Why Paramedics Should NOT be Trained in Endotracheal Intubation

A Plea for an Evidence-based Approach

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A Very Basic Consideration

- *High Risk*
- *Low Frequency*

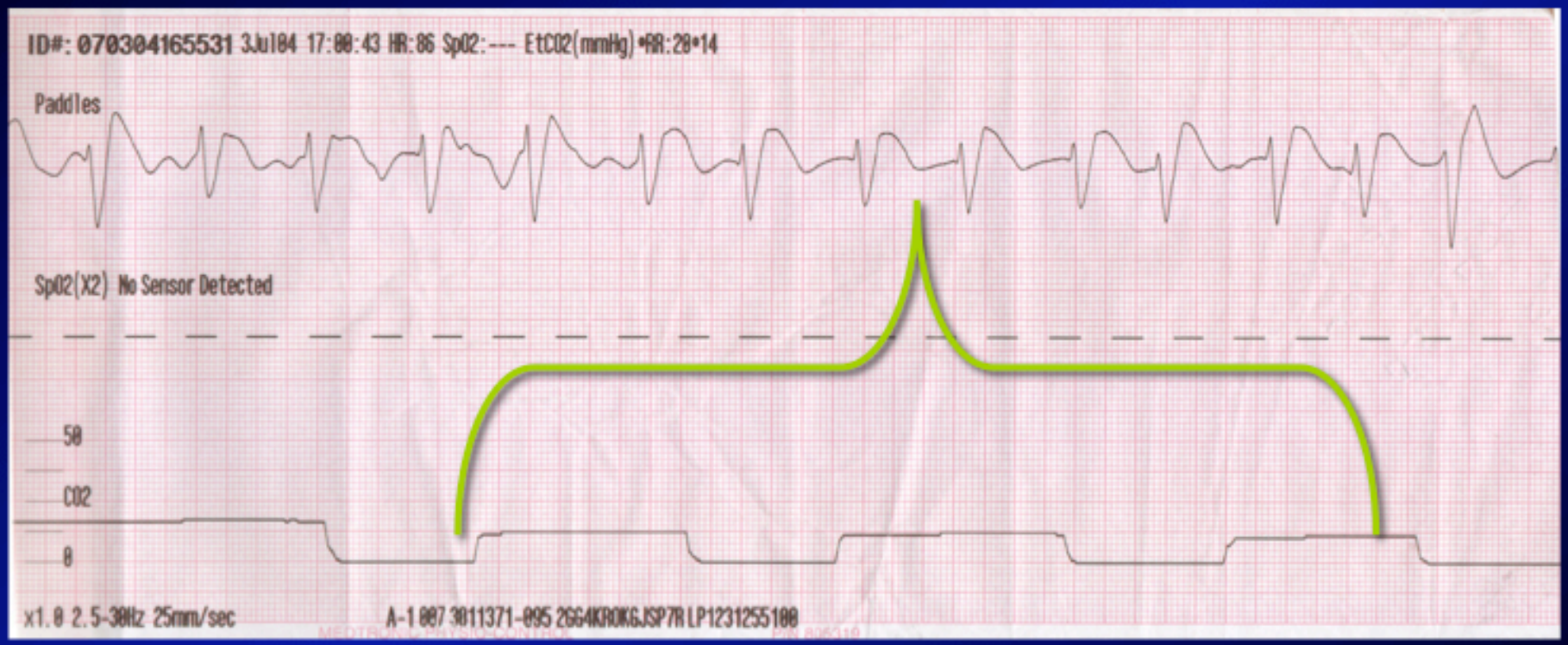
Wang et al reported

As much as a 30% increase in mortality in traumatic brain injured victims who were intubated in the field

What did Wang find?

Intubation in the hands of many EMS professionals:

1. Over-manipulates the airway,
2. Causes aspiration
3. Causes prolonged hypoxia
4. Is a route for overventilation
5. Increases mortality 30% in TBI Patients


ID#: 070304165531 3Jul04 17:00:43 HR:86 SpO2:--- EtCO2(mmHg) *RR:20*14
Paddles
SpO2(X2) No Sensor Detected
50
CO2
0
x1.0 2.5-30Hz 25mm/sec
A-1 007 3011371-095 2GG4KR0MGJSP7R LP1231255100

Multivariate Predictors of Failed Prehospital Endotracheal Intubation

Henry E. Wang, MD, Douglas F. Kupas, MD, Paul M. Paris, MD, Robyn R. Bates, MS, Joseph P. Costantino, DrPH and Donald M. Yealy, MD

From the Department of Emergency Medicine, University of Pittsburgh School of Medicine (HEW, PMP, RRB, DMY), Pittsburgh, PA; the Department of Emergency Medicine, Geisinger Health System (DFK), Danville, PA; and the Department of Biostatistics, Graduate School of Public Health, University of Pittsburgh (JPC), Pittsburgh, PA.

