

# INTERNATIONAL TRAUMA LIFE SUPPORT

## AIRWAY ALGORITHM FOR TRAUMA

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The guidelines and references contained in this document are current as of the date of publication and in no way replace physician medical oversight.

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### INTRODUCTION

The purpose of this document is to update International Trauma Life Support (ITLS) instructors and providers of the ITLS position regarding the approach to the trauma patient requiring airway management in the format of an airway algorithm.

Before proceeding, the reader must have familiarity with the ITLS Current Thinking position papers Utilization of the “LEON Criteria” to Predict Difficult Intubation and Utilization of the Bougie Cricothyrotomy Technique for a Surgical Airway in Adults.

### BACKGROUND

A systematic approach to airway assessment and management is key to enhancing the optimal outcome for trauma patients. Prehospital providers face unique challenges in terms of hazardous scenes, adverse environments, and difficult patient access.<sup>2</sup> A paradox exists for EMS providers for those critical patients requiring a definitive airway who are unable to maintain oxygenation, ventilation or airway protection but at the same time, are a great risk to desaturate during airway management increasing morbidity and mortality.<sup>1,2,3</sup> Concurrently, trauma patients with airway compromise may also be in shock from multiple injuries requiring damage control resuscitation, have severe traumatic brain injury or cervical spine injury. Therefore, ITLS supports utilizing a trauma airway algorithm for those patients requiring airway management to optimize patient outcome.

### CONSIDERATIONS

It is imperative to initially determine if the patient is maintaining their airway. Failure to maintain an airway is either due to an inability to protect the airway from aspiration, failure to adequately oxygenate or ventilate, or failure to anticipate a course of clinical deterioration such as from stridor from upper airway burns, neck hematoma formation from stab wounds or



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deep thermal burn to the face or neck.<sup>2</sup> Keeping oxygen saturation above 93% is critical in limiting complications such as hypoxic brain injury, hemodynamic decompensation and dysrhythmia.<sup>1,3</sup> Intubation with first pass success is crucial as multiple attempts are a predictor for desaturation and complications.<sup>1</sup>

Preparation for performing various airway maneuvers is extremely important (Figure) and includes preparing equipment<sup>d</sup> including a bougie<sup>c, 11, 12</sup> and video laryngoscopy (VL) which improve first pass success,<sup>b, 8-10</sup> preoxygenation, positioning,<sup>4</sup> preparing rapid sequence intubation (RSI) medications,<sup>d, 2</sup> and assigning tasks. Assess for a difficult airway utilizing the LEON criteria<sup>5-7</sup> and decide upon proceeding with RSI or placing a supraglottic airway (SGA) based on your ability to perform the procedure and confidence level for success. If unable to intubate, then utilize an SGA, or perform a bougie cricothyrotomy<sup>13-17</sup> if the provider feels this may be the best option. If unable to place an SGA, or if unable to effectively oxygenate or ventilate with the SGA, proceed to a bougie cricothyrotomy in this situation of a failed airway where oxygenation and ventilation is not possible by other means.

After securing the airway device, confirm placement with end tidal CO<sub>2</sub>, replace the cervical collar (if indicated), and apply continuous pulse oximetry and capnography during transport.

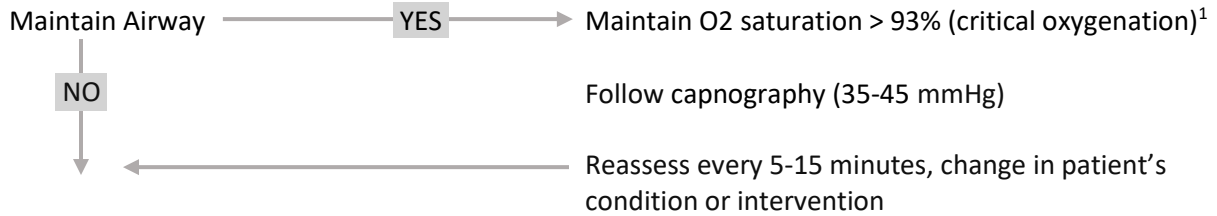
## CONCLUSION

It is the position of ITLS to use the Airway Algorithm for Trauma when assessing trauma patients. Having a systematic approach including an ability to assess for airway compromise, preparation, preoxygenation, proper positioning, utilizing maneuvers to optimize success such as use of a bougie and VL, and anticipation of potential obstacles will enhance the trauma patient outcome.



