

**PILOT PROGRAM
RAPID SEQUENCE INTUBATION PROTOCOL PACKAGE
Paramedic only**

M. ADULT RAPID SEQUENCE INTUBATION PROTOCOL PACKAGE

1. Rapid Sequence Intubation (RSI) Pilot Program

a) Indications

- (1) Inability to tolerate laryngoscopy, and:
 - (a) GCS less than or equal to 8 with respiratory rate less than or equal to 8 or greater than or equal to 35 or
 - (b) GCS less than or equal to 8 with oxygen saturation less than or equal to 90% on non-rebreather face mask
- (2)  On-line medical direction for RSI may be requested in the following situations:
 - (a) GCS less than or equal to 8 with clenched jaw, inability to adequately suction airway, and without above respiratory parameters
 - (b) Respiratory extremis with contraindications to nasotracheal intubation (respiratory rate greater than or equal to 35 with air hunger, use of accessory muscles, and oxygen saturation less than or equal to 90% on non-rebreather face mask)

b) Contraindications

- (1) Conditions that may cause hyperkalemia:
 - (a) Burns greater than 24 hours old
 - (b) Spinal cord injury greater than 24 hours old
 - (c) Known neuromuscular disease (Guillain-Barré Syndrome, myasthenia gravis, amyotrophic lateral sclerosis, muscular dystrophy)
 - (d) Chronic renal failure on hemodialysis/ Presence of hemodialysis access
- (2) Age less than 12
- (3) History of malignant hyperthermia

c) Preparation

- (1) Pre-oxygenate with 90-100% oxygen.
- (2) Monitor oxygen saturation with pulse oximetry and ECG.
- (3) Ensure functioning IV and fluid therapy as per protocol.
- (4) Evaluate for difficult airway.
- (5) Perform focused RSI neurologic exam.
- (6) Prepare equipment
 - (a) Intubation kit
 - (b) Bag Valve Mask (BVM)
 - (c) Suction
 - (d) RSI kit
 - (i) Prepare medications
 - (ii) Alternative airway device, Cricothyroidotomy equipment
 - (e) Capnograph

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d) RSI Procedure

(1) Sedation

Adequate sedation must be provided to prevent awareness during paralysis from neuromuscular blockade.

Etomidate, if available, will be the preferred agent for patients who are aware of their surroundings and do not have hypotension or possible hypovolemia.

Dose: Administer 0.3 mg/kg IVP over 30-60 seconds May repeat 0.15 mg/kg IVP in 2-3 minutes if inadequate sedation

OR

Ketamine may be used if etomidate is unavailable, and may be preferred for patients who have hypotension or possible hypovolemia.

Dose: Administer 2 mg/kg IVP over 60 seconds

OR

Midazolam should be considered for patients with isolated head injury and elevated blood pressure, especially with possible seizure activity. Midazolam should not be used for patients with hypotension, and should be avoided with possible hypovolemia.

Dose: Administer 0.05 mg/kg (2-5 mg) IVP over 1-2 minutes

Only one sedative agent should be administered prior to succinylcholine unless otherwise directed by medical consultation.

- (2) For patients with head injury or suspected increased intracranial pressure, administer Lidocaine 1 mg/kg (40-100 mg) IVP over 1-2 minutes
- (3) In-line cervical spine stabilization by second caregiver (in trauma setting)
- (4) Apply cricoid pressure (by third caregiver).
- (5) Succinylcholine: Administer 1.5 mg/kg (60-150 mg) rapid IVP
- (6) Intubate trachea and verify ET placement.
- (7) If inadequate relaxation after 2-3 minutes, administer Atropine 1 mg to avoid bradycardic response and repeat succinylcholine 0.5 mg/kg IVP (20-50 mg).

e) Successful Endotracheal Tube Placement

- (1) Release cricoid pressure and secure ET.
- (2) Ventilate to end tidal carbon dioxide of 30-32 mmHg.
- (3) If significant resistance to ventilation occurs as succinylcholine wears off (4-5 minutes), refer to Ventilatory Difficulty Secondary to Bucking Protocol.

f) Unsuccessful Endotracheal Tube Placement

- (1) Maintain cricoid pressure and resume BVM ventilation for 30 seconds.
- (2) If unable to ventilate, see "Unable to Ventilate" below.
- (3) Re-attempt oral ET intubation.
- (4) If unsuccessful, resume BVM ventilation for 30 seconds.
- (5) Insert an approved alternative airway device (refer to alternative airway device protocol).

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- (6) Attach capnograph and ventilate to desired end tidal carbon dioxide level.
- (7) If significant resistance to ventilation occurs as succinylcholine wears off (4-5 minutes), or if patient exhibits difficulty in tolerating an approved alternative airway device as succinylcholine wears off, refer to Ventilatory Difficulty Secondary to Bucking Protocol.

g) If Unable to Ventilate

Insert an approved alternative airway device (refer to alternative airway device protocol).

- h)** If still unable to ventilate using an approved alternative airway device, remove and perform cricothyroidotomy (refer to Cricothyroidotomy Protocol).

2. Ventilatory Difficulty Secondary to Bucking or Combativeness in Intubated Patients

a) Indication

Patients successfully intubated with an endotracheal tube, an approved alternative airway device, or Cricothyroidotomy, for whom the ability to provide manual or mechanical ventilation is impaired secondary to bucking or combativeness

b) Contraindication

Unsecured airway

c) Procedure

- (1) **Etomidate**, if available, will be the preferred agent for patients who are aware of their surroundings and do not have hypotension or possible hypovolemia.

Dose: Administer 0.3 mg/kg IVP over 30-60 seconds.

May repeat 0.15 mg/kg IVP every 15 minutes to a total of three doses.

OR

Ketamine may be used if etomidate is unavailable, and may be preferred for patients who have hypotension or possible hypovolemia, or if ventilatory difficulty is thought to be the result of pain response.

Dose: Ketamine: 2 mg/kg IVP over 60 seconds. May repeat 1 mg/kg for IVP every 10-15 minutes to a total of three doses as necessary. Additional doses require Medical Consultation.

OR

Midazolam should be considered for patients with isolated head injury and elevated blood pressure, especially with possible seizure activity. Midazolam should not be used for patients with hypotension, and should be avoided with possible hypovolemia.

Dose: Administer 0.05 mg/kg (2-5 mg) IVP over 1-2 minutes titrated to abate bucking and relax ventilation while maintaining systolic BP greater than 90 mmHg

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- (2) If ventilatory difficulty is thought to be the result of pain response, **Ketamine:** Dose 2 mg/kg IVP over 60 seconds. May repeat 1 mg/kg IVP every 10-15 minutes as necessary to a total of three doses as necessary. Additional doses require medical consultation.