Of 61 factors potentially related to ETI failure, multivariate logistic regression revealed the following significant covariates associated with ETI failure (odds ratio; 95% confidence interval; likelihood ratio p-value):

presence of clenched jaw/trismus
(9.718; 95% CI = 4.594 to 20.558; p < 0.0001);

inability to pass the endotracheal tube through the vocal cords
(7.653; 95% CI = 3.561 to 16.447; p < 0.0001);

inability to visualize the vocal cords
(7.638; 95% CI = 3.966 to 14.707; p < 0.0001);

intact gag reflex
(7.060; 95% CI = 3.552 to 14.033; p < 0.0001);

intravenous access established prior to ETI attempt
(3.180; 95% CI = 1.640 to 6.164; p = 0.0005);

increased weight (ordinal scale)
(1.555; 95% CI = 1.242 to 1.947; p = 0.0001);

electrocardiographic monitoring established prior to ETI attempt
(0.199; 95% CI = 0.084 to 0.469; p = 0.0003).

In the massive
Dallas Urban EMS System

Average Paramedic intubates once every two years

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 cardiopulmonary arrest

Procedure:

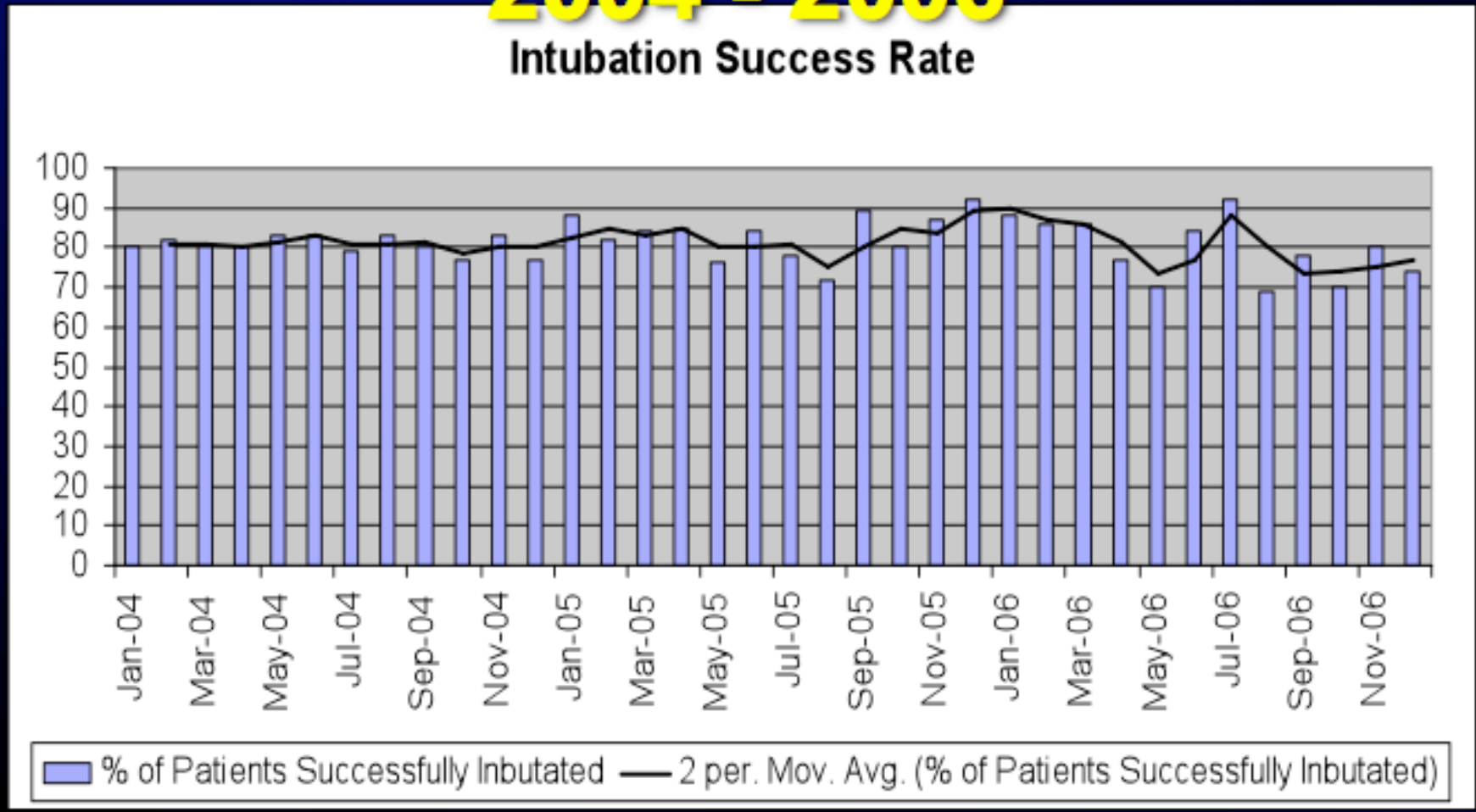
1. Preoxygenate the patient, if possible
2. Assemble and check equipment