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## AIRWAY ALGORITHM for TRAUMA



Secondary to:<sup>2</sup>

- Failure of airway maintenance/protection
- Failure of adequate ventilation and oxygenation
- Anticipated clinical course deterioration<sup>a</sup>

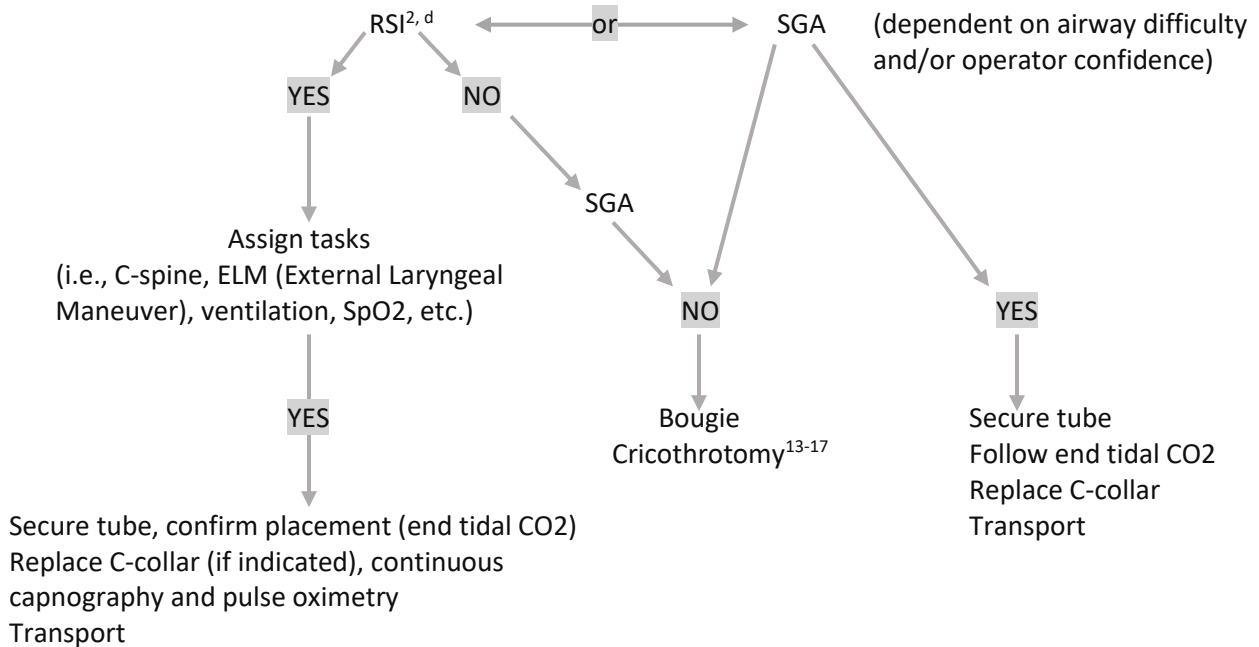


ACTION:

### I. Preoxygenate (ideally for 3 minutes)<sup>2,3</sup>

- NRB @ highest flow<sup>3</sup>
- Optimal position with reverse Trendelenburg unless BP < 90 systolic<sup>4</sup>
- Apneic oxygenation 15 L NC<sup>3</sup>
- SpO2 < 93% consider BMV, RSI, SGA, CPAP<sup>2,3</sup>

### II. Assess for Difficult Airway LEON Criteria<sup>5-7</sup>



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## KEY

- a. Anticipated development of airway obstruction such as stridor from upper airway burns, stab wound to the neck with hematoma formation, deep thermal burn to the face or neck, or high aspiration risk.
- b., c. Utilization VL and bougie increases likelihood of first pass success.
- d. RSI<sup>2</sup>  
Prepare equipment, includes but not limited to:
  - Oral/nasal airway
  - BMV with PEEP
  - Suction
  - Direct laryngoscopy (DL)
  - Video laryngoscopy (VL)<sup>b, 8-10</sup>
  - Bougie<sup>c, 11-12</sup>
  - Capnography  
Prepare medications<sup>2</sup>
  - Pretreatment
  - Induction
  - Paralytics
  - Analgesia/sedation



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# *Current Thinking*

## **Airway Algorithm for Trauma** International Trauma Life Support

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### **ABSTRACT**

This is the official current thinking of International Trauma Life Support (ITLS) with regard to the airway algorithm for trauma.

### **CURRENT THINKING**

It is the position of International Trauma Life Support that:

1. The need for timely and appropriate airway management for trauma patients is widely recognized.<sup>18</sup> This requires early methodical assessment of the airway, ventilation and oxygenation which are all part of the ITLS Primary Survey. A review article on the advanced airway management for pre-hospital trauma patients<sup>18</sup> identified the lack of standardization of care delivered.
2. There is a need for a systematic organized approach to assess and manage the trauma patient.
3. This airway algorithm for trauma is aimed at providing a blended assessment and management process for the ITLS provider, which hopefully will result in a systematic approach and optimal, timely management resulting in good patient outcome.
4. ITLS recommends this airway algorithm which gives the clinician a step-by-step approach to assessment, management and ongoing care of the airway until such time the patient is handed over to the receiving hospital staff.



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