

From Field to Hospital: A Survey of Airway Management Strategies and Performance Limitations

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Background

- Advanced airway management is a crucial part of pre-hospital care for trauma patients
- Current airway management technologies are difficult to use in prehospital environments

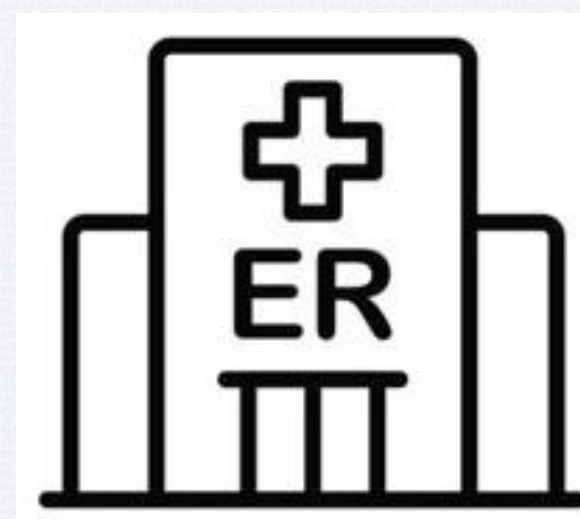
The goal of this study was to survey medical providers in multiple aspects of airway management, to determine pain points and concerns with the current airway management technologies.

Methodology

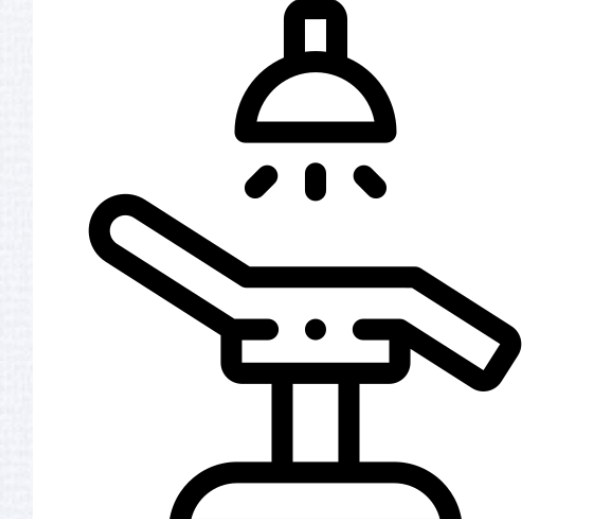
- Military and civilian participants ($n = 100$) were interviewed on their experiences with airway management
- Participants consisted of three primary subgroups: **Prehospital** providers, **Emergency Department** providers, and **Intensive Care Unit** or **Operating Room** providers



Prehospital Providers
 $n = 67$



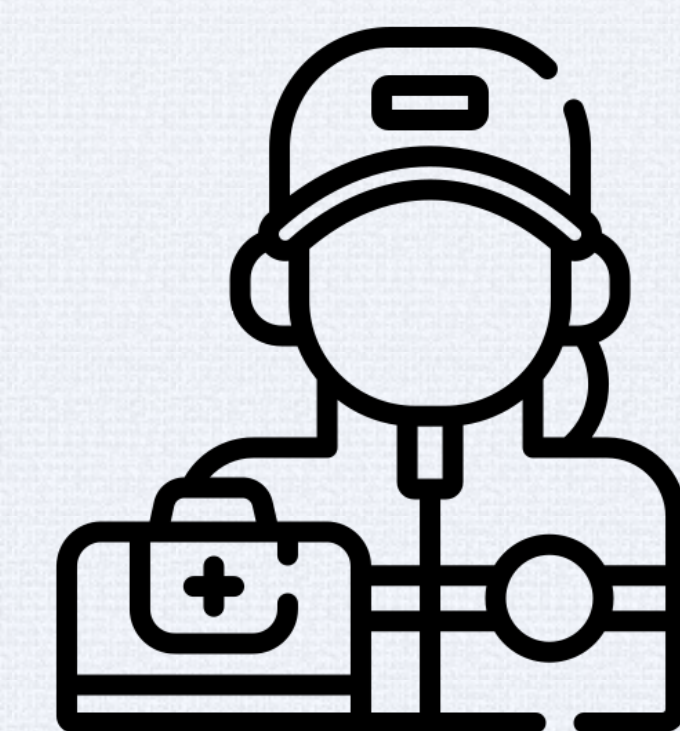
Emergency Department Providers
 $n = 17$