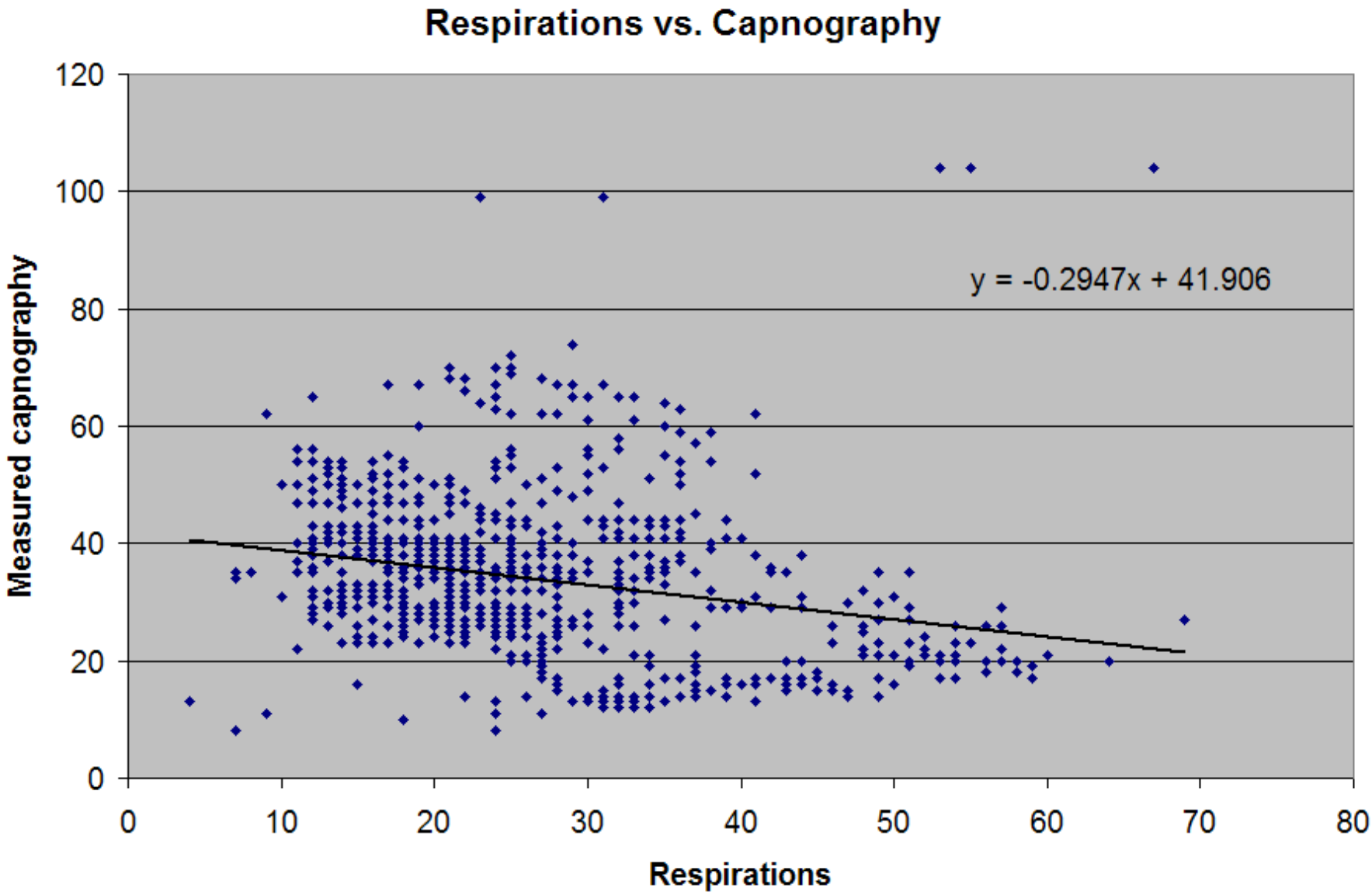
15. IF ETT Intubation is unsuccessful after ONE attempt, insert a Combitube.

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 ½ 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.

