April 18, 2012

TO: BLS Ambulance / BLS First Response Services, ALs Ambulance/ ALS First Response Services, EMS Agency Medical Directors, REMAC/ Regional Council Committee Members, Hospital Chief Executive Officers, Hospital Emergency Department Medical Directors

FROM: NYC REMAC

RE: NYC REMAC Public Notice of Protocol Revisions

Please find attached the Public Notice for proposed revisions to the NYC REMAC Protocols.

The following protocols have been revised and approved for public notice:

FDNY Rescue Paramedic Protocols

Attached are:
• A copy of the protocols showing all revisions
• A ‘clean’ copy showing the revised protocol as it will be

Proposed protocol revisions can be reviewed on line at: www.nycremsco.org (under “News and Announcements”)

All current NYC REMAC Protocols can be accessed in their entirety at www.nycremsco.org.

Deleted language is BOLD RED AND STRUCK-OUT – DELETED
New language is BOLD BLUE AND UNDERLINED – NEW

All comments must be submitted in writing no later than May 18, 2012 on the attached ‘Comment Form’. If available, please attach all appropriate supporting documentation.

Thank you.
The Regional Emergency Medical Advisory Committee (REMAC) of New York City Prehospital Treatment Protocols define the minimum standard of care provided to patients by Certified First Responders (CFRs), Emergency Medical Technicians (EMTs), and Advanced Emergency Medical Technicians-Paramedic (AEMT-Ps) in New York City. These protocols reflect both the curriculum and certification requirements of the New York State Department of Health Bureau of Emergency Medical Services and the Regional Emergency Medical Advisory Committee (REMAC) of New York City.

The REMAC of New York City has proposed revisions to the current regional Prehospital Treatment Protocols.

Deleted language is BOLD RED AND STRUCK-OUT --- DELETED

New language is BOLD BLUE AND UNDERLINED --- NEW

In order to meet regional needs, the REMAC of New York City is conducting a public notice and is requesting comments from the Emergency Medical community. Comments must be submitted in writing on the attached ‘Comment Form’. If available, appropriate supporting documentation should also be attached. Comments must be received no later than May 18, 2012.

Draft revised protocols can be reviewed on-line at www.nycremsco.org (under “News and Announcements”). All NYC REMAC Protocols can be accessed in their entirety at www.nycremsco.org.

DIRECT ALL INQUIRES AND COMMENTS TO:

Joseph Bove, MD
Chair, Protocol Committee
Regional Emergency Medical Advisory Committee of New York City
c/o Regional EMS Council of NYC
475 Riverside Drive, Suite 1929
New York, New York 10115
FAX: (212) 870-2302
Email: mdiglio@nycremsco.org

PLEASE BE ADVISED THAT pursuant to Section 3004-A of Article 30 of the Public Health Law of the State of New York, the Regional Emergency Medical Advisory Committee (REMAC) of New York City is responsible to develop prehospital triage, treatment, and transportation protocols that are consistent with the standards of the State Emergency Medical Advisory Committee and that address specific local conditions with regards to the provision of prehospital medical care rendered by NYS Department of Health certified First Responders, Emergency Medical Technicians and Advanced Emergency Medical Technicians within the City of New York.
# Regional Emergency Medical Advisory Committee (REMAC) of New York City

**Protocol Revision Comment Form**

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(Continue on additional sheet if necessary)

If available, appropriate supporting documentation should be attached.

**Comments must be received no later than May 18, 2012 to:**

- Joseph Bove, MD
- Chair, Protocol Committee
- Regional Emergency Medical Advisory Committee of New York City
- c/o Regional EMS Council of NYC
- 475 Riverside Drive, Suite 1929
- New York, New York 10115
- Fax: 212-870-2302
- Email: mdiglio@nycremsco.org

Draft revised protocols can be reviewed on-line at [www.nycremsco.org](http://www.nycremsco.org) (under “News and Announcements”). All NYC REMAC Protocols can be accessed in their entirety at [www.nycremsco.org](http://www.nycremsco.org).

This form may be duplicated as needed.
FDNY Rescue Paramedic Protocols

• The following is a copy of the protocols showing all revisions

  Deleted language is BOLD RED AND STRUCK-OUT – **DELETED**

  New language is BOLD BLUE AND UNDERLINED – **NEW**
These General operating Procedures Apply ONLY to FDNY Rescue Paramedics

Purpose

To establish protocols defining the scope of added New York City Fire Department’s Advanced Emergency Medical Technician - Paramedic (AEMT-P) Rescue units operating in the prehospital 911 system.

