Emergency Airway Guidelines

Early recognition of acute airway emergencies is of utmost importance in patients with critical injury patterns. Preventing hypoxia and hypoventilation are key to avoid potential secondary injuries. Additionally, inadequate or unsuccessful intubation can create or exacerbate hypoxia and hypotension. These guidelines were developed using a combination of EAST practice management guidelines as well as guidelines for difficult airway management put forth by the American Society of Anesthesiologists (both references included).

Airway equipment will be available for ALL activations including:

- Supplemental O2
- Pulse oximeter and capnography
- Suction
- Oral and nasal airways with multiple sizes
- Bag valve mask
- Rigid laryngoscopes with multiple blade sizes
- Video laryngoscope
- Adjunct equipment including Bougies and additional stylets
- Cricothyroidotomy kit

During trauma Activation:

- Airway Management per ED attending/resident:
    - If intubation is needed:
        - The airway will be managed by the EM faculty. 2 attempts or at faculty discretion will be given the the ED resident to secure the airway.
        - If anesthesia is needed, a direct call to the charge at 7-6263 will be made if they are not present
        - When a surgical airway is needed, the trauma team will be charged with obtaining the appropriate surgical airway.

Evaluation of airway

- Using available history and/or physical examination, an assessment of the airway should be done prior to attempted intubation
    - If identification of potential difficult airway
        - ED Airway cart including advanced adjunct equipment obtained (equipment listed below)
        - Surgical team capable of performing surgical airway will be present

Injury patterns and pathophysiology

- Indications for intubation
    - Airway obstruction
    - Hypoventilation

        - Persistent hypoxemia (SpO2 ≤90%) despite supplemental O2
        - Severe cognitive impairment (GCS ≤8)
        - Severe hemorrhagic shock
        - Cardiac arrest
        - Smoke inhalation:
            - Airway obstruction
            - GCS ≤8
            - Major cutaneous burn (>40% TBSA)
            - Major burns or inhalation with anticipated prolonged transport time
            - Concern for impending airway obstruction
    - Consider intubation if the following:
        - Facial or neck trauma with potential for airway obstruction
        - Moderate cognitive impairment (GCS 9-12)
        - Persistent combativeness refractory to pharmacologic agents
        - Respiratory distress
        - Preoperative management
        - Spinal cord injury with any evidence of respiratory insufficiency

Confirmation of tracheal intubation

- Use of capnography or end tidal CO2 to confirm tube placement
- CXR will be used to confirm correct positioning of the tube when appropriate

Contents of Difficult Airway Cart in ED

- Scalpel
- Tube securement devices
- Tracheostomy tube (various sizes and lengths)
- LMA (various sizes)
- Disposable tracheostomy tray
- Video laryngoscope with multiple blades
- Bougie
- Rigid stylet