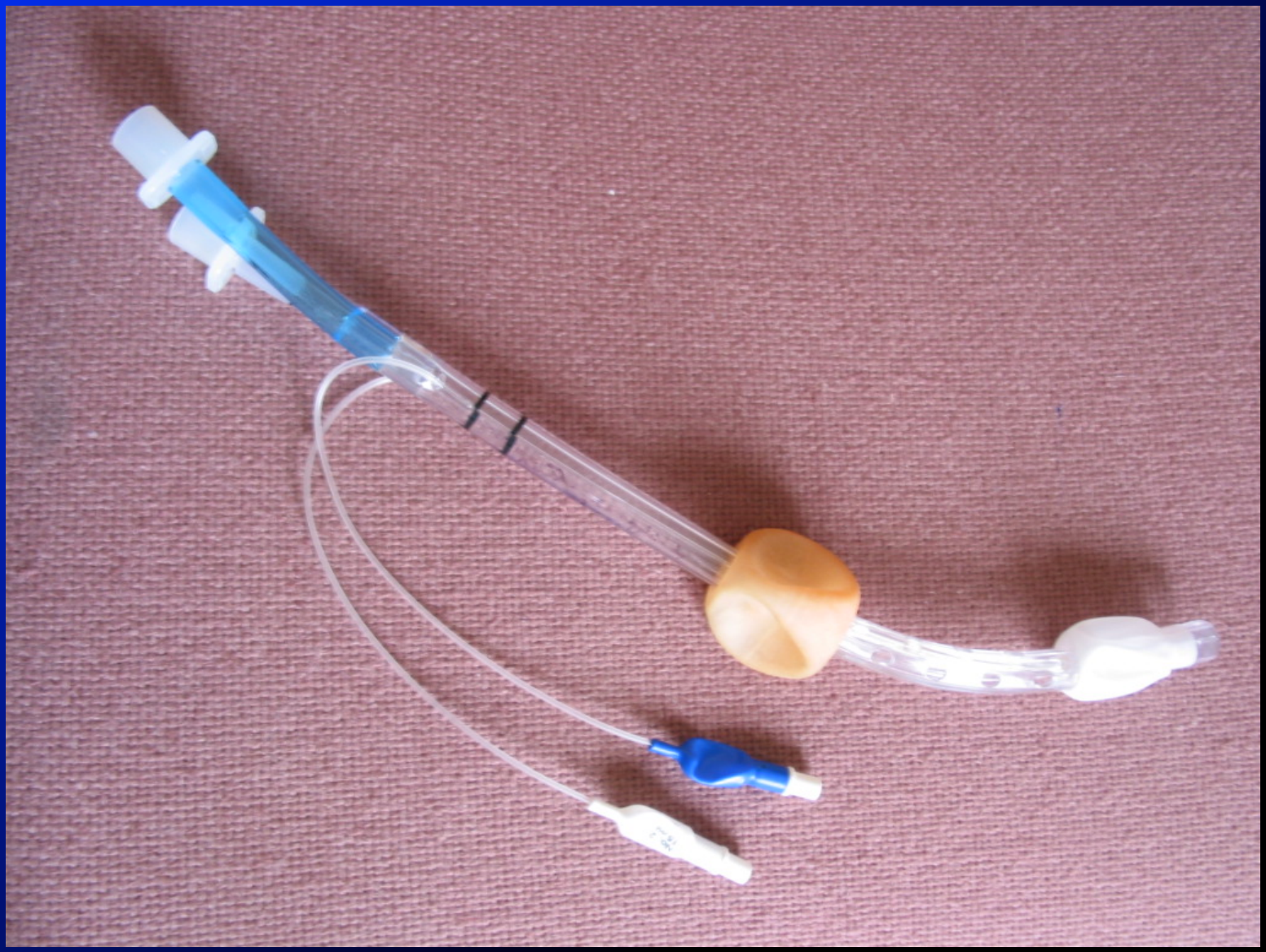
MedStar
ET Intubation Success Rates
2004 - 2006




Respirations vs. Capnography
Measured capnography
Respirations
y = -0.2947x + 41.906
120
100
80
60
40
20
0
0
10
20
30
40
50
60
70
80

Why intubate?

To Prevent Aspiration!