OR

Opioid may be used per Pain Management protocol in addition to, or instead of, midazolam, ketamine, or etomidate. Titrate to abate bucking and relax ventilation while maintaining systolic BP greater than 90 mmHg.

- (3) If significant resistance to ventilation continues, the EMT-P may administer
- (a) Vecuronium 0.05 mg/kg (2-5 mg) IVP



PRE-SEDATION MUST BE PROVIDED WHEN VECURONIUM IS ADMINISTERED TO A PATIENT WHO IS EITHER RESPONSIVE TO STIMULUS, OR WHO MAY BECOME RESPONSIVE TO STIMULUS DURING NEUROMUSCULAR BLOCKADE. USE OF VECURONIUM REQUIRES FUNCTIONING END TIDAL CO₂ MONITORING. VECURONIUM MAY ONLY BE USED IF CONTINUOUS, BREATH TO BREATH, ETCO₂ MONITORING CAN BE PROVIDED.

- (b) Dose may be repeated in 4-6 minutes if necessary.
 - (c) **Maintenance of Amnesia**
Follow above dosing of either **etomidate** or **ketamine** with required repeat dosing every 10-15 minutes.
- (4) Continue to monitor oxygen saturation and ventilate to desired end tidal carbon dioxide.
- (5)  Obtain on-line medical direction if further problems present.

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3. Protocol for Cricothyroidotomy (Surgical and Needle)

a) Indications

- (1) Inability to ventilate despite having tried BVM with oropharyngeal/nasopharyngeal airway, ET placement, and an alternative airway device (if not contraindicated)
- (2) Inability to place ET in the setting of life-threatening upper airway hemorrhage
- (3) Completely obstructing upper airway foreign body that cannot be removed via BLS maneuvers or Magill forceps with direct visualization

b) Preparation

- (1) Prepare suction and cricothyroidotomy kit.
- (2) Begin at sternal notch and locate cricoid cartilage.
- (3) Palpate cricothyroid membrane anteriorly between cricoid cartilage and thyroid cartilage.
- (4) Prepare skin with betadine or alcohol swabs.

c) Surgical Cricothyroidotomy

- (1) Stabilize thyroid cartilage and make vertical incision (1-1½ inches) over cricothyroid membrane. Alternatively, a needle puncture dilator device may be utilized.
- (2) Palpate cricothyroid membrane with gloved finger and carefully make transverse incision through membrane. Insert scalpel handle and rotate 90 degrees.
- (3) Insert a 6.0 mm cuffed ET tube, using the natural curve of tube.
- (4) Insert ET tube to just beyond cuff.
- (5) Inflate cuff and ventilate patient.
- (6) Monitor oxygen saturation and end tidal carbon dioxide level.
- (7) Secure ET tube. (Do not cut or trim ET tube.)
- (8) If significant resistance to ventilation develops, or if patient develops difficulty in tolerating successful cricothyroidotomy, refer to Ventilatory Difficulty Secondary to Bucking or Combativeness Protocol.

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Protocol for Cricothyroidotomy (Continued)

d) Needle Cricothyroidotomy



ONLY NEEDLE CRICOTHYROIDOTOMY SHOULD BE PERFORMED FOR PATIENTS LESS THAN THE AGE OF 8 WHO REQUIRE CRICOTHYROIDOTOMY.

- (1) Insert 12- or 14-gauge over-the-needle catheter through the cricothyroid membrane at a 45-degree angle toward the feet. Aspiration of air with a syringe indicates tracheal entry.
- (2) Hold needle in place and advance catheter, then remove needle.
- (3) Attach catheter hub to intermittent jet oxygen insufflator valve.
- (4) Manually secure catheter at hub at all times to prevent kinking or displacement.
- (5) Monitor oxygen saturation.
- (6) If significant resistance to ventilation develops, or if patient develops difficulty in tolerating cricothyroidotomy, refer to Ventilatory Difficulty Secondary to Bucking or Combativeness Protocol.

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4. RSI Quality Assurance Process

a) Individual Paramedic Approval for RSI Pilot Participation

- (1) Successful completion of small group training includes all five of the following:
 - (a) Classroom lecture
 - (b) Mannequin instruction
 - (c) Cadaver lab, including cricothyroidotomy
 - (d) Anesthesia computerized mannequin simulator
 - (e) Must demonstrate proficiency through skills testing and written test
- (2) Successful completion of individualized Operating Room Training
 - (a) Individual Operating Room training with Attending Anesthesiologist, and
 - (b) Must demonstrate proficiency to Attending Anesthesiologist's satisfaction

b) Ongoing Demonstration of Proficiency

A verification of all RSI skills and review of RSI principles of safety will be performed on a quarterly basis. In two of the quarters, this will be accomplished via direct observation in the Operating Room. In a third quarter, the medical director during a full Paramedic skills evaluation will perform this. A fourth quarter verification will be accomplished via an anesthesia mannequin simulator, an RSI skills module, or a documentation and review of a field utilization.

c) Review of Each Call

- (1) Mechanism for follow-up of each call will be in accordance with the Quality Review Procedure for Pilot Programs (formerly "Class B" Additional Procedure Algorithm) of the Maryland Medical Protocols, with the following additions:
- (2) Immediate notification of your jurisdictional RSI supervisor for all RSI attempts
- (3) Medical Director evaluation of all RSI attempts within 12 hours

d) Maintenance of detailed RSI database

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**N. PEDIATRIC RAPID SEQUENCE INTUBATION PROTOCOL PACKAGE
(For children less than 12 years of age)**



1. Rapid Sequence Intubation (RSI) Pilot Program

a) Indications

- (1) Inability to tolerate laryngoscopy and have the following:
 - (a) GCS less than or equal to 8, indicated by a patient that will not: open eyes, cry, say words, or show purposeful movement in response to painful stimulus.

AND

- (b) Respiratory insufficiency, demonstrated by oxygen saturation less than or equal to 90% on non-rebreather face mask, respiratory rate less than or equal to 8, or respiratory rate greater than or equal to 45 (age less than 1 yr), greater than or equal to 40 (age 1-5 yrs), greater than or equal to 35 (age 6-9 yrs) with signs of air hunger and accessory muscle use.



PATIENTS WITH AN IDENTIFIED DIFFICULT AIRWAY WHO CAN BE BAGGED TO AN OXYGEN SATURATION GREATER THAN 90% REQUIRE ON-LINE MEDICAL DIRECTION FOR RSI, PREFERABLY FROM A PEDIATRIC BASE STATION.

