

Paramedic – Evidence Based Medicine (P-EBP) Program

Paramedic CAT (Critically Appraised Topic) Worksheet

Title: Impact of single-use disposable versus metallic reusable laryngoscope blades on first attempt intubation in the adult respiratory arrest pre-hospital patients

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Clinical Scenario:

A 55 year old female is found unresponsive in her living room by her husband and 911 is activated. Paramedics arrive on scene to find the patient with a GCS of 6. Airway management is approached as per local protocol. Is the first attempt at Endotracheal Intubation using a Metallic Reusable Laryngoscope Blade more successful than a first attempt using a Plastic Single-Use Laryngoscope Blade?

PICO (Population – Intervention – Comparison – Outcome) Question:

In patients presenting to EMS, in respiratory or cardiac Arrest (P), does endotracheal intubation with a Plastic Single-Use Laryngoscope Blade (I) rather than a Metallic Reusable Laryngoscope Blade (C), decrease first attempt success rates (O)?

Search Strategy:

| Search | Most Recent Queries | Time | Result |
|--------------------|--|----------|-----------------------|
| #4 | Search #1 and #2 and #3 | 19:00:05 | 6 |
| #3 | Search blade* | 18:59:05 | 6217 |
| #2 | Search *tracheal intubation | 18:38:31 | 27681 |
| #1 | Search paramedic* or EMT* or Emergency Medical Technician* or prehospital or out-of-hospital | 18:37:38 | 17521 |

Search Outcome:

This search yielded 13 hits. One paper was relevant to this PICO question.

Relevant Paper:

| AUTHOR, DATE | POPULATION: SAMPLE CHARACTERISTICS | DESIGN (LOE) | OUTCOMES | RESULTS |
|----------------|--|---|----------------------------------|---|
| Jabre MD, 2007 | 1193 Out-of-Hospital Adult Pt's 18y/o or > | Prospective Observational Cdn EBP30 LOE: II | - First attempt ETI success rate | - Metallic Blade 594 /1,177 -Plastic blade 583/1,177 - 84% (497/594) higher success rates with Metallic - 76% Single Use success rates |

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STRENGTHS/ WEAKNESSES

Strengths:

- Large study

Weaknesses

- Study of Out-of-hospital team consisting of an anesthesia nurse, and a senior physician specializing in EM or anesthesia
- physicians performed intubations – may not be comparable to paramedic performance
- evaluation of success of intervention after only 1hr of manikin training
- nonrandomized and unblinded
- failure to record all intubation-related complications (incidence of Respiratory / Cardiovascular complications)
- No survival or morbidity endpoints – is 1st attempt success rate a clinically important outcome? Does first attempt success rate actually impact outcome?
- Assessed only one type of plastic blade – type of blade not identified

Comments:

From the results of this study, it appears that out-of-hospital 1st attempt endotracheal intubation success rates by physicians were higher when performed using a Metallic Reusable Laryngoscope Blade rather than a Plastic Single-Use Laryngoscope Blade.

Consider:

Further study is needed to draw a definite conclusion regarding the impact of blade type on prehospital intubation success rates by paramedics. The current study reports intubation success rates by physicians in the out-of-hospital setting, is non-randomized, non-blinded, and fails to examine clinically relevant outcomes such as morbidity, or mortality relative to number of attempts at intubation. There are currently no published prehospital studies that examine the impact of blade type or design on intubation success by paramedics.

Clinical Bottom Line:

Further study is necessary to determine if the use of Metallic Reusable Laryngoscope Blades compared with Plastic Single-Use Laryngoscope Blades influences prehospital intubation success rates by paramedics.

References:

Jabre P, Leroux B, Brohon S, et al. A Comparison of Plastic Single-Use with Metallic Reusable Laryngoscope Blades for Out-of-Hospital Tracheal Intubation. *Ann Emerg Med* 2007;50(3):258-63.