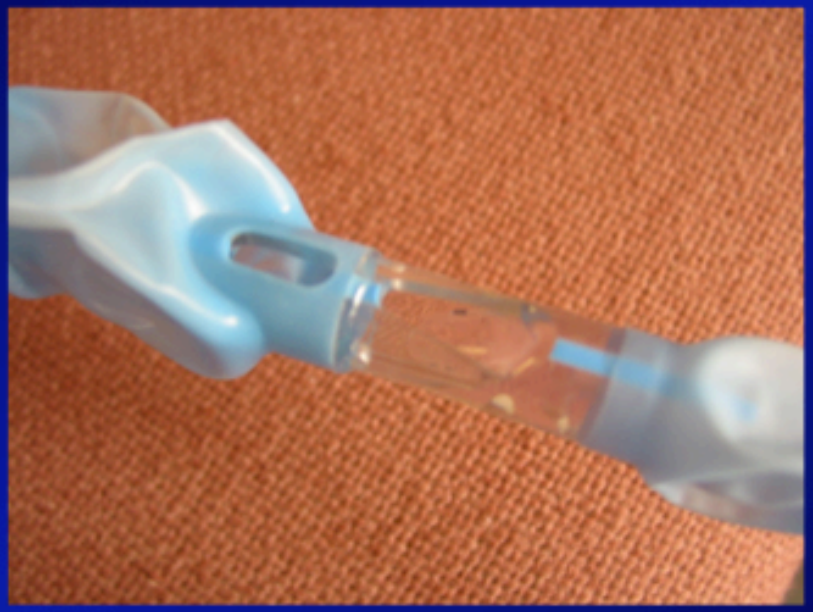


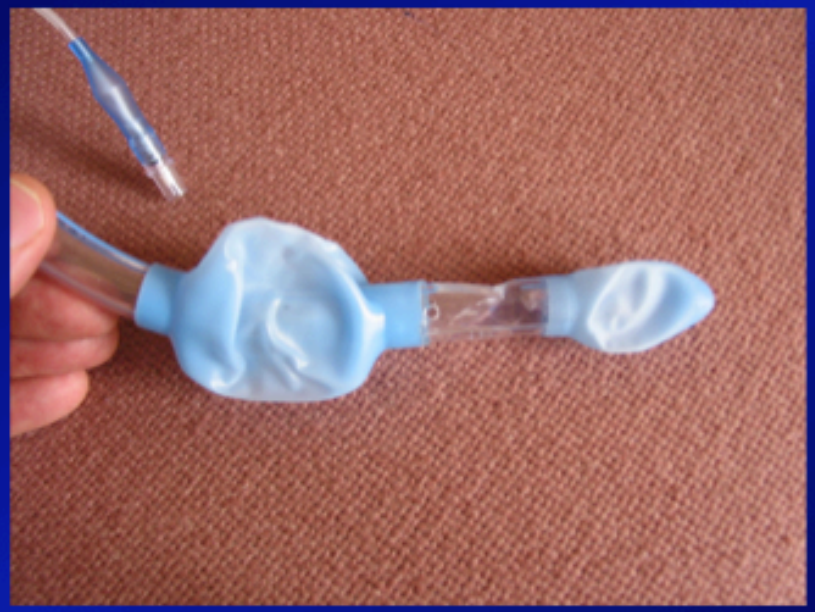
Dr. Michael Frass

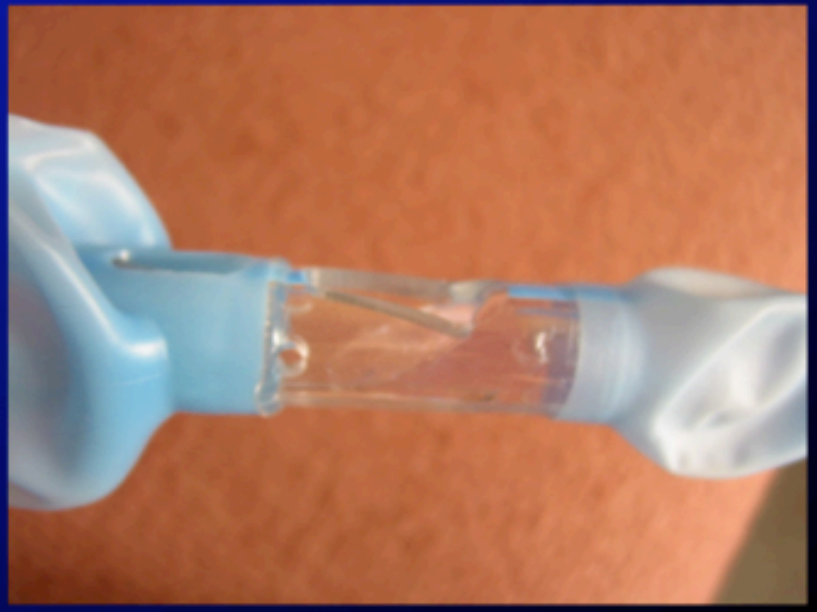
"The Combitube prevents aspiration"

Dr. Ahamed Idris

"The King Airway prevents aspiration"