Scope

The New York City Fire Department has extensively trained a limited number of AEMT-Ps to perform Prehospital Advanced Emergency Medical Care during the Rescue/Recovery of entrapped victims. The Fire Department has established specific protocols, contained herein, that shall be used exclusively by these Paramedics when assigned to a rescue unit and under the direction of an FDNY Office of Medical Affairs (OMA) Physician. These protocols are guidelines that should be used in conjunction with on-scene blood chemistry analysis as well as good clinical judgment, and they are intended to be utilized in conjunction with existing New York City REMAC Protocols.

---NOTE: UNDER NO CIRCUMSTANCES MAY RESCUE PARAMEDICS PROVIDE TREATMENT USING DISCRETIONARY PROTOCOLS WITHOUT CONTACTING AND RECEIVING PRIOR DIRECTION FROM AN FDNY OMA PHYSICIAN.

Training

All Rescue Paramedics have met New York State Department of Health Bureau of Emergency Medical Services and Regional Emergency Medical Services Committee (REMAC) of New York City. The rescue AEMT-Ps are FDNY HazMat Technicians who have been certified by the New York State Office of Fire Prevention and Control through the FDNY Fire Academy – Technical Rescue School in confined space rescue, structural collapse rescue, trench rescue and high angle rope rescue techniques. The Rescue AEMT-Ps have also received advanced training in the medical management of Crush Syndrome, Compartment Syndrome and other unique medical and surgical problems encountered during a technical rescue situation. Additionally these individuals are credentialed in the use of specialized medical equipment. Training records are maintained at the FDNY HazTac headquarters.

SPECIAL MEDICAL EQUIPMENT AND MEDICATIONS:
(This is in addition to general ALS medications and equipment.)

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<tr>
<th>Equipment</th>
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<tr>
<td>Temperature Probes (oral and rectal)</td>
<td>D_{5}W ½ Normal Saline 3% Saline</td>
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<td>RAD 57 Monitor</td>
<td>Calcium Gluconate D_{5}W</td>
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<td>Videolaryngoscopy AirTrak or Glidescope (or equivalent device)</td>
<td>Hemostatic Dressings D_{5}W ½ Normal Saline</td>
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<td>Foley Catheters (adult and pediatric)</td>
<td>Fentanyl Calcium Gluconate</td>
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<td>Point of care testing-STAT and Cartridges</td>
<td>Insulin Hemostatic Dressings</td>
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<td>IV Pump IV Warmer</td>
<td>Mannitol Fentanyl</td>
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<td>IV Warmer Alternative Airways King Airway</td>
<td>Sodium Bicarbonate 4.2% Insulin</td>
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<td>Alternative Airways Mechanical Advantage Tourniquets (MAT)</td>
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FDNY Rescue Paramedics Protocols

These protocols are designed for use specifically by FDNY EMS Paramedics that have been trained and credentialled to the level of “Rescue Medic”. Any treatment beyond standing orders requires direction from an FDNY OMA Physician.

Initial Management

1. Begin Basic Life Support Procedures
2. Protect Patients airway from particulates using any of the following:
   a. N95 mask
   b. P 100 mask
   c. Non-rebreather O₂ mask
   d. Face shield
   e. SCBA:
      i. For patients who are Members of Service (any agency if fit tested)
      ii. As a loose fitting protective device with free flow air
3. Begin pulse oximetery monitoring
   a. Endotracheal intubation must be performed utilizing direct in-line stabilization when appropriate.
   b. In the spontaneously breathing patient with an intact gag reflex:
      1. Administer etomidate 0.3mg/kg, IV or Saline Lock bolus (maximum dose 20mg)
      2. In the event of suspected head trauma, administer lidocaine 1.5mg/kg, IV or Saline Lock bolus.
      3. Intubate using endotracheal tube via direct or video/fiberoptic laryngoscopy or wire guided retrograde intubation technique.
      4. Administer diazepam 5mg, IV or Saline Lock bolus, for continued sedation after successful endotracheal intubation.
      5. If unable to obtain endotracheal intubation following the aforementioned techniques, alternative airway measures (Combitube or King Airway) may be utilized.
      6. If adequate airway management cannot be achieved by any other means, and patient is non-responsive, utilize the Quick-Trach to perform cricothyotomy.

