Airway, Drug Assisted

Indications for Drug Assisted Airway
Failure to protect the airway
and/or
Unable to oxygenate
and/or
Unable to ventilate
and/or
Impending airway compromise

Capnography Monitoring
- **End-tidal (EtCO2) monitoring is mandatory following placement of an endotracheal tube.**
- **EtCO2 monitoring is mandatory following placement of a BIAD once available on scene.**

Protocols AR 1, 2, 3, 5, and 6 should be utilized together (even if agency is not using Drug Assisted Airway Protocol) as they contain useful information for airway management.

Preoxygenate 100% O2

IV or IO Access Protocol UP 6
2 points of access

P — Assemble Airway Equipment
Suction equipment
Alternative Airway Device

Hypoxic Or
Hypotensive Or
Dangerously Combative?

YES →

P — **Ketamine 2 mg/kg IV / IO**

No IV or IO Access:
Ketamine 4 mg/kg IM
Maximum 400 mg

Pediatric: *See Pearls*
2 mg/kg IM
Maximum 400 mg

Correct Hypoxia and/ or Hypotension

Age Appropriate Airway Protocol(s) AR 1, 2, 5, 6, ***as indicated***

Hypotension/ Shock Protocol AM 5/ PM 3 ***as indicated***

NO ↓

P — **Etomidate 0.3 mg/kg IV / IO**
Or
Ketamine 2 mg/kg IV / IO
May repeat x 1

P — **Succinylcholine 2 mg/kg IV / IO**
Or
Rocuronium 1 mg/kg IV / IO
(if Succinylcholine contraindicated)
May repeat x 1

Intubate trachea

Placement Verified
Continuous Waveform Capnography

Hypoxia corrected
Hypotension corrected
Dangerously Combative condition corrected

Patient still requires intubation

YES → (to Etomidate / Ketamine)

NO ↓

Consider Restraints Physical Procedure

P — Consider Gastric Tube Insertion Procedure

Awakening or Moving after intubation

NO → Exit to Appropriate Protocol(s)

YES ↓

Exit to Post-intubation/ BIAD Management Protocol AR 8

Procedure will remove patient's protective airway reflexes and ability to breath.

You must be sure of your ability to intubate before beginning this procedure.

Must have two (2) Paramedics on scene

Red Text
Key performance indicators used to evaluate protocol compliance.

A NCOEMS Airway Evaluation Form must be completed for every patient who receives Drug Assisted Airway.

Airway Respiratory Protocol Section

Airway, Drug Assisted

Most important caveat is determining the patient NOT APPROPRIATE for Rapid Sequence Intubation.

Specifically make sure you assess the difficulty in using a Bag Valve Mask, Laryngoscopy, BIAD, and Cricothyrotomy with each patient.

OPTIMIZING THE PATIENT FOR DRUG ASSISTED INTUBATION:

HYPOXIA: Pre-oxygenation should occur during initial assessment. Use a combination of N/C with NRB, BVM, or NIPPV, and high flow oxygen before rapid sequence intubation. SpO2 should be optimized ≥ 92% prior to attempt.
CPAP is an effective means to provide adequate pre-oxygenation.
We do not oxygenate or ventilate well in a flat position. Head should be elevated to optimize position for oxygenation/ ventilation.

ASPIRATION: Optimal position is aligning ear canal to sternal notch with face parallel to ceiling. May need to further elevate head/ torso (pillows or stretcher) in the obese or pregnant patient. Elevation helps prevent aspiration as well.
Assemble and test suction. Suction the airway prior to intubation attempt(s), especially with video laryngoscopy.
Suction with rigid catheter should precede ALL intubation attempts.

HYPOTENSION: Resuscitate patient with fluids, fluids + push-dose or infusion of vasopressors, and/ or blood products.

ACIDOSIS: Optimizing oxygenation, ventilation, and blood pressure/ perfusion will allow the body to correct acidosis.

- Assemble and test equipment. Oxygen, BVM, Suction, Laryngoscope (VL), Gum Elastic Bougie, BIAD, Syringes, Medications, and Cricothyrotomy device. Assure large bore IV with 2 sites (IV-IV, IV-IO, or IO-IO).