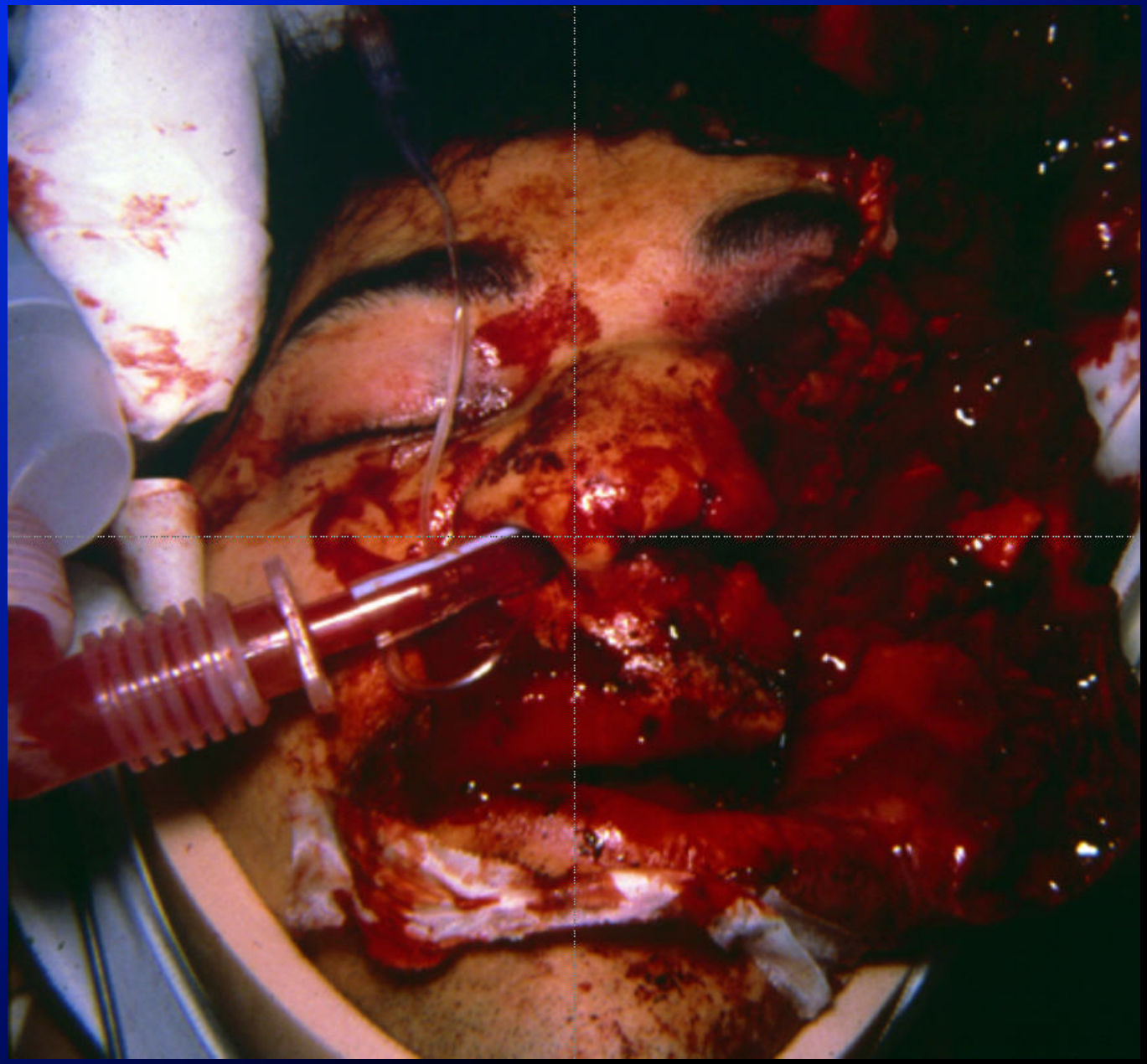






Dr. Slovis' points PRESUMES excellence in training

But in training institutions all over EMS, OR training has become harder to find



The Impact of CPAP

Medical ETI have dramatically decreased

Thus, the occasion of the ETI of the "now"????

- ✓ *Cardiac Arrest*
- ✓ *Apnea*
- ✓ *Airway Issues*

Medics should be doing in the field what we would do in the ER

Never intubate for convenience…but for need BVM is almost always OK

Medics should be doing in the field what we would do in the ER

That heroin OD GCS 6 protecting his airway with a good pulse ox may not need intubation