5. If Basic Life Support measures fail to control bleeding, a “Hemostatic Agent” or tourniquet shall be used to assist with bleeding control.
6. Begin Cardiac Monitoring. Record and interpret a baseline 12 lead EKG as soon as possible.
7. Establish IV 0.9% Normal Saline using, if possible, a large bore (14-18 gauge) catheter and begin infusion of 0.9% Normal Saline.
   a. For signs and symptoms of hypovolemic shock, administer 20 mL/kg 1L bolus of 0.9% NS.
   b. In the absence of signs of hypovolemia, administer 2 mL/cc/kg/hr of 0.9% NS.
8. If unable to obtain IV access, establish an IO (if indicated) and begin infusion of 0.9% Normal Saline.
a. Use of intraosseous access shall include extremity and sternal sites be limited to the extremities and only attempted after traditional methods of intravenous access have been unsuccessful.

i. If intraosseous access is established on a conscious patient, infuse 0.5 mg/kg of 2% preservative-free lidocaine via IO port prior to infusion up to a maximum of 50 mg.

ii. For continued discomfort or pain due to infusion repeat lidocaine infusion of 0.25 mg/kg via IO port up to a maximum of 25 mg.

iii. For prolonged on-scene operations, additional dosing may be provided at the discretion of the FDNY OMA Physician.

9. Monitor patient for hypothermia or hyperthermia. Obtain core temperature measurement. Provide necessary treatment as per sub-protocols.

10. Do not allow patient to eat or drink anything.

11. If possible, draw blood sample and analyze blood chemistry using point of care testing STAT, if possible. Continue analyzing PRN.


ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

Option A: If intubation unsuccessful due to jaw clenching despite facilitation with etomidate, consider inducing paralysis by administering succinylcholine 1mg/kg, IV or Saline Lock bolus. Vecuronium bromide 0.1mg/kg, IV or Saline Lock bolus, may be substituted for succinylcholine if hyperkalemia and/or crush syndrome is suspected.

Option B: Repeat diazepam 5-10mg IV every 20 minutes for prolonged onscene operations.

Option C: Pain control should be utilized as necessary with on hand medications.

a. Morphine

i. Initial dose of 0.1mg/kg, IV or Saline Lock bolus (maximum dose 5mg).

ii. May provide two additional doses of 0.05mg/kg, IV or Saline Lock bolus, (maximum dose 2.5mg) every 5 minutes (maximum cumulative dose 10mg).

iii. For prolonged on-scene operations, may be repeat doses of 0.05mg (maximum 2.5mg) every 20 minutes, as needed at the discretion of the FDNY OMA Physician.

b. Fentanyl

i. Initial dose of 1mcg/kg, IV or Saline Lock bolus (maximum dose 50mcg).

ii. May provide two additional doses of 0.5mcg/kg, IV or Saline Lock bolus (maximum dose 25mcg) every 5 minutes (maximum cumulative dose 100mcg).

iii. For prolonged on-scene operations, may be repeat doses of 0.5mcg (maximum 25mcg) every 20 minutes, as needed at the discretion of the FDNY OMA Physician.
THE USE OF A PARALYTIC AGENT IS ONLY ALLOWED WHEN DIRECTED BY AN FDNY-OMA PHYSICIAN AND WHEN WAVEFORM CAPNOGRAPHY IS AVAILABLE FOR CONTINUOUS AIRWAY MONITORING.
Sub-Protocols

A: CRUSH SYNDROME
B: HYPERKALEMIA
C: HYPONATREMIA
D: HYPERTHERMIA
E: HYPOTHERMIA
F: BURNS
G: SEVERE UNCONTROLLED EXTREMITY HEMORRHAGE
H: LIMB AMPUTATION
I: AIRWAY MANAGEMENT
J: SEDATION
K: PAIN MANAGEMENT
CRUSH SYNDROME

Consider that the patient may be in the early stages of Crush Syndrome if the patient remains trapped for a period greater than 1 hour or is presenting with signs and symptoms of Crush Syndrome.

ADULT:

1. Perform Initial Management Protocol
2. Administer IV fluids to correct volume deficit. Infuse 0.9% Normal Saline or D5W½ Normal Saline as directed.
3. When possible, obtain urine and test for the presence of hemoglobin-/myoglobin. If necessary, a foley catheter may be inserted by an on-scene OMA physician. Insert a foley catheter.
4. Administer IV fluids to correct volume deficit:
   a. Administer 1L 0.9% NS bolus.
   b. Administer sodium bicarbonate 44mEq, IV or Saline Lock bolus.
   c. Mix sodium bicarbonate 88mEq in 1L D5W and administer at a rate of 1L per hour.

4. Prior to extricating/releasing entrapped patient
   a. Administer sodium bicarbonate 44 mEq, IV/IO or saline lock bolus.
   b. Administer sodium bicarbonate 44 mEq in 1L D2W ½ NS at a rate of 1L per hour.