SEDATE AND PARALYZE:

- Give Etomidate or Ketamine first then Succinylcholine or Rocuronium in rapid succession, via rapid IV push with normal saline flushes of 10 mL.
- Once medications are given DO NOT VENTILATE unless patient de-saturates below 92%: Continue high flow (15 L/min) oxygen by nasal cannula and maintain jaw thrust to keep airway open providing *apneic oxygenation*. Maintain until intubation conditions are reached and you begin your intubation attempt.
- Optimal condition should be reached in about 30 to 90 seconds. Ketamine is the preferred sedative. Consider Etomidate when a patient is hypertensive or tachycardic.

HYPOXIA AND/ OR HYPOTENSION REQUIRING KETAMINE:

- **In patient's who are hypoxia and/ or hypotensive, as well as dangerously combative, and need an airway immediately, give ketamine and immediately place an appropriate size igel®.**
- Once the patient is properly resuscitated and stabilized, you many proceed with rapid sequence intubation and may repeat ketamine as the sedative agent and also use as post-intubation sedation.
- Do not use endotracheal intubation in patients with a pulse, always use a sedative and paralytic to optimize your first attempt.

Pearls

- **Agencies must maintain a separate Performance Improvement Program specific to Drug Assisted Airway.**
- **This procedure requires at least 2 Paramedics. See Pearls section of protocols AR 1 and 2.**
- **For the purposes of this protocol, a secure airway is when the patient is receiving appropriate oxygenation and ventilation.**
- **If an effective airway is being maintained by BVM with continuous pulse oximetry values of ≥ 90%, it is acceptable to continue with basic airway measures.**
- **Ventilation rate:**
  30 for Neonates, 25 for Toddlers, 20 for School Age, and for Adolescents the normal Adult rate of 10 - 12 per minute.
  Maintain EtCO2 between 35 - 45 and avoid hyperventilation.
- **Hypoxia and/ or Hypotension:**
  Increased risk of cardiac arrest when a sedative with paralytic medications are administered while hypoxic and/ or hypotensive.
  Resuscitation and correction of hypoxia and/ or hypotension are paramount prior to use of these combined agents.
  Ketamine administration allows time for appropriate resuscitation of hypoxia and/or hypotension while managing the airway.
- **Ketamine for airway intervention and/ or sedation purposes:**
  Ketamine may be used in pediatric patients (fit within a Pediatric Medication/ Skill Resuscitation System product, ≤ 15 years of age, or ≤ 49 kg) with DIRECT ONLINE MEDICAL ORDER by the system MEDICAL DIRECTOR or ASSISTANT MEDICAL DIRECTOR only.
  Agencies using Ketamine in the pediatric population must also be using in their adult population.
- **KETAMINE:**
  Ketamine may be used with or without a paralytic agent in conjunction with either an OPA, NPA, BIAD or endotracheal tube. (BIAD is preferred over endotracheal tube until hypoxia and/ or hypotension are corrected).
  Ketamine may be used during the resuscitation of hypoxia or hypotension in conjunction with airway management. Once hypoxia and hypotension are corrected, use of a sedative and paralytic can proceed if indicated.
  Ketamine may be used in the dangerously combative patient requiring airway management IM. IV/ IO should be established as soon as possible.
  Ketamine may be used for sedation once a BIAD or endotracheal tube are established and confirmed.
  Agencies using Ketamine must follow Standards Policy: Medial Policy Section Ketamine Program Requirements. Medical Policy 2.
- **Intubation attempt defined as laryngoscope blade passing the teeth or endotracheal tube passed into the nostril.**
- **If First intubation attempt fails, make an adjustment and try again: (Consider change of provider in addition to equipment)**
- **NC EMS Airway Evaluation Form:**
  Fully complete and have receiving healthcare provider sign confirming BIAD or endotracheal tube placement.
  Complete online in region specific *ReadyOp* and upload completed form.
  Complete when Ketamine, Etomidate, Succinylcholine and/ or Rocuronium or used to facilitate use of a BIAD and/ or endotracheal intubation.
- Paramedics/ AEMT should consider using a BIAD if endotracheal intubation is unsuccessful.
- Drug Assisted Airway is not recommended in an urban setting (short transport) when able to maintain oxygen saturation ≥ 90 %.
- **DOPE: D**isplaced tracheostomy tube/ ETT, **O**bstructed tracheostomy tube/ ETT, **P**neumothorax and **E**quipment failure.