Cardiac Arrest

All evidence suggests now that ventilation is de-emphasized, esp. in the first five minutes…
…and BVM is OKAY!!!

Cardiac Arrest

Houston: King first
DFR: King first

Cardiac Arrest

ETI is no longer considered a useful route for medications

What is the future of airway management?

The Future of ETI in the field (and elsewhere)

Only instrument the trachea when the trachea needs instrumentation

What are the problems?

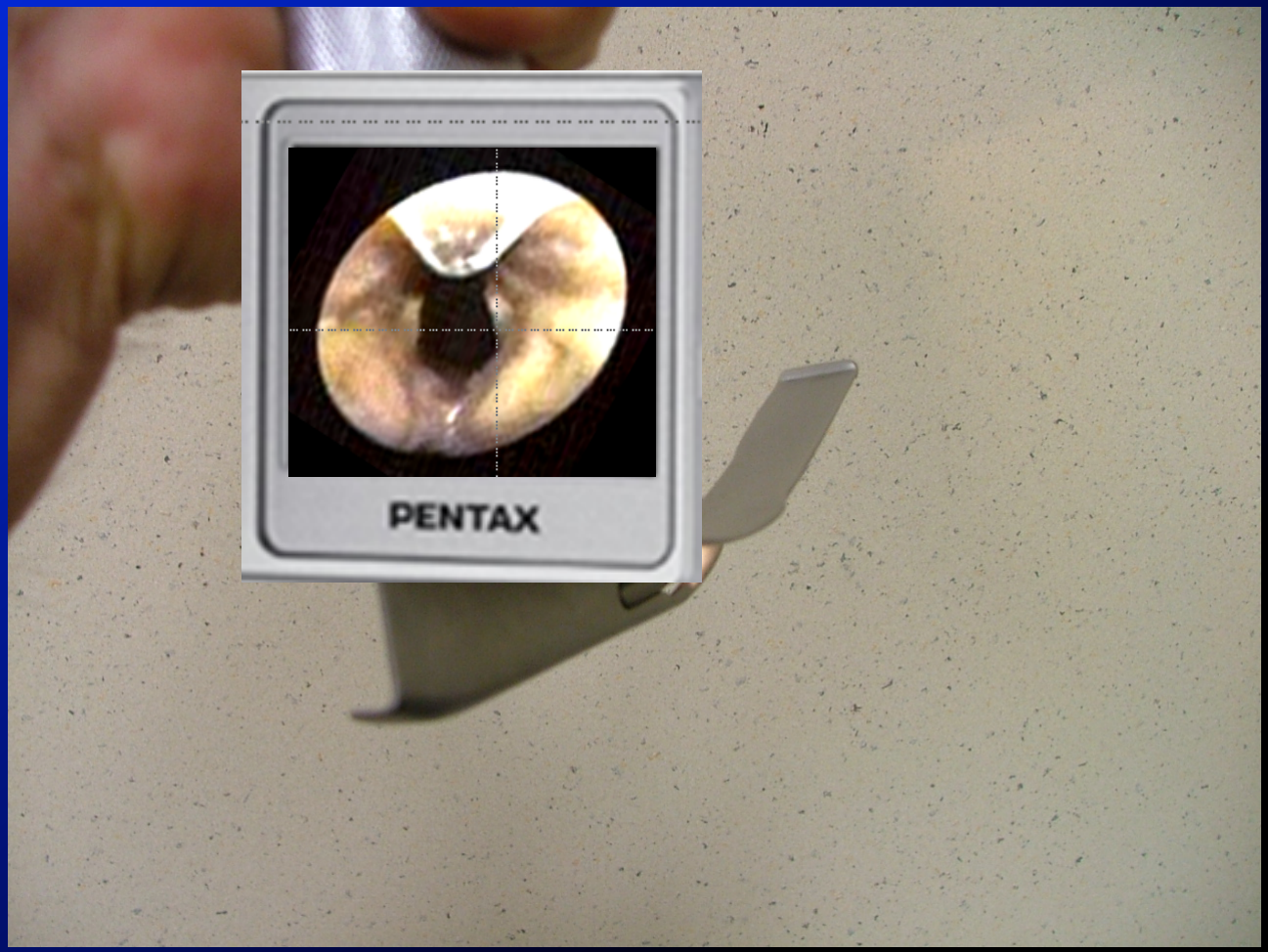
1. The Unprepped Airway
2. Deteriorating Skills
3. Patient Criticality
4. The Physiology of the Positioning of the Head