5. For patients with point of care values or EKG findings consistent with hyperkalemia refer to Protocol B: Hyperkalemia

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

Option A: If the patient is showing early signs of renal failure/insufficiency including "hematuria"/myoglobinuria and has documented urine output:

i. Administer Mannitol 0.25 - 2.0 g/kg IV/IO via an in-line filter over 30 minutes in 1000 cc of D5W½ Normal Saline to be infused at a rate of 500 cc per hour
   ii. Lasix 40-80 mg, IV or Saline Lock bolus.

NOTE: ANURIC PATIENTS MAY NOT BE GIVEN MANNITOL.

INTRAVENOUS INFUSION: IF BENEFITS ARE NOT OBSERVED AFTER ADMINISTERING 200 g, MANNITOL SHOULD BE DISCONTINUED

Option B: For extended operations, foley insertion by an on-scene physician may be required to monitor urinary output and for BBP precautions. Maintain urinary output of 300 mLcc per hour and a pH ≥7.65.

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1 Intravenous infusion: if benefits are not observed after administering 200 grams, mannitol should be discontinued.
Option C: Obtain serum glucose level with the i-STAT or glucometer. *Point of care testing as indicated.*
Option D: For patients with i-STAT values or EKG findings consistent with hyperkalemia:

i. Administer 25 gms of D50 and 10 units of regular Insulin, IV or Saline Lock bolus.

ii. Administer Albuterol 10mg via nebulizer or in-line administration device.

iii. Administer Calcium Gluconate 1g (10 cc of a 10% solution), IV or Saline Lock bolus, over 2 minutes.

PEDIATRIC:

1. Perform Initial Management Protocol
2. Administer IV fluids to correct volume deficit.
   - When possible, Infuse 0.9% Normal Saline or D5W ½ Normal Saline as directed.
3. Obtain urine and test for the presence of hemoglobin/myoglobin. If necessary insert a foley catheter.
4. Administer IV fluids to correct volume deficit (2cc/kg) and to ensure renal function and minimize the potential clinical consequences of Acute Renal Failure. Prior to extricating/releasing entrapped patient
   a. Administer 20 cc/kg of 0.9% NS bolus
   b. Administer 4.2% sodium bicarbonate 1.4mEq/kg (maximum 44 mEq), IV/IO or Saline Lock bolus.
   c. Mix 8.4% sodium bicarbonate 44.88mEq in 1L D5W and administer as follows:[B3]:
      i. <10kg: 8 mL/kg/hr
      j. 10-20kg: 80 mL/hr + 4 mL/kg/hr
      k. >20kg: 160 mL/hr + 2 mL/kg/hr

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

Option A: If the patient is showing early signs of renal failure/insufficiency including "hematuria"/myoglobinuria and has documented urine output:

i. Administer Mannitol 0.25-1 g/kg IV/IO via in-line filter over 30 minutes (maximum dose 12.5 g) in 250 cc of D5W ½ Normal Saline to be infused at a rate of 125 cc per hour.
ii. Lasix 1-2 mg/kg, IV or Saline Lock bolus.

NOTE: ANURIC PATIENTS MAY NOT BE GIVEN MANNITOL.
Option B: For extended operations, foley insertion by on-scene physician may be required to monitor urinary output and for BBP precautions. Maintain urinary output of 3 mL/cc/kg per hour and a pH ≥7.65.²

Option C: Obtain point of care testing as indicated, serum glucose level with the i-STAT or glucometer.

Option D: For patients with EKG findings consistent with hyperkalemia refer to Protocol B: Hyperkalemia:

i. Administer D25 0.5g/kg (infants D10 5cc/kg) and regular Insulin 0.1units/kg, IV or Saline Lock bolus.

ii. Administer Albuterol 10mg via nebulizer or in-line administration device.

Option E: Administer Calcium Gluconate 200-500 mg (infants: not more than 200 mg), IV or Saline Lock bolus, over 2 minutes.

² Foley insertion may be required to monitor urinary output and for BBP precautions. This option should be considered for extended operations.
ADULT:

1. Perform Initial Management Protocol

2. Administer 10% Calcium Gluconate or 10% Calcium Chloride 1 g IV/IO solution or Saline Lock bolus, slowly over 2 min.
   
   **NOTE: DISCONTINUE CALCIUM ADMINISTRATION IF SEVERE BRADYCARDIA DEVELOPS**

3. Administer 44 mEq of Sodium Bicarbonate, IV/IO or Saline Lock bolus.

4. Administer 0.5% Albuterol 10-20 mg via nebulizer or in-line administration device.

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

Option A: Obtain glucose level with point of care testing. Administer 10 units of regular Insulin, IV/IO or Saline Lock bolus and D50 as follows:

1. For serum glucose level equal to or less than 120 mg/dL administer D50 50 g (100 mL of a 50% solution) IV/IO or saline lock bolus.