- (2)  On-line medical direction for RSI may be requested (preferably from a pediatric Base Station), in the following situations:
 - (a) GCS less than or equal to 8 with clenched jaw, inability to adequately suction airway, and without above respiratory parameters
 - (b) Respiratory extremis with contraindications to nasotracheal intubation (respiratory rate greater than or equal to 35 with air hunger, use of accessory muscles, and oxygen saturation less than or equal to 90% on non-rebreather face mask)
 - (c) Identified difficult airway patient with a GCS less than or equal to 8 and signs of respiratory insufficiency who cannot tolerate laryngoscopy but is able to be bagged to an oxygen saturation greater than 90%.

b) Contraindications

- (1) Conditions that may cause hyperkalemia:
 - (a) Burns greater than 24 hours old
 - (b) Spinal cord injury greater than 24 hours old
 - (c) Known neuromuscular disease (Guillain-Barré Syndrome, myasthenia gravis, amyotrophic lateral sclerosis, muscular dystrophy)
 - (d) Chronic renal failure on hemodialysis/ Presence of hemodialysis access
- (2) History of malignant hyperthermia

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c) Preparation

- (1) Pre-oxygenate with 90-100% oxygen.
- (2) Monitor oxygen saturation with pulse oximetry and ECG.
- (3) Ensure functioning IV and fluid therapy as per protocol.
- (4) Evaluate for difficult airway.
- (5) Perform focused RSI neurologic exam.
- (6) Prepare equipment
 - (a) Intubation kit: Recommended to carry both cuffed and uncuffed ET tubes for patients less than 8 years of age or 25 kg.
 - (b) Bag Valve Mask (BVM) with manometer. (Manometer may be part of the BVM or separate.)
 - (c) Suction
 - (d) RSI kit
 - (i) Prepare medications
 - (ii) Alternative airway device, Cricothyroidotomy equipment
 - (e) Capnograph

d) RSI Procedure

- (1) Adequate sedation must be provided to prevent awareness during paralysis from neuromuscular blockade.

Etomidate, if available, will be the preferred agent for patients who are aware of their surroundings and do not have hypotension or possible hypovolemia.

Dose: Administer 0.3 mg/kg IVP over 30-60 seconds May repeat 0.15 mg/kg IVP in 2-3 minutes if inadequate sedation

Ketamine may be used if etomidate is unavailable, and may be preferred for patients who have hypotension or possible hypovolemia.

Dose: Administer 2 mg/kg IVP over 60 seconds

Midazolam should be considered for patients with isolated head injury and elevated blood pressure, especially with possible seizure activity. Midazolam should not be used for patients with hypotension, and should be avoided with possible hypovolemia

Dose: Administer 0.05 mg/kg (2-5 mg) IVP over 1-2 minutes

- (a) Hold for BP less than 60 in neonates (patients less than 28 days old), less than 70 in infants (patients less than 1 year of age), less than $[70 + (2 \times \text{years}) = \text{systolic BP}]$ for patients greater than 1 year of age.
- (2) For patients with head injury or suspected increased intracranial pressure, administer Lidocaine 1 mg/kg IVP over 1-2 minutes.
- (3) If patient is less than 8 years of age (or if age unknown and using ET tube smaller than 6.0), pretreat patient with Atropine 0.02 mg/kg IVP (minimum dose of 0.1 mg).
- (4) In-line cervical spine stabilization by second caregiver (in trauma setting)

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- (5) Apply cricoid pressure (by third caregiver).
- (6) Succinylcholine: Administer 1.5 mg/kg rapid IVP
- (7) Intubate trachea and verify ET placement.
- (8) If inadequate relaxation after 2-3 minutes, repeat succinylcholine 0.5 mg/kg IVP.

e) Successful Endotracheal Tube Placement

- (1) Release cricoid pressure and secure ET.
- (2) Ventilate to end tidal carbon dioxide of 30-32 mmHg.
- (3) If significant resistance to ventilation occurs as succinylcholine wears off (4-5 minutes), refer to Ventilatory Difficulty Secondary to Bucking Protocol.

f) Unsuccessful Endotracheal Tube Placement

- (1) Maintain cricoid pressure and resume BVM ventilation for 30 seconds.
- (2) If unable to ventilate, see "Unable to Ventilate" below.
- (3) Re-attempt oral ET intubation.
- (4) If unsuccessful, resume BVM ventilation.

g) If Unable to Ventilate

If unable to ventilate, verify appropriate oropharyngeal airway placement and reposition BVM for optimal mask seal. If still unable to ventilate, refer to needle cricothyroidotomy protocol.

2. Ventilatory Difficulty Secondary to Bucking or Combativeness in Intubated Patients

a) Indication

Patients successfully intubated with an endotracheal tube, or needle Cricothyroidotomy, for whom the ability to provide manual or mechanical ventilation is impaired secondary to bucking or combativeness

b) Contraindication

Unsecured airway

c) Procedure

- (1) **Etomidate**, if available, will be the preferred agent for patients who are aware of their surroundings and do not have hypotension or possible hypovolemia.

Dose: Administer 0.3 mg/kg IVP over 30-60 seconds. May repeat 0.15 mg/kg IVP every 15 minutes to a total of three doses.

OR

Ketamine may be used if etomidate is unavailable, and may be preferred for patients who have hypotension or possible hypovolemia, or if ventilatory difficulty if thought to be the result of pain response.

Dose: Ketamine: 2 mg/kg IVP over 60 seconds. May repeat 1 mg/kg for IVP every 10-15 minutes to a total of three doses as necessary. Additional doses require Medical Consultation.

OR

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Midazolam should be considered for patients with isolated head injury and elevated blood pressure, especially with possible seizure activity. Midazolam should not be used for patients with hypotension, and should be avoided with possible hypovolemia.

Dose: Administer 0.05 mg/kg (2-5 mg) IVP over 1-2 minutes, titrated to abate bucking and relax ventilation while maintaining systolic BP: greater than 60 in neonates, 70 in infants, $[70 + (2 \times \text{years}) = \text{systolic BP}]$ for patients greater than 1 year of age.

- (2) If ventilatory difficulty is thought to be the result of pain response, **Ketamine**: Dose: 2 mg/kg IVP over 60 seconds. May repeat 1 mg/kg IVP every 10-15 minutes as necessary to a total of three doses as necessary. Additional doses require Medical Consultation.