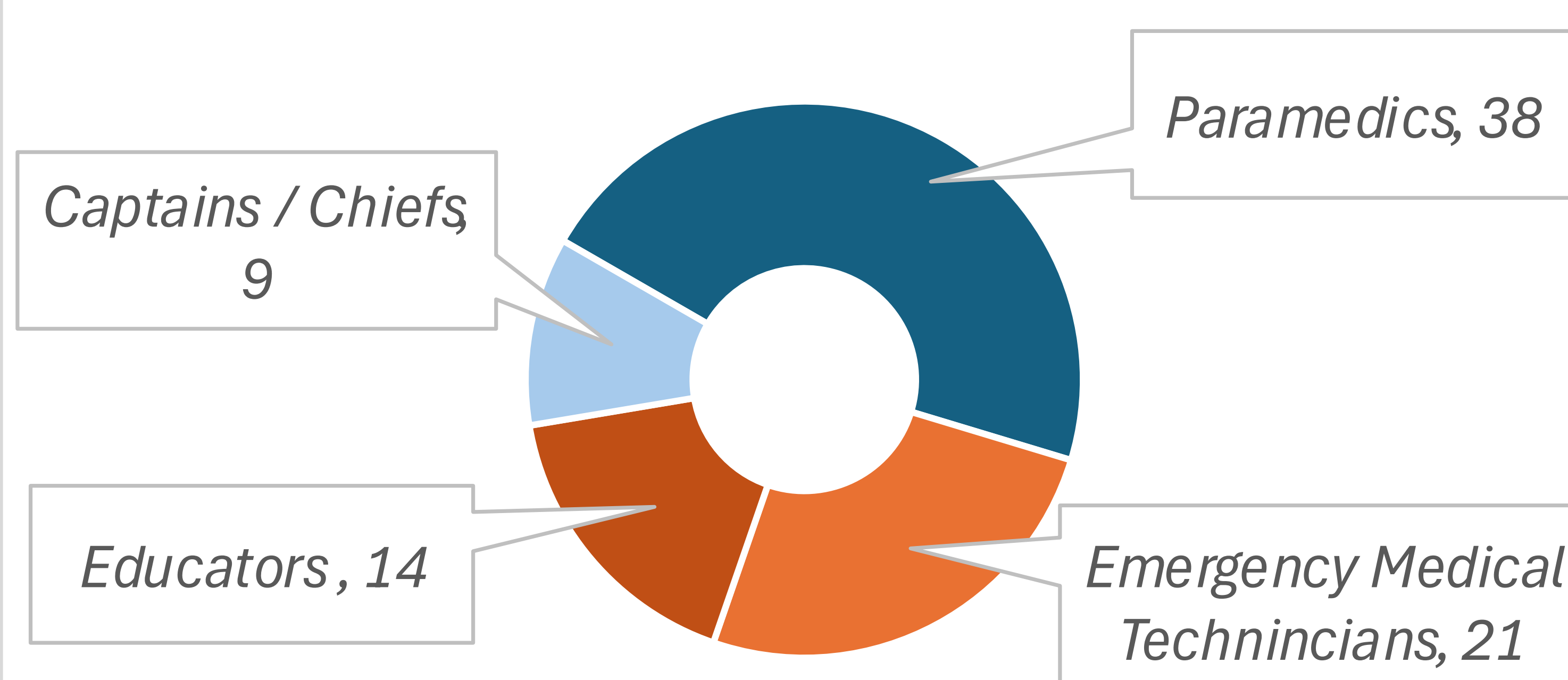
ICU and OR Providers
 $n = 10$

- For analysis purposes the Prehospital group ($n = 67$) was divided into four subgroups