2. For serum glucose level greater than 120 mg/dL and less than 300 mg/dL administer D50 25 g (50 mL of a 50% solution) IV/IO or saline lock bolus.

3. For serum glucose level equal to or greater than 300 mg/dL do not administer dextrose.

Administer 10 cc of 10% IV solution over 2 min Calcium Gluconate or 10 cc of 10% IV solution of Calcium Chloride, IV or Saline Lock bolus, slowly over 2 min.

**NOTE: DISCONTINUE CALCIUM ADMINISTRATION IF SEVERE BRADYCARDIA DEVELOPS**

4. If unable to obtain glucose level, administer D50 25 g IV/IO or saline lock bolus.

Option B: Lasix 40-80 mg, IV/IO or saline lock bolus. Obtain serum glucose level with the i-STAT or glucometer.

Option C: Administer 25 gms D50 and 10 units of regular Insulin, IV or Saline Lock bolus.

Option D: Administer Albuterol 10 mg via nebulizer or in-line administration device.
Option E: Lasix 40-80 mg, IV or Saline Lock bolus.

PEDIATRIC:

1. Perform Initial Management Protocol
   2. Administer 10% Calcium Gluconate 1 mL/kg (100 mg/kg) or 10% Calcium Chloride 0.2 mL/kg (20 mg/kg) over 3-5 minutes IV/IO or saline lock bolus

   **NOTE:** DISCONTINUE CALCIUM ADMINISTRATION IF SEVERE BRADYCARDIA DEVELOPS

   **NOTE:** DISCONTINUE CALCIUM ADMINISTRATION IF SEVERE BRADYCARDIA DEVELOPS

   2.3. Administer Sodium Bicarbonate IV/IO or saline lock bolus
      a. Infants: 4.2% Sodium Bicarbonate 0.5 mEq./kg IV/IO over 5-10 min; repeat in 10 min prn. (only use 4.2% solution)
      b. Children: 7.5% Sodium Bicarbonate 1-2 mEq/kg IV/IO over 5-10 min; repeat in 10 min prn.

   4. Administer Albuterol 10 mg via nebulizer or in-line administration device [B4]:
      a. ≤ 30 kg: Administer 0.5% Albuterol 10 mg
      b. > 30 kg: Administer 0.5% Albuterol 20 mg

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

Option A: Administer Dextrose - and Regular Insulin 0.1 units/kg, IV/IO or saline lock bolus.
   a. Infants: D10W 0.5 g/kg (5 mL/kg) IV/IO or saline lock bolus
   b. Children: D25W 0.5 -1 g/kg (2-4 mL/kg) IV/IO or saline lock bolus

   Administer Calcium Gluconate 200-500 mg (infants: not more than 200 mg), IV or Saline Lock bolus, over 2 minutes.

   **NOTE:** DISCONTINUE CALCIUM ADMINISTRATION IF SEVERE BRADYCARDIA DEVELOPS.

Option B: Lasix 0.5-1.4-2 mg/kg, IV/IO or saline lock bolus.
Obtain serum glucose level with the i-STAT or glucometer.

Option C: Administer D25 0.5g/kg (infants D10 5cc/kg) and regular Insulin 0.1units/kg, IV or Saline Lock bolus.

Option D: Administer Albuterol 10mg via nebulizer or in-line administration device.

Option E: Lasix 1-2 mg/kg, IV or Saline Lock bolus.
HYPONATREMIA

ADULT:
1. Perform Initial Management Protocol

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

Option A: For the management of patients with documented hyponatremia (<120mEq/dL) and altered neurologic status / seizures, administer 3% saline IV drip at a rate to deliver 100 ml/hr, to raise sodium level to 120 mEq/dL.

PEDIATRIC:
1. Perform Initial Management Protocol

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

Option A: For the management of patients with documented hyponatremia (<120mEq/dL) and altered neurologic status / seizures, administer 3% saline IV slow push until seizures are terminated at a rate to deliver 4cc/kg (assess response and repeat if needed).
HYPERTHERMIA

ADULT/PEDIATRIC:

1. Perform Initial Management Protocol

2. Cool the patient at a rate of at least 0.2°C/min (0.36°F/min) to a core temperature of 39°C (102.2°F). This can be done by wrapping the patient in sheets wetted in cold water or placing ice packs in the axillary region and the groin.