Who will still need endotracheal intubation?

1. Burn victims with swelling cords
2. Worsening vocal cord edema
3. Maybe epiglottitis
4. Laryngospasm

As to Pharmacologically Assisted Intubation

What is the risk
of giving general anesthetics
to critically ill patients?


PENTAX

Tracheal punctures will likely become more common

Who would need a puncture to the trachea?

1. Burn victims with swelling cords
2. Worsening vocal cord edema
3. Maybe epiglottitis
4. Laryngospasm
5. Fractured larynx/trauma
6. Foreign bodies

Finally upon Closing

To quote the esteemed
Dr. Brent Myers…

If it isn't simple…
…it simply won't be done

To quote the esteemed W.C. Fields…

"Some weasel took the cork out of my lunch."

To quote myself…

"It is a moral imperative to maintain professional standards with an ethical commitment."

At the minimum, it speaks to the need to NOT allow PM to intubate unless they are:

1. *Well trained*
2. *Intubate frequently*
3. *QA program*
4. *Outcome data*

So…should PRIMARY training for PM include ETI?

NO!!!!

So…should
ADVANCED LEVEL
training for PM include ETI?

YOU BET!!!

Each an area of breakdown

Five Reasons to Ditch Endotracheal Intubation

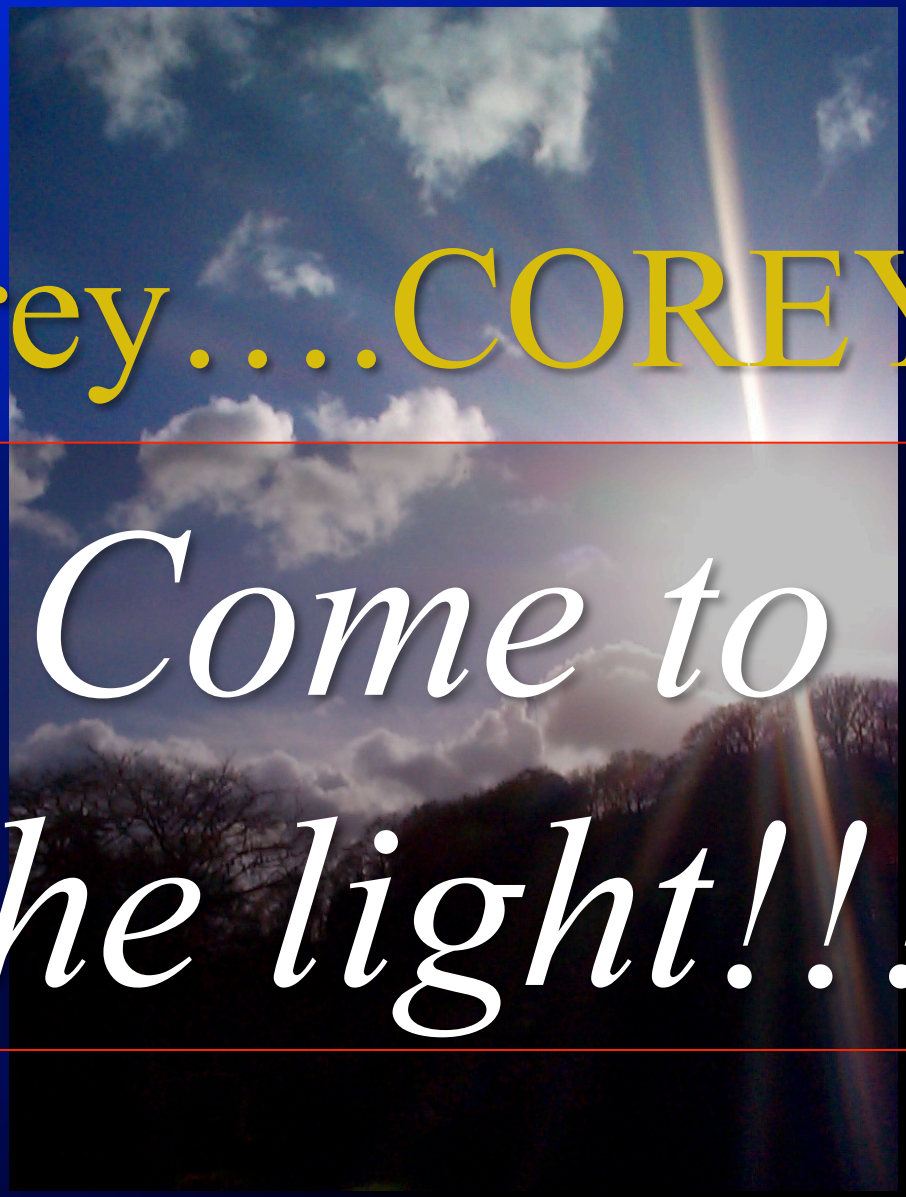
1. Never learned it well

2. Rarely do it

3. Little or no ConEd

4. No outcome data

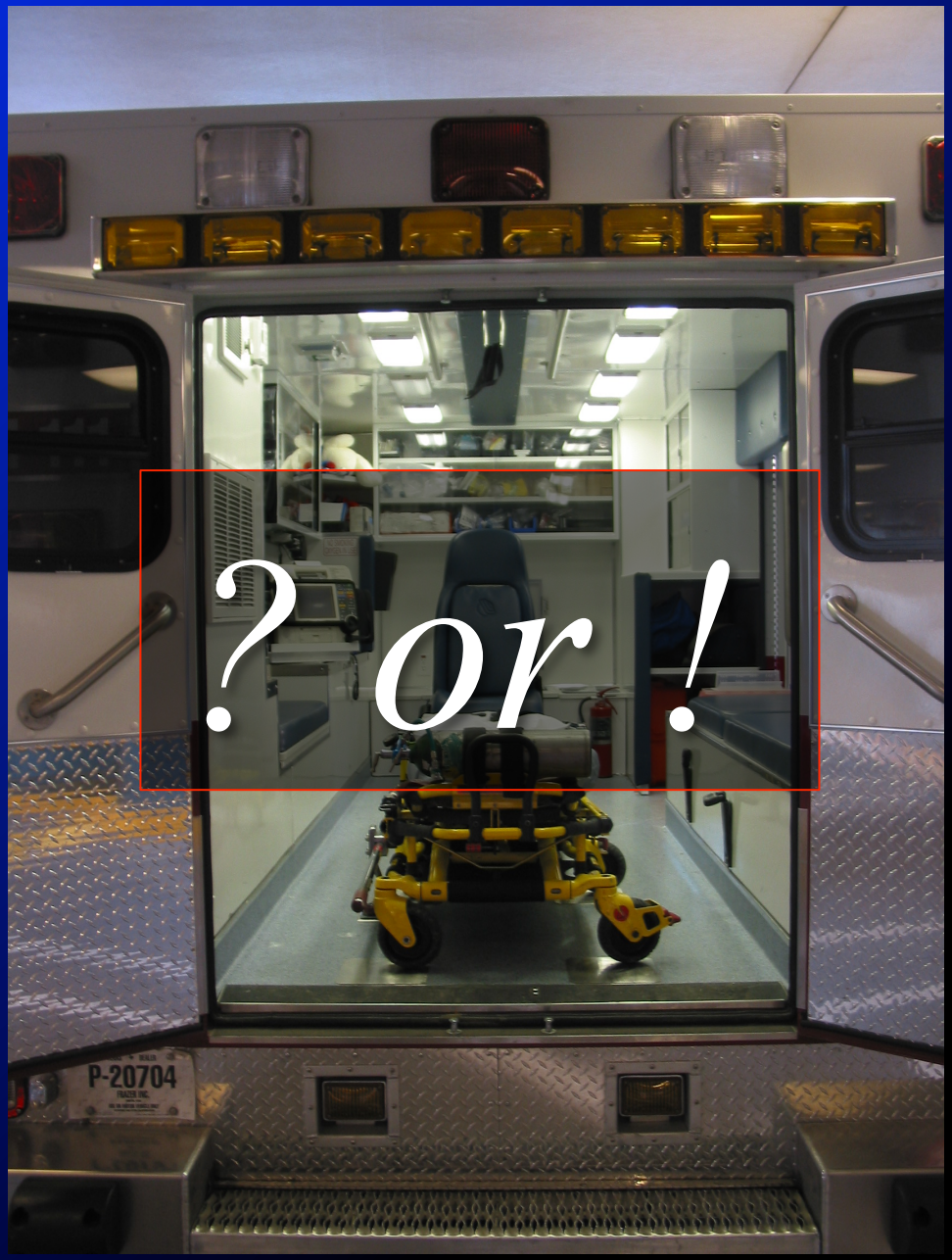
5. Variable QA



Corey….COREY!!!

Come to the light!!!

www.rayfowler.com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