OR

Opioid may be used per Pain Management protocol in addition to, or instead of, Midazolam, Ketamine, or Etomidate. Titrate to abate bucking and relax ventilation while maintaining systolic BP greater than 60 in neonates, 70 in infants, $[70 + (2 \times \text{years}) = \text{systolic BP}]$ for patients greater than 1 year of age.

- (3) If significant resistance to ventilation continues, the Paramedic may administer
- (a) Vecuronium 0.05 mg/kg (2-5 mg) IVP (May not be used for patients with needle cricothyroidotomy because of inability to monitor breath to breath ETCO_2).



PRE-SEDATION MUST BE PROVIDED WHEN VECURONIUM IS ADMINISTERED TO A PATIENT WHO IS EITHER RESPONSIVE TO STIMULUS, OR WHO MAY BECOME RESPONSIVE TO STIMULUS DURING NEUROMUSCULAR BLOCKADE. VECURONIUM MAY ONLY BE USED IF CONTINUOUS, BREATH TO BREATH, ETCO_2 MONITORING CAN BE PROVIDED.

- (b) Dose may be repeated in 4-6 minutes if necessary.

(c) **Maintenance of Amnesia**

Follow above dosing of either **etomidate** or **ketamine** with required repeat dosing every 10-15 minutes.

- (4) Continue to monitor oxygen saturation and ventilate to desired end tidal carbon dioxide.
- (5)  Obtain on-line medical direction (preferably from a pediatric Base Station), if further problems present.

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3. Protocol for Cricothyroidotomy
(Surgical for 8 years old or greater and Needle)

a) Indications

- (1) Inability to ventilate despite having tried BVM with oropharyngeal/nasopharyngeal airway, ET placement, and alternative airway device (if not contraindicated)
- (2) Inability to place ET in the setting of life-threatening upper airway hemorrhage
- (3) Completely obstructing upper airway foreign body that cannot be removed via BLS maneuvers or Magill forceps with direct visualization

b) Preparation

- (1) Prepare suction and cricothyroidotomy kit.
- (2) Begin at sternal notch and locate cricoid cartilage.
- (3) Palpate cricothyroid membrane anteriorly between cricoid cartilage and thyroid cartilage.
- (4) Prepare skin with betadine or alcohol swabs.

c) Surgical Cricothyroidotomy for 8 years old or greater

- (1) Stabilize thyroid cartilage and make vertical incision (1-1 1/2 inches) over cricothyroid membrane. Alternatively, a needle puncture dilator device may be utilized.
- (2) Palpate cricothyroid membrane with gloved finger and carefully make transverse incision through membrane. Insert scalpel handle and rotate 90 degrees.
- (3) Insert a 5 to 6.0 mm cuffed ET tube, using the natural curve of tube.
- (4) Insert ET tube to just beyond cuff.
- (5) Inflate cuff and ventilate patient.
- (6) Monitor oxygen saturation and end tidal carbon dioxide level.
- (7) Secure ET tube. (Do not cut or trim ET tube.)
- (8) If significant resistance to ventilation develops, or if patient develops difficulty in tolerating successful cricothyroidotomy, refer to Ventilatory Difficulty Secondary to Bucking or Combativeness Protocol.



ONLY NEEDLE CRICOTHYROIDOTOMY SHOULD BE PERFORMED FOR PATIENTS LESS THAN AGE 8 WHO MAY REQUIRE CRICOTHYROIDOTOMY.

d) Needle Cricothyroidotomy

- (1) Insert 12- or 14-gauge over-the-needle catheter through the cricothyroid membrane at a 45-degree angle toward the feet. Aspiration of air with a syringe indicates tracheal entry.
- (2) Hold needle in place and advance catheter, then remove needle.
- (3) Attach catheter hub to intermittent jet oxygen insufflator valve.
- (4) Manually secure catheter at hub at all times to prevent kinking or displacement.

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- (5) Monitor oxygen saturation.
- (6) If significant resistance to ventilation develops, or if patient develops difficulty in tolerating cricothyroidotomy, refer to Ventilatory Difficulty Secondary to Bucking or Combativeness Protocol.

4. Pediatric RSI Quality Assurance Process

a) Individual Paramedic Approval for Pediatric RSI Pilot Participation

- (1) Successful completion of small group training includes all of the following:
 - (a) Classroom lecture
 - (b) Mannequin instruction
 - (c) Must demonstrate proficiency through skills testing and written test
- (2) Successful completion of individualized Operating Room Training
 - (a) Individual Operating Room training with Pediatric/Critical Care/Anesthesiology Attending approved by the Associate State EMS Medical Director for Pediatrics
 - (b) Must demonstrate proficiency to Attending Pediatric/Critical Care/Anesthesiologist's satisfaction

b) Ongoing Demonstration of Proficiency

A verification of all pediatric and adult RSI skills and review of pediatric and adult RSI principles of safety will be performed on a quarterly basis.

c) Review of Each Call

- (1) Mechanism for follow-up of each call will be in accordance with the Quality Review Procedure for Pilot Programs (formerly "Class B" Additional Procedure Algorithm) of the Maryland Medical Protocols, with the following additions:
- (2) Immediate notification to jurisdictional RSI supervisor for all RSI attempts
- (3) Medical Director evaluation of all RSI attempts within 12 hours

d) Maintenance of detailed RSI database

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N.1 RAPID SEQUENCE INTUBATION PHARMACOLOGY

1. Etomidate (Amidate)

a) Pharmacology

Hypnotic

b) Pharmacokinetics

A short-acting nonbarbiturate hypnotic agent without analgesic properties

c) Indications

Pre-sedation of responsive patients prior to administration of neuromuscular blocking agents

d) Contraindications

Known hypersensitivity to etomidate

e) Adverse Effects

- (1) Respiratory depression, or apnea
- (2) Hypotension (infrequent)
- (3) Involuntary myoclonus
- (4) Adrenal suppression (possible with repeated dosing)

f) Precautions

- (1) The effects of etomidate can be accentuated by CNS depressants, such as narcotics and alcohol.
- (2) Myoclonic movements are common and should not be confused for fasciculations due to a depolarizing neuromuscular blocking agent or seizure activity.

g) Dosage

(1) Adult:

Administer 0.3 mg/kg IVP over 30 to 60 seconds.

If the provider suspects hypovolemia, the initial dose will be 0.15 mg/kg IVP over 30-60 seconds. May repeat 10 mg for adult IVP after succinylcholine effects resolve and patient is bucking or combative. May repeat 10 mg for adult IVP every 15 minutes to a total of three doses. Additional doses require medical consultation.