3. If the patient presents with a fluid related heat exhaustion, infuse 20-40 mL/kg of Normal Saline IV/IO in the first hour, monitoring electrolytes and fluid administration vs. output and respiratory status.

   3. Administer intravenous fluids as per ‘Initial Management’ standing orders.

PEDIATRIC:

1. Perform Initial Management Protocol

2. Cool the patient at a rate of at least 0.2°C/min (0.36°F/min) to a core temperature of 39°C (102.2°F). This can be done by wrapping the patient in sheets wetted in cold water or placing ice packs in the axillary region and the groin.

3. Use intravenous fluid resuscitation only to treat hypovolemia.

4. If the patient presents with a fluid related heat exhaustion, infuse 20-40cc/kg of Normal Saline in the first hour, monitoring electrolytes and fluid administration vs. output and respiratory status.
HYPOThERMIA

ADULT/PEDIATRIC:

1. Perform Initial Management Protocol
2. Re-warm (decrease/control heat loss) the patient using blankets and heat packs placed in the axillary region, the groin, and on the abdomen.
3. Administer 0.9% Normal Saline IV/IO fluids at a rate of 20 mL/kg heated to 45°C/113°F titrated to a rate to increase measurable temperature by 0.3 to 1.2°C per hour.

PEDIATRIC:

1. Perform Initial Management Protocol
2. Re-warm (decrease/control heat loss) the patient using blankets and heat packs placed in the axillary region, the groin and on the abdomen.
3. Administer 0.9% Normal Saline IV fluids at a rate of 20cc/kg heated to 45°C/113°F titrated to a rate to increase measurable temperature by 0.3 to 1.2°C per hour.
ADULT/PEDIATRIC:

12. Perform Initial Management Protocol


14. Initiate the following fluid resuscitation for any patient with second or third degree burns whose involved body surface area exceeds 20%.

   a. Using the Parkland Formula (4 ml x weight in Kg x % of BSA) as a guideline, infuse half the amount at a drip rate to deliver the desired dose over a period of 8 hours from the time of the initial injury. Infuse the 2nd half at a rate to be delivered over 16 hours.

   b. Additionally provide maintenance fluids as follows:

      i. Adults: 125 mL/hr

      ii. Pediatrics

         1. <10kg: 4 mL/kg/hr
         2. 10-20kg: 40 mL +2 mL/kg/hr
         3. >20kg: 60 mL +12 mL/kg/hr (maximum 125 mL/hr)
SEVERE UNCONTROLLED EXTREMITY HEMORRHAGE

ADULT/PEDIATRIC:

1. Perform Initial Management Protocol

2. Apply Mechanical Advantage Tourniquet (MAT) to extremity by using the turnkey mechanism to desired pressure to control bleeding. Once the tourniquet is applied only the onscene physician may release it.

3. Apply hemostatic dressing.
LIMB AMPUTATION

ADULT/PEDIATRIC:

1. OMA Physician may perform limb amputation as required.


3. ——

—–
AIRWAY MANAGEMENT

ADULT/PEDIATRIC:

1. Begin Basic Life Support Airway Procedures

2. If necessary perform advanced airway management utilizing direct in-line stabilization when appropriate

   a. Pre-medication:

      i. In cases of suspected head injury:

         1. Administer 2% Lidocaine 1.5 mg/kg IV/IO or saline lock bolus.

         2. ADULTS ONLY: Administer Fentanyl 31-3 mcg/kg IV/IO or saline lock bolus (maximum dose 100 mcg) slowly over 2-3 minutes.

      ii. In cases of history of reactive airway disease, administer 2% Lidocaine 1.5 mg/kg IV/IO or saline lock bolus.

      iii. PEDIATRICS ONLY: < 1 years-old: Atropine 0.02 mg/kg IV/IO or saline lock bolus minimum dose 0.1mg and maximum doses 1 mg.