- Paramedics
- Emergency Medical Technicians
- Educators
- Captains / Chiefs



Number of Prehospital Providers ($n = 67$) in Each Subgroup



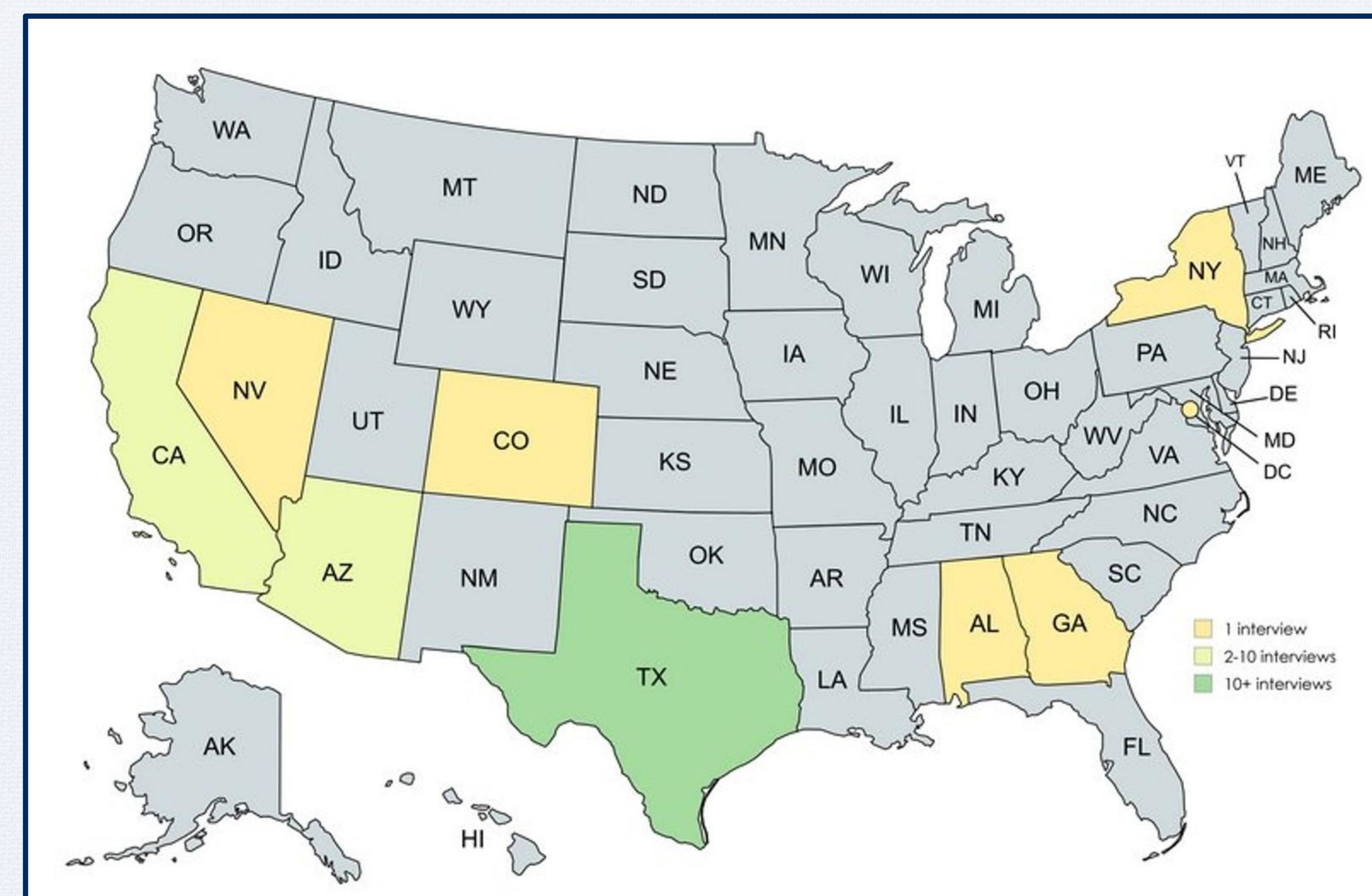
Self Reported Confidence

Participants in each major subgroup were asked to rate their confidence with endotracheal (ET) intubation:

