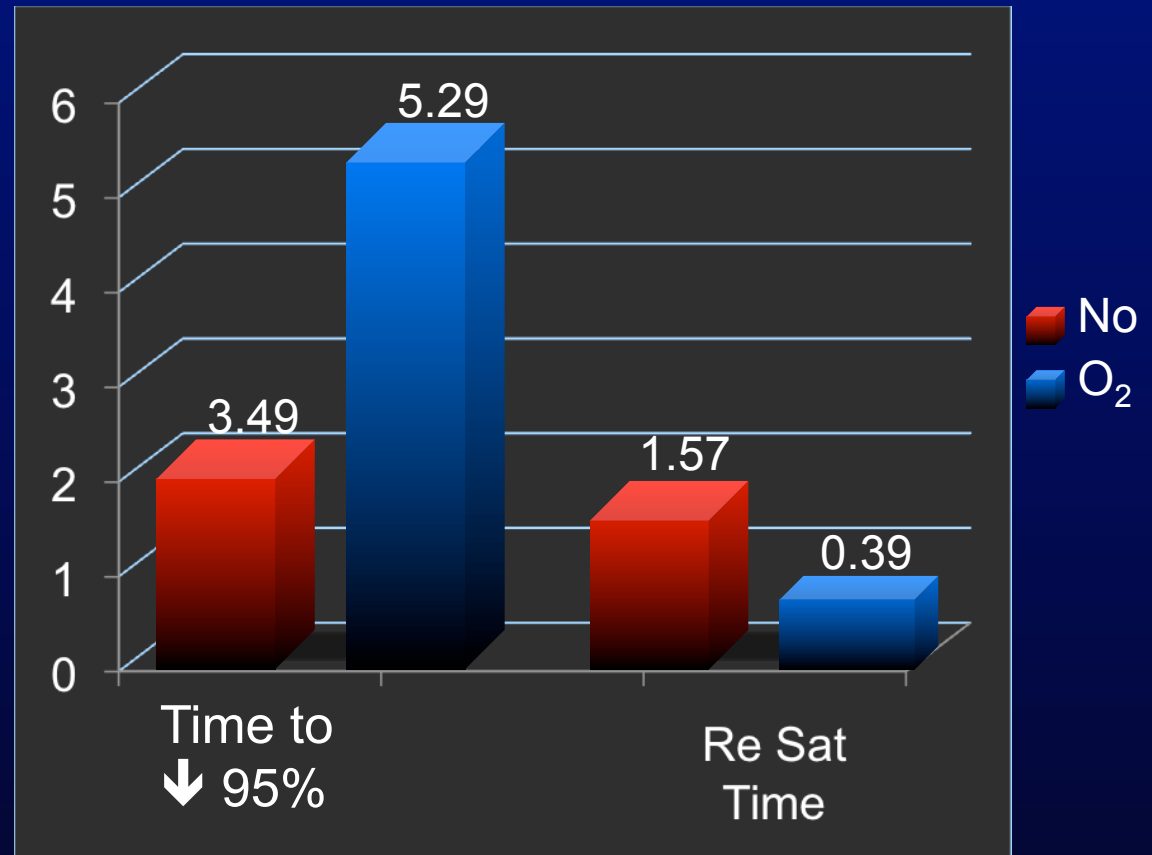
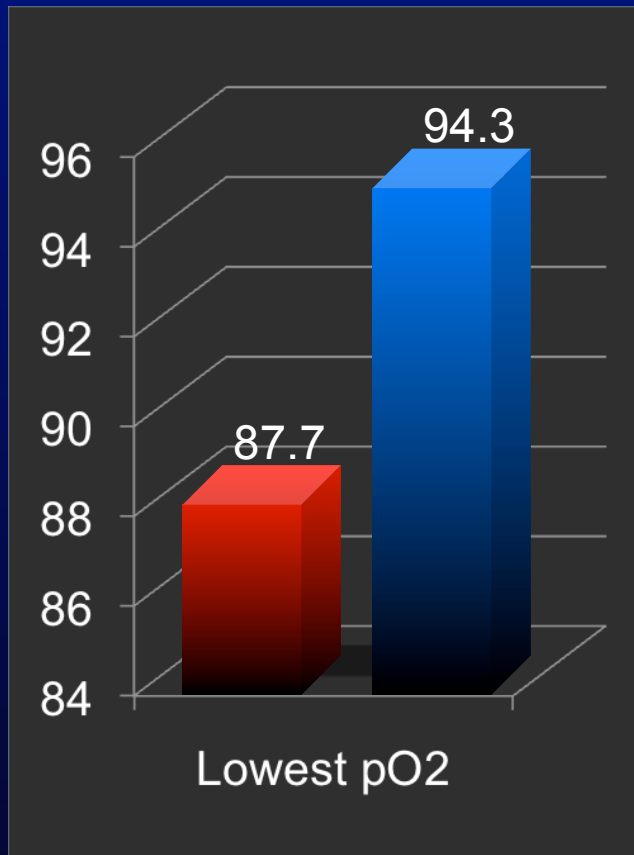
# Ease of Intubation

*Prehosp Emerg Care 2011;15:30-33*



## Apneic oxygenation during prolonged laryngoscopy in obese patients: a randomized, controlled trial of nasal oxygen administration

Satya Krishna Ramachandran MD, FRCA (Attending Anesthesiologist, Clinical Lecturer)\*,



If you have an obese patient,  
or think you might have a difficult airway.

# Take Home on New Airway Devices and Techniques

- Need to consider video device for all EDs
- Improved Views, Faster and Easier
- More Successes, Less Failed Airways
- 30° Elevation?
- *Nasal Prongs During Intubation!*

# Summary

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- Be careful with O<sub>2</sub> in COPD
- Atropine gone, TH in
- Tilt and use nasal O<sub>2</sub>
- Bougie Bougie Bougie
- Plunger CPR and ITD?