         NOTE: Pre-medication should must be given at least 2 minutes prior to induction. Premedication should not delay advanced airway management in cases of hypoxia.

   b. Induction Sedation:

      In the spontaneously breathing patient with an intact gag reflex:

      OPTION A: Administer Etomidate 0.3 mg/kg, IV/IO or saline lock bolus (maximum dose 30 mg)

      OPTION B: Administer Ketamine 2 mg/kg, IV/IO or saline lock bolus

   c. Advanced airway techniques

      i. Intubate using endotracheal tube via direct or video/fiberoptic laryngoscopy.

      ii. If unable to obtain endotracheal intubation alternative airway measures may be utilized.

      iii. If adequate airway management cannot be achieved by any other means, and patient is non-responsive, perform cricothyrotomy.

   d. Post-airway management sedation and monitoring

      i. Patient must be placed on continuous cardiac respiratory monitor with end-tidal CO₂.

      ii. For continued sedation after successful advanced airway maneuvers:

         OPTION A: Administer Diazepam 0.55 mg/kg, IV/IO or saline lock bolus (maximum dose 5 mg). May provide a repeat dose of Diazepam 0.5 mg/kg IV/IO or saline lock bolus as needed (maximum cumulative dose 10 mg)
OPTION B: Administer Ketamine 1 mg/kg, IV/IO or Saline Lock bolus
3. For an awake advanced airway placement:
   a. 5 mLcc of 4% Lidocaine nebulized at 5 liters per minute or spray airway using Mucosal Atomizer Device (MAD).
   b. Administer Midazolam 0.1mg/kg (maximum 2 mg) IV/IO, saline lock bolus, or IN.
   c. Administer Ketamine 1-2 mg/kg, IV/IO or saline lock bolus.

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

Option A: If intubation unsuccessful due to jaw clenching despite facilitation with etomidate, consider inducing paralysis by administering:
   i. Succinylcholine 1mg/kg, IV/IO or saline lock bolus.
   ii. Rocuronium 1mg/kg, IV/IO or saline lock bolus, may be substituted for succinylcholine if hyperkalemia and/or crush syndrome is suspected.

Option B: Repeat Diazepam 0.5 -1 0-10 mg/kg IV/IO or saline lock bolus every 20 minutes, or Ketamine 1 mg/kg IV/IO or saline lock bolus for prolonged onscene operations.

NOTE: THE USE OF A PARALYTIC AGENT IS ONLY ALLOWED WHEN DIRECTED BY AN FDNY OMA PHYSICIAN. AND WHEN WAVEFORM CAPNOGRAPHY IS AVAILABLE FOR CONTINUOUS AIRWAY MONITORING.
NOTE: THE USE OF THIS PROTOCOL IS ONLY ALLOWED WHEN DIRECTED BY AN FDNY OMA PHYSICIAN. USE WAVEFORM CAPNOGRAPHY IF SPECIAL OPERATIONS PERMITS FOR CONTINUOUS AIRWAY MONITORING. USE WAVEFORM CAPNOGRAPHY IF SPECIAL OPERATIONS PERMITS FOR CONTINUOUS AIRWAY MONITORING.

ADULT/PEDIATRIC:

1. If sedation is necessary for anxiolysis in event of difficult or prolonged extrication:
   - Administer Midazolam 0.1 mg/kg (maximum 2 mg) IV/IO, saline lock bolus, or IN

2. For continued sedation after successful advanced airway maneuvers, refer to Protocol G: Airway Management, post sedation and monitoring.

3. If sedation is necessary for disentanglement or difficult procedure:
   - a. Administer Midazolam 0.1 mg/kg (maximum 2 mg) IV/IO, saline lock bolus, or IN
   - b. Administer Ketamine 1 mg/kg IV/IO or saline lock bolus, or 3 mg/kg IM repeating every 60 seconds as needed

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

For prolonged on-scene operations, additional dosing may be provided at the discretion of the FDNY OMA Physician
NOTE: USE WAVEFORM CAPNOGRAPHY IF SPECIAL OPERATIONS PERMITS FOR CONTINUOUS AIRWAY MONITORING.

ADULT/PEDIATRIC:

2. Begin Cardiac, pulse oximetry, capnography monitoring if rescue operations permit.
3. For patients with a systolic blood pressure greater than 110 mmHg, administer:
   a. Morphine:
      i. Initial dose of 0.1 mg/kg, IV/IO or saline lock bolus (maximum dose 5 mg).
      ii. May provide repeat dose 0.1 mg/kg, IV/IO or saline lock bolus as needed (maximum cumulative dose –10 mg)
   OR
   b. Fentanyl:
      Initial dose of 1 mcg/kg, IV/IO or saline lock bolus (maximum dose 100 mcg).
4. For hypotensive patients administer Fentanyl:
   Initial dose of 1 mcg/kg, IV/IO or saline lock bolus (maximum dose 100 mcg).