(2) Pediatric:

Administer 0.3 mg/kg IVP over 30 to 60 seconds.

If the provider suspects hypovolemia, the initial dose will be 0.15 mg/kg IVP over 30-60 seconds. May repeat 0.15 mg/kg IVP after succinylcholine effects resolve and patient is bucking or combative. May repeat 0.15 mg/kg IVP every 15 minutes to a total of three doses. Additional doses require medical consultation.

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2. KETAMINE (KENTANEST, KETASET, KETALAR)

a) Pharmacology

Hypnotic Analgesic

b) Pharmacokinetics

A rapid-acting nonbarbiturate hypnotic analgesic agent characterized by normal pharyngeal-laryngeal reflexes, normal or enhanced skeletal muscle tone, and possible cardiovascular and respiratory stimulation.

c) Indications

- (1) Pre-sedation of responsive patients prior to administration of neuro-muscular blocking agents
- (2) Sedation of intubated patients with ventilatory difficulty secondary to bucking or combativeness

d) Contraindications

Known hypersensitivity to ketamine

e) Adverse Effects

- (1) Although respiration is frequently stimulated, respiratory depression may occur with rapid IV administration. Laryngospasm has been known to occur.
- (2) Although hypotension may occur, blood pressure and heart rate are frequently stimulated.
- (3) Involuntary myoclonus that may mimic seizure activity
- (4) Possible enhanced secretions
- (5) Possible unpleasant dreams and delirium upon emergence from sedation

f) Precautions

- (1) The likelihood of respiratory depression and undesired pressor effects is increased by too rapid IV administration.
- (2) Myoclonic movements are possible and should not be confused for fasciculations due to a depolarizing neuromuscular blocking agent, seizure activity, or emergence from sedation

g) Dosage

- (1) Adult:

Administer 2 mg/kg IVP over 60 seconds.

May repeat 2 mg/kg IVP after succinylcholine effects resolve if patient is bucking or combative.

May repeat 1 mg/kg for IVP every 10-15 minutes to a total of three doses as necessary. Additional doses require medical consultation.

- (2) Pediatric:

Administer 2 mg/kg IVP over 60 seconds.

May repeat 2 mg/kg IVP after succinylcholine effects resolve if patient is bucking or combative.

May repeat 1 mg/kg for IVP every 10-15 minutes to a total of three doses as necessary. Additional doses require medical consultation.

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3. MIDAZOLAM (VERSED)

a) Pharmacology

- (1) Sedative
- (2) Hypnotic

b) Pharmacokinetics

A short-acting benzodiazepine with strong hypnotic and amnestic properties

c) Indications

- (1) Pre-sedation of responsive patients prior to administration of neuro-muscular blocking agents
- (2) Sedation of intubated patients with ventilatory difficulty secondary to bucking or combativeness

d) Contraindications

- (1) Hypotension
- (2) Acute narrow-angle glaucoma
- (3) Known hypersensitivity to midazolam

e) Adverse Effects

- (1) Respiratory depression or apnea
- (2) Hypotension
- (3) Amnesia

f) Precautions

The effects of midazolam can be accentuated by CNS depressants, such as narcotics and alcohol

g) Dosage

- (1) Adult:
Administer 0.05 mg/kg (2-5 mg) slow IVP over 1-2 minutes, while maintaining systolic BP greater than 90 mmHg.
- (2) Pediatric:
Administer 0.05 mg/kg slow IVP over 1-2 minutes, while maintaining systolic BP greater than 60 in neonates, 70 in infants, $[70 + (2 \times \text{years}) = \text{systolic BP}]$ for patients greater than 1 year of age.



ADMINISTER UP TO 0.05 MG/KG IV WHEN TREATING ENDOTRACHEAL TUBE BUCKING, STOPPING ONCE BUCKING HAS RESOLVED AND VENTILATION IS RELAXED.

PILOT PROGRAM
RAPID SEQUENCE INTUBATION PROTOCOL PACKAGE
Paramedic only

4. SUCCINYLCHOLINE (ANECTINE)

a) Pharmacology

Neuromuscular blocking agent (depolarizing)

b) Pharmacokinetics

Paralyzes skeletal muscles, including respiratory muscles, and removes gag reflex

c) Indications

To achieve paralysis to facilitate endotracheal intubation in patients as per Rapid Sequence Intubation Protocol

d) Contraindications

(1) Conditions that may cause hyperkalemia:

- (a) Burns greater than 24 hours old
- (b) Spinal cord injury greater than 24 hours old
- (c) Known neuromuscular disease (Guillain-Barré Syndrome, myasthenia gravis, amyotrophic lateral sclerosis, muscular dystrophy)
- (d) Chronic renal failure on hemodialysis or presence of hemodialysis access

(2) History of malignant hyperthermia

(3) Patients with known hypersensitivity to the drug

e) Adverse Effects

- (1) Bradycardia
- (2) Prolonged paralysis

f) Precautions

Paralysis occurs in 1-2 minutes and generally lasts 4-6 minutes.

g) Dosage/Route

(1) Adult:

Administer 1.5 mg/kg (60-150 mg) rapid IVP.

If relaxation is inadequate after 2-3 minutes, a repeat dose of 0.5 mg/kg (20-50 mg) rapid IVP may be given.

(2) Pediatric:

Administer 1.5 mg/kg rapid IVP.

If relaxation is inadequate after 2-3 minutes, a repeat dose of 0.5 mg/kg rapid IVP may be given.

**PILOT PROGRAM
RAPID SEQUENCE INTUBATION PROTOCOL PACKAGE
Paramedic only**

5. VECURONIUM (NORCURON)

a) Pharmacology

Neuromuscular blocking agent (non-depolarizing)

b) Pharmacokinetics

- (1) Skeletal muscle relaxant
- (2) Paralyzes skeletal muscles, including respiratory muscles

c) Indications

For treatment of ventilatory difficulty secondary to bucking or combativeness in intubated patients

d) Contraindications

- (1) Non-intubated patients
- (2) Patients with known hypersensitivity to the drug

e) Adverse Effects

- (1) Bradycardia
- (2) Prolonged paralysis

f) Precautions

- (1) Pre-sedation must be provided when vecuronium is administered to a patient who is either responsive to stimulus or who may become responsive to stimulus during neuromuscular blockade.
- (2) Paralysis occurs within 2-4 minutes and generally lasts 25-40 minutes.

g) Dosage/Route

- (1) Adult:
Administer 0.05 mg/kg (2-5 mg) IVP.
- (2) Pediatric:
Administer 0.05 mg/kg IVP.
- (3) If bucking or combativeness persists 4-6 minutes after initial vecuronium administration, a second dose of 0.05 mg/kg IV may be administered for an adult or pediatric patient.