- Intensive Care or Operating Room Providers**
 - Anesthesiologists reported the highest confidence out of the subgroups
- Emergency Department Providers**
 - 35% ($n = 6/17$) reported an average confidence level of 7.33/10.
 - Primarily used an ET tube in advanced airway situations.
- Prehospital Providers**
 - 55% ($n = 21/38$) of paramedics reported an average confidence score of 8.46/10.
 - Many stated that they preferred to use supraglottic airway devices instead of attempting ET intubation.

Prehospital Provider Training

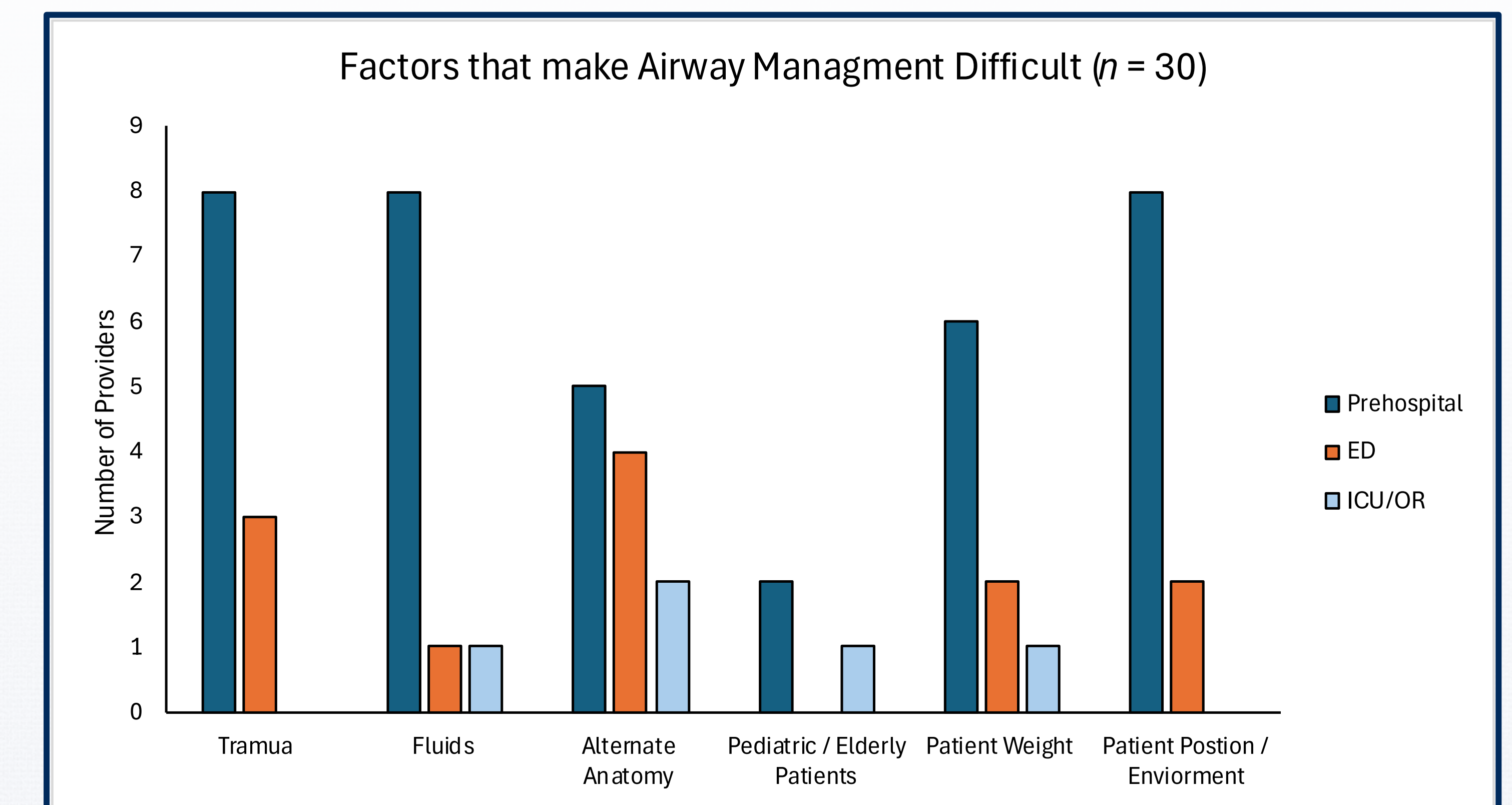
- During our interviews with Emergency Services Educators a significant variability in training and education protocols was found
- The variability was found at a national and regional scale
 - Training requirements vary significantly between states
 - Training requirements varied between cities and even by station



