



ADVANCED AIRWAY MANAGEMENT



Escambia County, Florida - ALS/BLS Medical Protocol

The **Advanced** Airway Management protocol should be used on all patients requiring advanced airway management procedures. This protocol is divided into three sections the **Crash Airway Algorithm**, the **Rapid Sequence Intubation Algorithm** and the **Failed Airway Algorithm**.

Crash Airway Algorithm:

This algorithm is intended for use when faced with a need for a rapid airway in the setting of an uncomplicated clinical condition. Examples include cardiac arrest, respiratory arrest and unconscious patients in need of immediate active airway assistance or protection.

1. Assess the patient for a probable difficult airway. Examples include:
 - a. Thick beard
 - b. Overjet (Buck teeth)
 - c. Mallampati of 3 or 4
 - d. Less than 2 fingerbreadths space between the patient's teeth
 - e. Thyromental distance less the 3 fingerbreadths
 - f. Decreased neck mobility
 - g. Decreased jaw mobility
 - h. Wired jaw
2. Ensure the patient is appropriately ventilated with 100% oxygen via a bag-valve-mask or similar device. An OPA or [NPA](#) should be in place.
3. Attempt to orotracheally intubate the patient.



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4. If successful, perform post-intubation management procedures including:
 - a. Verification of proper placement via at least three independent measures. (Breath sounds/ [pulse ox](#)/ [end tidal CO2 measurement](#).)

Always capture a record (strip) of the end tidal CO2 measurement with waveform and attach a copy to the patient record.
 - b. Note the centimeter marking of the ET tube adjacent to the teeth
 - c. Secure the ET tube with a commercial device
 - d. Place a cervical collar to prevent accidental dislodgement
5. If unsuccessful, maintain the $SpO_2 \geq 90\%$ via bag-valve-mask or similar device. If these interventions fail, proceed to the [Failed Airway Protocol](#).
6. If SpO_2 remains $\geq 90\%$, determine if the patient was relaxed/flaccid enough for intubation. If not, consider employing the [Rapid Sequence Intubation Protocol](#).
7. If the patient is relaxed/flaccid, two additional attempts to perform orotracheal intubation may be performed by the most appropriate paramedic. If successful, see step # 4. If unsuccessful, proceed to the [Failed Airway Protocol](#)

Rapid Sequence Induction Using Paralytics:

The use of the rapid sequence protocol is reserved for those paramedics that have received extensive training in advanced airway management.

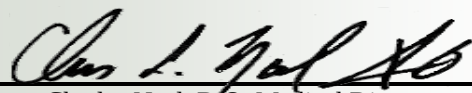
The administration of the paralytic drugs found in this procedure can only be performed by those paramedics that have received prior training and authorization from the Escambia County Public Safety Medical Director.



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Neuromuscular Blocking Agent Procedure

1. Assemble required equipment.

(Always follow the 7 P's and instructions outlined on the RSI information card found in the intubation kit.)

- a. BVM connected to functioning O₂ delivery system.
- b. Working suction with [Yankauer](#) suction tip attached.
- c. Endotracheal tube(s) with stylet in place, tube shaped, lubricated and cuff intact.
- d. Laryngoscope with straight and curved blades.
(Have Air Traq ready, for use if necessary.)
- e. Have [Pertrach Cricothyroidotomy kit](#) ready if necessary.

2. Verify patient has a functioning, secure [IV/IO](#) line in place.
3. Insure ECG, [SPO2](#), [ETCO2](#) monitoring is attached to patient and functioning, for observation of dysrhythmias during induction and problems with ventilation/oxygenation during or after procedure.

(Always run strip of ETCO2 wave form and attach to the patient care report.)

4. Palpate cricothyroid membrane and mark with an ink pen.
5. Preoxygenate with 8 bagged ventilations or 3 minutes of maximal oxygenation breathing.
6. Premedicate as indicated
 - a. [Atropine](#), 0.02 mg/kg (min. 0.1 mg / max. 0.5 mg), IV push for pediatric patients (less than 10 years old.).



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- b. Lidocaine 2%, 1.5 mg/kg, IV push for intracranial pressure control in head-injury (hypertensive crisis, bleed), or for dysrhythmia control in patients at risk for ventricular dysrhythmia (wait 45 seconds before intubating).
- 7. Administer Induction and Paralytic Drugs
 - a. Amidate (Etomidate) (0.3 mg/kg), IV push (for sedation.)
 - b. Succinylcholine Chloride, 1 mg/kg, IV push (for paralysis.)
- 8. Apply cricoid pressure to occlude the esophagus until intubation is successfully completed and the endotracheal tube cuff is inflated, elevated head 15 degrees when possible.
 - a. After fasciculations stop (if they occur);
 - b. Jaw relaxation and decreased resistance to BVM ventilation indicate that the cords are paralyzed and that it is time to proceed with intubation (approx. 45 seconds to 1 minute). Do not continue to ventilate at this time as this will increase risk of aspiration due to gastric distension.
- 9. Perform endotracheal intubation.
 - a. If unable to intubate during the first 20-second attempt, stop, and ventilate with BVM for 30 to 60 seconds. (Generally no more than 3 total attempts to intubate the patient should be attempted before considering ventilation by other measures, BVM with 2 nasal airways and 1 oral airway, King Airway, etc.)
 - b. If inadequate relaxation is present, give a second dose of Succinylcholine Chloride (1.0 to 1.5 times the initial dose). Observe for severe bronchospasm in pediatric patients.
 - c. If repeated intubation attempts fail, ventilate patient via BVM until spontaneous ventilations have fully return (usually 3 to 5 minutes).



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If unable to oxygenate or ventilate the patient at any time during the procedure, immediately begin the Failed Airway Algorithm. In addition the patient should be diverted to the closest Emergency Department for stabilization of airway.

10. Treat [bradycardia](#) occurring during intubation by temporarily halting intubation attempts and continued ventilation of the patient via BVM with 100% O₂. If bradycardia does not resolve with oxygenation and ventilation, administer Atropine, 0.5-1.0 mg, IV push.
11. Once intubation is completed, inflate the cuff and confirm ET tube placement by auscultating negative gastric sounds and positive breath sounds, observing chest expansion, [end-tidal CO₂](#) reading, and oxygen saturation levels
12. Release cricoid pressure and secure the ET tube.

Roncurium (Zemuron) is for continued paralysis following rapid sequence intubation with [Etomidate](#) and [Succinylcholine](#). (Supplied in Supervisor's Unit only.)

1. Administer [Roncurium](#), 0.6 - 1.2 mg/kg IV push.
2. Repeat doses may be required generally within 25 to 40 minutes of the initial dose (10-40 minutes in patients without anesthesia).
3. A maintenance dose of 0.01 to 0.012 mg/kg/minute may be repeated every 12 to 15 minutes.

Failed Airway:

Failed airway criteria include the:

1. Inability to ventilate and/or oxygenate the patient satisfactorily.



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2. Unsuccessful attempts at endotracheal intubation.
3. Call for assistance if not already done, (Supervisor or another paramedic).
4. Attempt to improve ventilations by using the two-person ventilation method whereby one rescuer firmly seats the mask of the BVM with two hands while opening the airway. The second rescuer ventilates using the BVM or similar apparatus. (2 NPA's and 1 OPA should be in place.)
5. Consider [King Airway insertion](#) if above gives no improvement in patient's condition.
6. If step two and three fails to adequately ventilate and/or oxygenate the patient and assuming endotracheal intubation has been tried and failed, perform a surgical airway per the ([Pertrach Cricothyroidotomy](#)) protocol.



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