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PILOT PROGRAM
EMT ACQUISITION OF 12-LEAD
ELECTROCARDIOGRAPHY

N2. EMT Acquisition of 12-Lead Electrocardiography

1. PURPOSE

Coronary heart disease is the single largest cause of death in U.S. men and women. Early identification and treatment of patients with acute myocardial infarction (AMI) has proven to reduce myocardial damage and decrease morbidity and mortality. The goal of this program is to allow an EMT to acquire and transmit a 12-lead (15-lead if trained to perform) electrocardiography (ECG) to the receiving facility and possibly reduce the door to reperfusion time for the AMI patient.

2. PRESENTATION

Chest discomfort that may radiate to the arm, shoulders, jaw, or back. Generally described as a crushing pain or toothache. May be accompanied by shortness of breath, sweating, nausea, or vomiting.

OR

- a) Chest discomfort. Some heart attacks involve discomfort in the center of the chest that lasts for more than a few minutes or that goes away and comes back. This discomfort can feel like uncomfortable pressure, squeezing, or fullness.
- b) Discomfort in other areas of the upper body. Symptoms can include discomfort in one or both arms or in the back, neck, jaw, or stomach.
- c) Shortness of breath. This symptom often accompanies chest discomfort. However, it can also occur prior to the chest discomfort.
- d) Other signs. These may include breaking out in a cold sweat, nausea, light-headedness, or a sense of impending doom.
- e) Post cardiac arrest with ROSC. (NEW '13)
- f) Medical history and contributing factors.
 - (1) A previous heart attack or procedure to open up coronary arteries
 - (2) Family history of heart disease
 - (3) Diabetes mellitus
 - (4) High blood pressure
 - (5) High blood cholesterol
 - (6) Overweight
 - (7) Physical inactivity
 - (8) Cigarette smoking

**PILOT PROGRAM
EMT ACQUISITION OF 12-LEAD
ELECTROCARDIOGRAPHY**

3. INDICATIONS

Any patient complaining of chest discomfort or exhibiting signs, symptoms, or medical history as outlined in Section 2.

4. CONTRAINDICATIONS

Acquisition of a 12-lead ECG should not take precedence over required life-saving measures (i.e. CPR, assisting respirations, clearing or maintaining a patient's airway, checking blood glucose, extrication, or removal of a patient from a dangerous scene).

5. PROCEDURE

- a) Initiate General Patient Care.
- b) Initiate Cardiac Emergencies: Chest Pain Protocol.
- c) Position patient (1) (2).
- d) Place chest and limb leads (3) (4).
- e) Turn on monitor.
- f) Set patient age and a patient identifier.
- g) Acquire 12-lead (5).
- h) Consult with receiving facility.
- i) Transmit 12-lead (6).
- j) Continue patient care.

(1) Unrestricted access to the skin in the chest area, arms, and lower legs is required to allow for correct placement of electrodes. Do your best to protect the patient's privacy. Once the electrodes are positioned and connecting leads are appropriately attached, the patient should be covered with a sheet to preserve his/her dignity during the procedure.

(2) If unable to place patient in the recumbent position, include this information in your hospital consult and note it on your EMAIS report or in your written narrative of your patient care report.

**PILOT PROGRAM
EMT ACQUISITION OF 12-LEAD
ELECTROCARDIOGRAPHY**

- (3) Remove electrodes from a sealed package immediately before use. Using previously unpacked electrodes or electrodes with expired date codes may impair ECG signal quality.
- (4) When placing electrodes on female patients, always place the leads V3-V6 under the breast rather than on the breast.
- (5) Acquisition of a 12-lead ECG should take no more than 5 minutes.
- (6) Transmission of the 12-lead ECG to the receiving facility should be done en route to the receiving facility. There is no need to delay transport to transmit a 12-lead ECG.

6. INDIVIDUAL EMT APPROVAL FOR PARTICIPATION

- a) The EMT 12-Lead ECG Program is open to all Maryland EMTs that have been providing direct patient care for a minimum of one year.
- b) Providers must be members of an ALS company that currently owns a local system compatible 12-lead device.

7. ONGOING DEMONSTRATION OF PROFICIENCY

After the initial training program is completed, the EMT will participate in an annual refresher training program.

8. REVIEW OF EACH CALL

- a) Providers will submit copies of each 12-lead ECG and EMAIS report to their jurisdictional Quality Review Committee.
- b) The Quality Review Committee will review all 12-lead transmissions on a quarterly basis and submit a report to the Jurisdictional and Regional Medical Directors.

**PILOT PROGRAM
PELVIC STABILIZATION BINDER DEVICE FOR
SUSPECTED PELVIC FRACTURE PROCEDURE**

N3. PELVIC STABILIZATION BINDER DEVICE

All levels of EMS providers if appropriately trained in the device

1. INDICATIONS

All of the following blunt trauma patients with physical findings indicative of pelvic fracture should have an application of a Pelvic Stabilization Binder Device.

- a) Evidence of pelvic instability on examination of the pelvis
- b) Patients complaining of pelvic pain on examination of the pelvis
- c) Pain on iliac compression
- d) Pain on compression of the pubic symphysis
- e) Blood at the urethral meatus
- f) Vaginal bleeding
- g) Perineal or scrotal hematoma
- h) All blunt trauma patients with an unreliable physical exam and significant mechanism of injury may be considered for application of a Pelvic Stabilization Binder Device.



PREGNANCY IS NOT A CONTRAINDICATION TO THE APPLICATION OF THE PELVIC STABILIZATION BINDER DEVICE WHEN INDICATED.

2. CONTRAINDICATIONS

Children who have not reached their 15th birthday

3. PROCEDURE

- a) Assess for pelvic instability.
In order to not increase bleeding, only one exam should be performed to evaluate for pelvic fracture. Multiple exams will disrupt clot formation.
- b) Identify the greater trochanter of each femur.
The greater trochanter is the bony prominence of the lateral upper thigh.
- c) The patient should be placed in a supine position prior to application of the pelvic stabilization binder device.
- d) Place pelvic binder around the patient, centered at the level of the greater trochanter.
- e) It may be advisable to place the binder on the backboard prior to placing the patient onto the backboard so that it is already prepared for placement.
- f) Ensure patient has been undressed and provides adequate exposure.
- g) Tighten the binder as directed by the manufacturer's instructions for the specific stabilization binder.
- h) Once pelvic stabilization binder device is applied, do not remove until directed to do so by physician.