- Educators described the difficulty of standardizing training across departments with varying resources, patient populations, operational demands, along with local and regional guidelines
- A large variability in airway management training and implementation presents a systematic challenge for prehospital providers and educators*

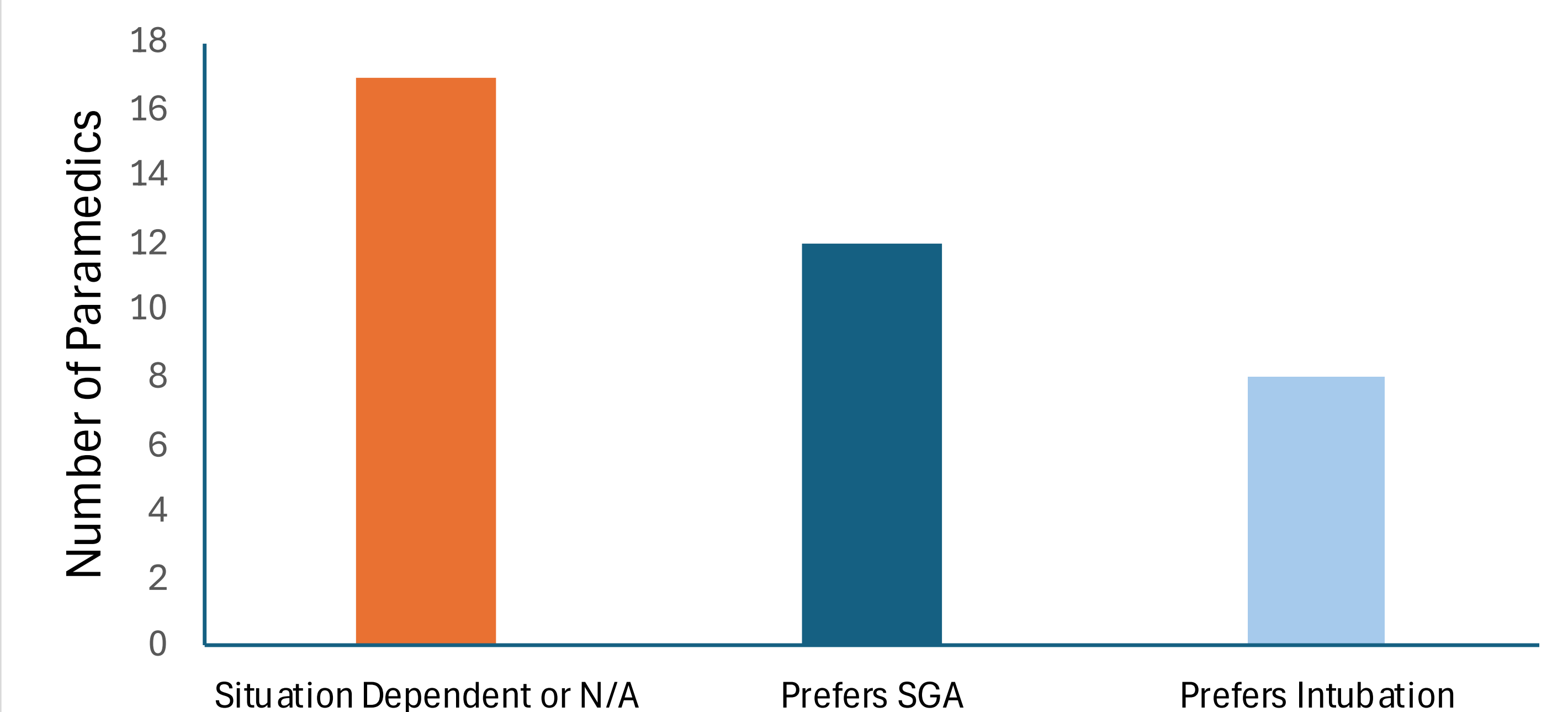
Results and Discussion

- 30 out of the 94 (32%) medical provider interviews highlighted patient and environmental factors with negative impacts on intubation attempts



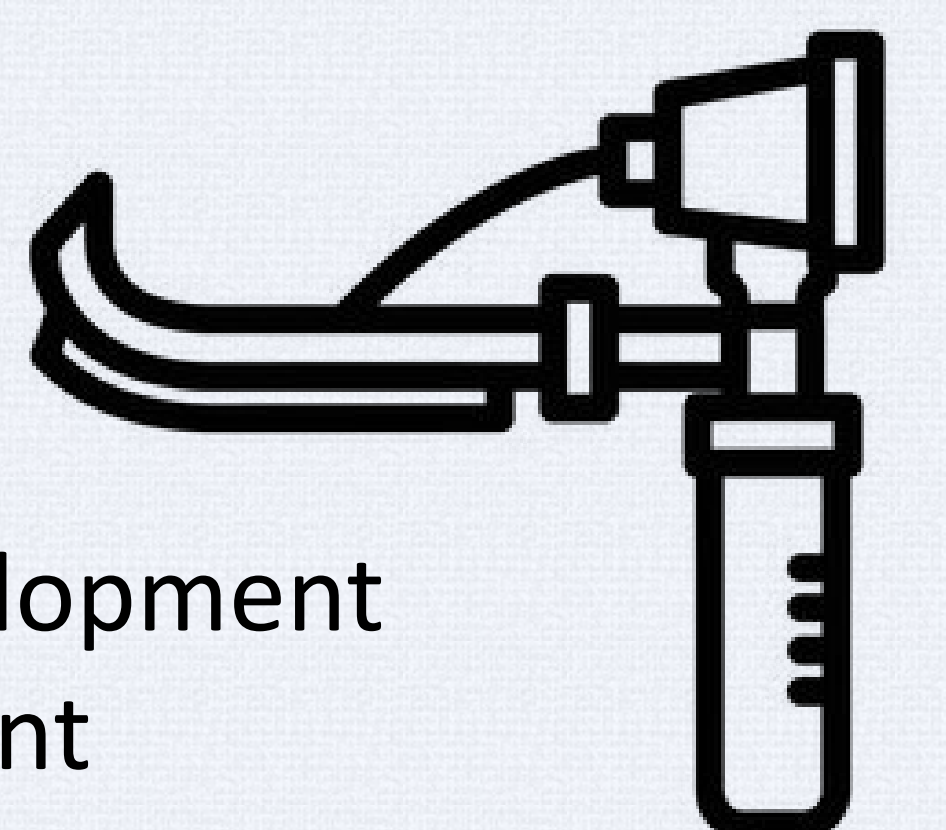
- Despite reporting similar patient-based factors effecting intubation attempts and a high intubation confidence; Prehospital providers often indicated *they preferred not to use an ET tube*

Paramedic Airway Management Device Preference ($n = 37$)



Conclusions

- Survey results suggest further innovation is needed in airway management systems and technology
- Prehospital and military providers emphasized concerns of proper visualization
- This work will be leveraged to guide development the next generation of airway management technologies



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