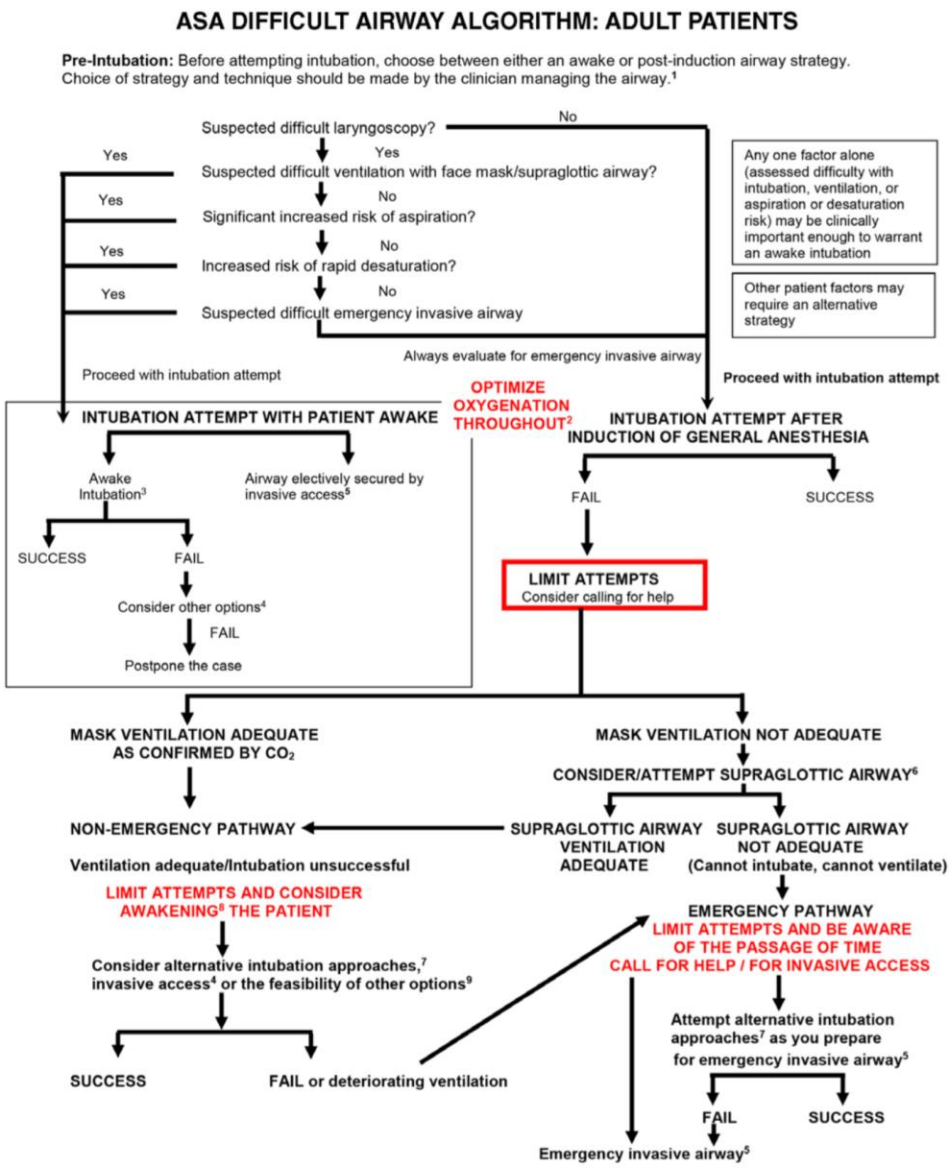

Fig. 1. Difficult airway algorithm: Adult patients. [1]The airway manager's choice of airway strategy and techniques should be based on their previous experience; available resources, including equipment, availability and competency of help; and the context in which airway management will occur. [2]Low- or high-flow nasal cannula, head elevated position throughout procedure. Noninvasive ventilation during preoxygenation. [3]Awake intubation techniques include flexible bronchoscope, videolaryngoscopy, direct laryngoscopy, combined techniques, and retrograde wire-aided intubation. [4]Other options include, but are not limited to, alternative awake technique, awake elective invasive airway, alternative anesthetic techniques, induction of anesthesia (if unstable or cannot be postponed) with preparations for emergency invasive airway, and postponing the case without attempting the above options. [5]Invasive airway techniques include surgical cricothyrotomy, needle cricothyrotomy with a pressure-regulated device, large-bore cannula cricothyrotomy, or surgical tracheostomy. Elective invasive airway techniques include the above and retrograde wire–guided intubation and percutaneous tracheostomy. Also consider rigid bronchoscopy and ECMO. [6]Consideration of size, design, positioning, and first *versus* second generation supraglottic airways may improve the ability to ventilate. [7]Alternative difficult intubation approaches include but are not limited to video-assisted laryngoscopy, alternative laryngoscope blades, combined techniques, intubating supraglottic airway (with or without flexible bronchoscopic guidance), flexible bronchoscopy, introducer, and lighted stylet or lightwand. Adjuncts that may be employed during intubation attempts include tracheal tube introducers, rigid stylets, intubating stylets, or tube changers and external laryngeal manipulation. [8]Includes postponing the case or postponing the intubation and returning with appropriate resources (*e.g.*, personnel, equipment, patient preparation, awake intubation). [9]Other options include, but are not limited to, proceeding with procedure utilizing face mask or supraglottic airway ventilation. Pursuit of these options usually implies that ventilation will not be problematic.

References:

1. Mayglothling J, Duane TM, Gibbs M, McCunn M, Legome E, Eastman AL, Whelan J, Shah KH; Eastern Association for the Surgery of Trauma. Emergency tracheal intubation immediately following traumatic injury: an Eastern Association for the Surgery of Trauma practice management guideline. J Trauma Acute Care Surg. 2012 Nov;73(5 Suppl 4):S333-40. PMID: 23114490.

2. Apfelbaum JL, Hagberg CA, Connis RT, Abdelmalak BB, Agarkar M, Dutton RP, Fiadjoe JE, Greif R, Klock PA, Mercier D, Myatra SN, O'Sullivan EP, Rosenblatt WH, Sorbello M, Tung A. 2022 American Society of Anesthesiologists Practice Guidelines for Management of the Difficult Airway. Anesthesiology. 2022 Jan 1;136(1):31-81. PMID: 34762729.