Five Key EMS Articles
Eagles 2011

Corey M. Slovis, M.D.
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,\textsuperscript{1} emergency medicine registrar,\textsuperscript{2} wilderness helicopter, intensive care paramedic,\textsuperscript{3} Karen E Wills, biostatistician,\textsuperscript{1} Leigh Blizzard, senior biostatistician,\textsuperscript{1} Eugene H Walters, professorial fellow,\textsuperscript{1} Richard Wood-Baker, honorary fellow,\textsuperscript{1} director\textsuperscript{2}
High Flow \text{O}_2 \text{ vs. Titrated Oxygen}

- Titrated Oxygen was 88-92% 
- 405 pts with presumed COPD exacerbation 
- Tasmanian Ambulance Service 
- All got bronchodilators and steroids
ABGs
100% O₂ vs. Titrated O₂

BMJ 2010;341:c5462
Intubation Rates
100% O₂ vs. Titrated O₂

BMJ 2010;341:c5462
Mortality Rates

100% O₂ vs. Titrated O₂

BMJ 2010;341:c5462

\[ p = 0.04 \]
Effect of high flow oxygen on mortality in chronic obstructive pulmonary disease patients in prehospital setting: randomised controlled trial

Take Home Points

• Not titrating $O_2$ sats to 92% is dangerous

• High Flow $O_2$ should be used with real caution

• Increased mortality, hypercarbia and respiratory acidosis are not just theoretical with $O_2$ use in COPD
CPR and ACLS 2011
In CPR, Less May Be Better
Myron L. Weisfeldt, M.D.

Fifty years have passed since Kouwenhoven, Jude, and Knickerbocker 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 added. But CPR is not just for cardiac arrest. 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-
• 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!

- 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

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

- ETT
- Capnography
- Atropine
- Adenosine
- Therapeutic Hypothermia
ACLS 2011 Changes

- **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

- **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 monomorphich WCT
Adenosine Mortality

• Sinus Tachycardia
  - Elderly, dehydrated, fever, pneumonia

• Wide and Irregular
  - WPW with aberrancy
## 5 Step Management of Asystole

<table>
<thead>
<tr>
<th>2010</th>
<th>2011</th>
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<tbody>
<tr>
<td>• Confirm</td>
<td>• Confirm</td>
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<tr>
<td>• Oxygenate</td>
<td>• Oxygenate</td>
</tr>
<tr>
<td>• Epi: 1mg + Atropine 1 mg</td>
<td>• Epi: 1mg</td>
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<tr>
<td>• Repeat Epi + Atropine Q 3 min</td>
<td>• Repeat Epinephrine Q 3 min</td>
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<tr>
<td>• Consider Termination using ETCO₂</td>
<td>• Consider Termination using ETCO₂</td>
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5 Step Management of PEA

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 to determine whether blade insertion can reduce the need for routine stylet use during intubation in morbidly obese patients.

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, Tuttingen, 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 all patients.

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, Kohe Ota, MD, Satoshi Yamaga, MD, Yoshiko Kida, MD, Tadatsugu Otani, MD, Takuma Sadamori, MD,

We compared the efficacy of the Airway Scope with the Airtraq and Macintosh laryngoscope in a manikin study of inexperienced personnel. A total of 31 manikin attempts were performed at each laryngoscope: Airway Scope, Airtraq, and Macintosh laryngoscope. For each attempt, the time and number of attempts until the trachea was successfully intubated were recorded.

Comparison of Traditional versus Video Laryngoscopy in Out-of-Hospital Tracheal Intubation

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

A comparison was made between traditional laryngoscopy and video laryngoscopy in out-of-hospital tracheal intubation. The video laryngoscope was used in 50 intubations, and the traditional laryngoscope was used in 50 intubations. The primary outcome measure was the number of attempts required to successfully intubate the trachea.
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

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 O₂
- 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.‡

• 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

- Tidal Volume:
  - One Hand: 6.80 L
  - Two Hand: 8.60 L
  - Significance: p = 0.006

- Inadequate Ventilation:
  - One Hand: 19%
  - Two Hand: 0%
  - Significance: p = 0.013
• What is the “best” patient position when intubating?

• Flat vs. Trendelenberg vs. Elevated
Adapted from ECC American Heart Association
2001 ACLS Case 1 Airway
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

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

- Simulated difficult airway
- Laerdal manikin
- Difficult Grade III view
- Randomized ETI vs. BAI
Successful Intubations (%)
Ease of Intubation

Prehosp Emerg Care 2011;15:30-33

p = 0.006
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

• $30^\circ$ Elevation?

• *Nasal Prongs During Intubation!*
Summary

- Be careful with $O_2$ in COPD
- Atropine gone, TH in
- Tilt and use nasal $O_2$
- Bougie Bougie Bougie
- Plunger CPR and ITD?