The Effects of a Novel Checklist on Self-Efficacy for Rapid Sequence Intubation

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Disclaimer

• The views expressed are those of the author(s) and do not reflect the official policy or position of the U.S. Army Medical Department, Department of the Army, Department of Defense, or the U.S. Government.

• This study was conducted in accordance with a protocol, reviewed and approved by the Chief of the Department of Clinical Investigation, Madigan Army Medical Center.

• The investigators have adhered to the policies for protection of human subjects as prescribed in 45 CFR 46.

Outline

• Background
• Military Significance
• Endotracheal Intubation
• Hypothesis
• Methods
• Results
• Limitations
• Conclusion
Endotracheal Intubation

- The standard for airway management
- Rapid sequence intubation (RSI)
  - Induction agent (ex: ketamine) + paralytic (ex: rocuronium)
  - The highest intubation success rate
RSI vs Cricothyroidotomy

Time

Unique Military Challenges

Military providers
• Deploy regardless of specialty
• Rarely receive RSI training
• Deploy to remote areas
The Study

**BANDURA**
Confidence and self-efficacy are essential in accomplishing a task.

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**Self-Efficacy**

- Improve task completion without errors
- Predictor of performance in difficult situations
- Experience ≈ confidence
- Number of times task performed ≈ self-efficacy

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**Study Goal**

- Create a checklist for RSI
- Cognitively unload
- Decrease emotional/psychological distress
- Boost confidence
- Decrease apneic time
**Hypothesis**

Use of a novel RSI checklist improves self-efficacy in minimally experienced medical providers

**Outcomes**

- **Primary**
  - Individual self-efficacy in RSI performance

- **Secondary**
  - Total apneic time in performing RSI

**Design**

- Prospective, randomized, crossover, observational
- Simulation environment
- IRB approved
Setting

• Anderson Simulation Center, JBLM, WA
• 1 January 2018 – 1 June 2018

Subjects

Inclusion Criteria

• Credentialed US Army physician or physician assistant
• Duty description includes RSI

Exclusion Criteria

• Does not meet physical requirements under Medical Operational Data System 12
• Performed >50 RSI’s

The Checklist

• Literature review
• Peer reviewed
Study Protocol

Didactic Class

Hands On

Survey

Randomize

No checklist

Checklist

Survey

Data compiled

Data Analyzed

The Procedure

Testing Iterations

Investigators:

• Read scenario
• Evaluate performance
  • # of critical actions completed
  • # of attempts
• Apneic times
• No feedback provided
### Results: Primary Outcome

- 52 participants
  - 32 physicians and 20 PA’s
- Mean baseline confidence between groups: no difference
  - 46 vs 48, \( p \)-value: 0.77
- Novel checklist overall confidence: 72% (95% CI, 67-78)
- No checklist overall confidence: 62% (95% CI, 56-69)
  - 10% difference (\( p < 0.01 \))
  - 26% increase in self-efficacy with checklist

### Results: Secondary Outcome

Total apneic time
- With checklist: 127 and 91 seconds
- Without checklist: 97 and 90 seconds

### Discussion

- Operational Environment
- Airway compromise: 2nd leading cause of preventable death at 8%
- Baseline self-efficacy in performing RSI in minimally experienced providers: 46-48%
- 26% (\( p < .01 \)) increase from baseline with novel checklist
- Checklist use resulted in longer apneic times
Limitations

- Mannequin intubation
- Short washout periods
- Single U.S Army academic medical center

Conclusion

The use of a novel RSI checklist quickly increases self-efficacy and may improve medical capability on the battlefield.

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