



## INVASIVE AIRWAY PLACEMENT IN PATIENTS WITH A PULSE

### **PURPOSE**

To establish the expectations of EMS clinicians for invasive airway placement in patients with a pulse.

### **SCOPE**

These expectations apply to all unconscious patients with a pulse (i.e. not in cardiac arrest) who may warrant invasive airway placement defined as supraglottic airway placement and/or endotracheal intubation. This document does not apply to patients with a suspected upper airway obstruction, including foreign body or anaphylaxis, who are in extremis and may require invasive airway management.

### **BACKGROUND**

Endotracheal intubation of unresponsive patients with a pulse developed during an era when fewer alternative airway devices and limited prehospital data were available. Intubation was often viewed as the definitive method of airway control. With the maturation of prehospital research and advances in airway technology, this approach warrants re-examination in light of contemporary evidence.

Endotracheal intubation in patients with a pulse without drug-assisted airway management is associated with substantial patient harm, including increased rates of difficult intubation, reduced first-pass success, peri-intubation hypoxia and hypotension, upper airway injury, and patient awareness.<sup>1,2</sup> High-quality evidence demonstrates the absence of neuromuscular blockade during intubation significantly increases the risk of difficult tracheal intubation and decreases first-pass success, while prehospital data show that sedation-only approaches do not improve outcomes compared with no medications.<sup>1,3,4</sup> Importantly, the very patients in whom clinicians may feel most compelled to intubate—those with persistent hypoxia despite optimized bag-mask ventilation—are also at greatest risk of harm from the apnea time inherent to the procedure. In contrast, supraglottic airway devices demonstrate consistently high success rates without neuromuscular blockade across prehospital, emergency department, operating room, and difficult airway settings,<sup>5–8</sup> and patients with sufficiently depressed mental status and gag reflex that tolerate an oropharyngeal airway are generally expected to tolerate a supraglottic airway as well.

A common justification for endotracheal intubation in non-cardiac arrest patients is concern for aspiration risk. However, evidence demonstrates that aspiration rates are similar between modern supraglottic airway devices and endotracheal tubes, while non-arrest intubation exposes patients to additional procedural and physiologic risks.<sup>9–11</sup>

### **POLICY**

Invasive airway management in unconscious patients with a pulse must be considered only after appropriate optimization of basic airway and ventilatory support. Prior to considering an invasive airway,



clinicians should ensure that all reasonable attempts have been made to optimize non-invasive airway management, including, but not limited to:

- Manual airway maneuvers and positioning
- Use of one or more airway adjuncts (e.g., nasopharyngeal and/or oropharyngeal airways)
- High-quality, two-person bag-mask ventilation with attention to seal, rate, and tidal volume
- Use of waveform capnography to monitor ventilation effectiveness

Escalating beyond non-invasive measures should follow a stepwise approach based on patient physiology, response to interventions, anticipated clinical course, and available clinical capability. Failure of non-invasive measures in the unconscious patient with a pulse is characterized by persistent or worsening hypoxia, hypercapnia, inadequate ventilation, or inability to maintain airway patency despite optimization. In these rare cases, the EMS clinician shall prioritize the safest available airway capability to achieve effective oxygenation and ventilation as measured objectively through the use of waveform capnography:

1. When feasible, a DAAM-credentialed paramedic shall be requested if not already on scene.
2. If a DAAM-credentialed paramedic is available, endotracheal intubation may be performed using full pharmacologic facilitation per policy and protocol as clinically indicated.
3. If a DAAM-credentialed paramedic is not available or cannot arrive within a clinically appropriate timeframe, supraglottic airway placement is the appropriate invasive airway intervention.

Endotracheal intubation in patients with a pulse may not be performed without drug-assisted airway management, requiring adequate sedation and neuromuscular blockade administered by a credentialed EMS clinician. Sedation-only (i.e. “facilitated”) intubation is not an acceptable alternative given the inherent and unacceptable risks.

For patients who receive a supraglottic airway with a pulse, refer to the Post-Intubation sedation protocol for analgesia and sedation following placement.

These expectations do not apply to patients with a suspected airway obstruction, including foreign body or anaphylaxis, who are in extremis and may require invasive airway management.

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