**PILOT PROGRAM
PELVIC STABILIZATION BINDER DEVICE FOR
SUSPECTED PELVIC FRACTURE PROCEDURE**

4. PRECAUTIONS

- a) Incorrectly placing the pelvic stabilization binder device at the level of the iliac wing could cause harm by widening the pelvic fracture.
Assessment after application of the pelvic stabilization binder device
- b) Continue with patient care
- c) EMS providers should also assess distal pulses before and after the application of the pelvic stabilization binder device.
- d) For EMS units with long transport times and with patients requiring large volumes of fluid resuscitation, the patient will need to be periodically monitored to make sure that the device is not becoming too tight due to expansion of the pelvic area from accumulation of fluids that have third spaced to the pelvic area.
- e) If providers feel the device is becoming too tight it should be slowly loosened and then reapplied.

**PILOT PROGRAM
ON-SCENE PROTOCOL AND ALTERNATIVE DISPATCH PROTOCOL DURING
DECLARED PUBLIC HEALTH EMERGENCIES FOR PANDEMIC INFLUENZA**

N4. On-Scene Protocol and Alternative Dispatch Protocol During Declared Public Health Emergency for Pandemic Influenza

This protocol is designed to be implemented only when there is a significant infectious disease that has impacted the health care system to the extent that all hospital beds are full, the EMS/Dispatch work force is significantly depleted due to absenteeism, and the calls for EMS support overwhelm resources to manage all calls. MIEMSS, in collaboration with DHMH and Local health officers, would activate this protocol to provide authorization for the adjustment in the pre-hospital standard of care.

MANAGING ARRESTS

If the patient is in cardiac arrest, CPR for 5 cycles, than apply AED. Shock and continue to shock with 5 cycles CPR if indicated.

- 1) If a pulse returns, initiate patient transport as quickly as possible to a higher level of medical care (the ED or rendezvous with ALS, whichever has a shorter ETA).
- 2) If no shock is indicated and there is no return of pulse, Consult Medical Direction to withdraw care and leave patient on scene.

Follow normal *Maryland Medical Protocol for EMS Providers* and conduct General Patient Care assessment and make sure you are using appropriate universal precautions.

Follow the sequential steps below:

- 1) If patient has an obvious **non-flu related illness or injury**, apply appropriate *Maryland Medical Protocol for EMS Providers*, then treat and transport appropriately.
- 2) If patient has **Critical Vital Signs (Table #1)**, transport patient to ED.
- 3) If patient has **Normal Vital Signs (Table #1)**, then go to Case Definition Signs and Symptoms for Flu (Table #2).
 - a) If the patient has **three or more Case Definition Signs or Symptoms for Flu**, transport patient to Alternate Care Facility.
 - b) If the patient has **two or less Case Definition Signs or Symptoms for Flu**, EMS provider shall call for Medical Consult (state central resource physician) to determine if EMS provider can leave the patient on scene and advise the patient to self-quarantine and call a nurse/public health hotline for further assistance.

**PILOT PROGRAM
ON-SCENE PROTOCOL AND ALTERNATIVE DISPATCH PROTOCOL DURING
DECLARED PUBLIC HEALTH EMERGENCIES FOR PANDEMIC INFLUENZA**

Table 1. Assess Patient's Vital Signs				
	Critical Adult Vital Signs	Critical Pediatric Vital Signs	Normal Adult Vital Signs	Normal Pediatric Vital Signs
	Transport to ED		Consider Alternate Care	
Pulse/<i>Perfusion</i>	Equal or Greater than 130	<i>CRT greater than 2 seconds</i>	Less than 130	<i>CRT less than or equal to 2 seconds</i>
RR/<i>Distress</i>	Equal or Greater than 30	<i>Greater than 45 or increased work of breathing Neonate: Less than 30 Infant: Less than 20 Child: Less than 15</i>	Less than 30	<i>Unlabored breathing or Neonate: 30-45 Infant: 20-45 Child: 15-45</i>
Systolic BP	Less than 90	<i>Neonates: Less than 60 Infants: Less than 70 Children under 10 years of age: Less than 70 + (2 x years)</i>	Equal or Greater than 90	<i>Neonates: Equal or greater than 60 Infants: Equal or greater than 70 Children under 10 years of age: Equal or greater than 70 + (2 x years)</i>
Pulse Ox	Less than 92 on room air	<i>Less than 92 on room air</i>	Equal or Greater than 92	<i>Equal or Greater than 92</i>
AVPU	Pain or Unresponsive	<i>Pain or Unresponsive</i>	Alert or Verbal	<i>Alert or Verbal</i>
Lung sounds	Rales/ Wheezing	<i>Rales/ Wheezing</i>	Clear	<i>Clear</i>

Table 2. Case Definition Signs and Symptoms for FLU			
1.	Difficulty breathing with exertion	7.	Sore throat
2.	Has doctor diagnosed flu		(no difficulty breathing or swallowing)
3.	Cough	8.	Nasal congestion
4.	Fever	9.	Runny nose
5.	Shaking chills	10.	Muscle aches
6.	Chest pain (pleuritic)	11.	Headache

**PILOT PROGRAM
ON-SCENE PROTOCOL AND ALTERNATIVE DISPATCH PROTOCOL DURING
DECLARED PUBLIC HEALTH EMERGENCIES FOR PANDEMIC INFLUENZA**

Maximize the Use of Limited Resources Alternative Dispatch Protocols				
Dispatch Priority Level (match vendor or call center based dispatch protocol/ tiered algorithm)	Response (Standard Operating Mode)	Level 1 (A) Activation of Card 36 and ONLY for use in 6, 10, 18, and 26 DSS1 BELOW IS BACK UP STRATEGY FOR EMD WITHOUT CARD 36	Level 2(B) Implement Declining Response / Configuration CAD Table (Moderate) + Card 36 (6,10,18 & 26) DSS2	Level 3(C) Implement Declining Response / Configuration CAD Table (Severe) + Card 36 (6,10,18 & 26) DSS 3
Classification 1 (*Echo) Confirmed Cardiac Arrest (Not Breathing, Unresponsive per 911 call) (MPD cards - 2, 6, 9, 11,15, 31)	Closest AED Unit <u>and</u> Closest 1st Responder <u>and</u> Closest ALS Ambulance	Closest AED Unit <u>and</u> Closest 1st Responder <u>and</u> Closest BLS Ambulance if available	-Closest AED Unit and -Closest 1st Responder if available	- Closest AED Unit if available - If no unit available, no response
Classification 2 (*Delta) Life Threatening Emergency/Potentially Life Threatening/Confirmed Unstable Patient(s)	Closest 1st Responder <u>and</u> Closest ALS Ambulance	- Closest 1st Responder <u>and</u> Closest ALS Ambulance if available; - BLS ambulance if ALS unit not available	Closest 1st Responder <u>and</u> Closest Ambulance available (ALS or BLS)	- Closest 1st Responder <u>and</u> - If available Closest Ambulance available (ALS or BLS)
Classification 3 (*Charlie) Non-Critical/Currently Stable Patient(s) Requiring ALS Assessment	Closest ALS Ambulance	Closest Ambulance available (ALS or BLS)	Closest Ambulance available (ALS or BLS)	- Closest 1st Responder if available or - Closest stand-in responder unit
Classification 4 (*Bravo) BLS Assessment for unknown/possibly dangerous scenes	Closest 1st Responder <u>and</u> Closest BLS Ambulance	Closest 1st Responder <u>and</u> Closest BLS Ambulance if available	Closest 1st Responder	- Trauma Closest 1st Responder - Medical Referral to Nurse or Health Department Advice Phone service if available; or self-transport Alternate Care Site
Classification 5 (*Alpha) BLS Treatment	BLS Ambulance	Alternate Care Referral	Alternate Care Referral	Alternate Care Referral
Classification 6 (*Omega) Non-Ambulance Care	Alternate care such as Poison Control Center; Police/Fire service call, etc.	Alternate care such as Poison Control Center; Police/Fire service call, etc.	Alternate care such as Poison Control Center; Police/Fire service call, etc.	Alternate care such as Poison Control Center; Police/Fire service call, etc.

**PILOT PROGRAM
AIRWAY MANAGEMENT: VIDEO LARYNGOSCOPE
FOR OROTRACHEAL INTUBATION**

**N5. AIRWAY MANAGEMENT: VIDEO LARYNGOSCOPY FOR
OROTRACHEAL INTUBATION (NEW '13)**

1. PURPOSE

Endotracheal Intubation using video laryngoscopy involves visualizing the glottic opening using specialized technology to view “around the corner” and pass the endotracheal tube, under optimal visualization, into the trachea. The purpose is to provide airway and ventilatory support for apnea, hypoxia, hypoventilatory respiratory failure, or respiratory insufficiency.

The video laryngoscope device must have the following features: **(NEW '13)**

- a) Color monitor
- b) Anti-fog mechanism
- c) Video recording device

2. INDICATION

Video laryngoscopy and orotracheal intubation is indicated for patients who are 18 years or older.

- a) Apnea or agonal respirations
- b) Airway reflex compromised
- c) Ventilatory effort compromised
- d) Injury or illness involving the airway
- e) Potential for airway or ventilatory compromise

3. CONTRAINDICATIONS

Patients less than 18 years of age.

4. POTENTIAL ADVERSE EFFECTS/COMPLICATIONS

- a) Trauma to the mouth, pharynx, larynx, trachea, esophagus
- b) Right mainstem bronchus intubation
- c) Vomiting
- d) Secondary brain injury resulting from hypoxia and/or hypotension
- e) Displacement of a properly placed endotracheal tube
- f) Esophageal intubation

5. PRECAUTIONS

- a) Attempt visualization and endotracheal intubation up to two times. If additional attempts are indicated, consult medical direction and consider what changes would result in improved visualization and success at endotracheal placement of the ET tube.
- b) Confirm placement of the endotracheal tube in the trachea as described in AIRWAY MANAGEMENT: OROTRACHEAL INTUBATION.

**PILOT PROGRAM
AIRWAY MANAGEMENT: VIDEO LARYNGOSCOPE
FOR OROTRACHEAL INTUBATION**

6. PROCEDURE

- a) Insert the Video Laryngoscope Device midline into the pharynx
- b) Advance the Video Laryngoscope Device midline to center the vocal cords on the video screen
- c) Pass the endotracheal tube between the vocal cords, remove the stylet, and advance the tube to the desired depth
- d) Secure the endotracheal tube and verify correct placement

7. TRAINING AND DOCUMENTATION

- a) Providers must complete didactic and practical training
 - (1) Description of technique
 - (2) Demonstration of device (features, operation, troubleshooting)
 - (3) Documentation requirements
 - (4) Mannequin scenarios
 - (5) *In vivo* practice
- b) Providers must complete the Video Laryngoscopy Procedure Form after each patient encounter where the Video Laryngoscopy Device is used.
- c) Program Medical Directors must review each patient encounter where the Video Laryngoscope Device is used and provide a quarterly report to the Office of the Medical Director.

**PILOT PROGRAM
AIRWAY MANAGEMENT: VIDEO LARYNGOSCOPE
FOR OROTRACHEAL INTUBATION**

VIDEO LARYNGOSCOPY PROCEDURE FORM

PATIENT PROFILE

Age: _____ Gender: _____ Height: _____ Weight: _____

INDICATION

- Apnea or agonal respirations
- Airway reflex compromised
- Ventilatory effort compromised
- Injury or illness involving the airway
- Potential for airway or ventilatory compromise

ASSESSMENT

Mouth Opening: _____ Thyromental Distance: _____ Adam's Apple to Sternal Notch _____

PROCEDURE

Number of attempts: _____

Successful: Yes No

RSI procedure used? Yes No

Confirmation of correct placement:

- | | |
|---|--|
| <input type="checkbox"/> EtCO ₂ waveform | <input type="checkbox"/> Condensation in tube |
| <input type="checkbox"/> Breath sounds present | <input type="checkbox"/> Absence of epigastric sound |
| <input type="checkbox"/> Chest rise | <input type="checkbox"/> SpO ₂ |
| <input type="checkbox"/> Other _____ | |

For failed attempts: what prevented success?

- | | |
|---|---|
| <input type="checkbox"/> Unable to visualize airway | <input type="checkbox"/> Unable to place tube despite visualization |
| <input type="checkbox"/> Technical issue | <input type="checkbox"/> Dental injury |
| <input type="checkbox"/> Bleeding/Secretions | <input type="checkbox"/> Esophageal intubation |
| <input type="checkbox"/> Other _____ | |

Which device/procedure was used to rescue the failed airway?

- | | |
|--|--|
| <input type="checkbox"/> EasyTube | <input type="checkbox"/> King LTD-S |
| <input type="checkbox"/> BVM Ventilation OPA/NPA | <input type="checkbox"/> Cricothyroidotomy |