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

For prolonged on-scene operations, additional dosing may be provided at the discretion of the FDNY OMA Physician.
FDNY Rescue Paramedic Protocols

- For ease of reading, the following is a ‘clean’ copy of the protocols, showing the revised protocols in their final form
These General operating Procedures Apply ONLY to FDNY Rescue Paramedics

Purpose

To establish protocols defining the scope of added New York City Fire Department’s Advanced Emergency Medical Technician - Paramedic (AEMT-P) Rescue units operating in the prehospital 911 system.

Scope

The New York City Fire Department has extensively trained a limited number of AEMT-Ps to perform Prehospital Advanced Emergency Medical Care during the rescue/recovery of entrapped victims. The Fire Department has established specific protocols, contained herein, that shall be used exclusively by these Paramedics when assigned to a rescue unit and under the direction of an FDNY Office of Medical Affairs (OMA) Physician. These protocols are guidelines that should be used in conjunction with on-scene blood chemistry analysis as well as good clinical judgment, and they are intended to be utilized in conjunction with existing New York City REMAC Protocols.

NOTE: UNDER NO CIRCUMSTANCES MAY RESCUE PARAMEDICS PROVIDE TREATMENT USING DISCRETIONARY PROTOCOLS WITHOUT CONTACTING AND RECEIVING PRIOR DIRECTION FROM AN FDNY OMA PHYSICIAN.

Training

All Rescue Paramedics have met New York State Department of Health Bureau of Emergency Medical Services and Regional Emergency Medical Services Committee (REMAC) of New York City. The rescue AEMT-Ps are FDNY HazMat Technicians who have been certified by the New York State Office of Fire Prevention and Control through the FDNY Fire Academy – Technical Rescue School in confined space rescue, structural collapse rescue, trench rescue and high angle rope rescue techniques. The Rescue AEMT-Ps have also received advanced training in the medical management of Crush Syndrome, Compartment Syndrome and other unique medical and surgical problems encountered during a technical rescue situation. Additionally these individuals are credentialed in the use of specialized medical equipment. Training records are maintained at the FDNY HazTac headquarters.

SPECIAL MEDICAL EQUIPMENT AND MEDICATIONS:
(This is in addition to general ALS medications and equipment.)

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Medications / Solutions</th>
</tr>
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<tbody>
<tr>
<td>Temperature Probes</td>
<td>D_{2}W ½ Normal Saline</td>
</tr>
<tr>
<td>RAD 57 Monitor</td>
<td>Calcium Gluconate</td>
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<tr>
<td>Videolaryngoscopy</td>
<td>Hemostatic Dressings</td>
</tr>
<tr>
<td>Foley Catheters (adult and pediatric)</td>
<td>Fentanyl</td>
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<tr>
<td>Point of care testing</td>
<td>Insulin</td>
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<tr>
<td>IV Pump</td>
<td>Mannitol</td>
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<tr>
<td>IV Warmer</td>
<td>Sodium Bicarbonate 4.2%</td>
</tr>
<tr>
<td>Alternative Airways</td>
<td>Lidocaine 4%</td>
</tr>
<tr>
<td>Tourniquets</td>
<td>Ketamine</td>
</tr>
<tr>
<td>Surgical Airway Device</td>
<td>Succinylcholine</td>
</tr>
<tr>
<td></td>
<td>Rocuronium</td>
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<tr>
<td></td>
<td>Lidocaine 2% preservative-free</td>
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</table>
FDNY Rescue Paramedics Protocols

These protocols are designed for use specifically by FDNY EMS Paramedics that have been trained and credentialed to the level of “Rescue Medic”. Any treatment beyond standing orders requires direction from an FDNY OMA Physician.

Initial Management

1. Begin Basic Life Support Procedures
2. Protect Patients’ airway from particulates using any of the following:
   a. N95 mask
   b. P 100 mask
   c. Non-rebreather O₂ mask
   d. Face shield
   e. SCBA:
      i. For patients who are Members of Service (any agency if fit tested)
      ii. As a loose fitting protective device with free flow air
3. Begin pulse oximetry monitoring
4. Begin airway management (see Protocol G: Airway Management)
5. If Basic Life Support measures fail to control bleeding, a “Hemostatic Agent” or tourniquet shall be used to assist with bleeding control.
6. Begin Cardiac Monitoring. Record and interpret a baseline 12 lead EKG as soon as possible.
7. Establish IV 0.9% Normal Saline using, if possible, a large bore (14-18 gauge) catheter and begin infusion of 0.9% Normal Saline.
   a. For signs and symptoms of hypovolemic shock, administer 20 mL/kg of 0.9% NS.
   b. In the absence of signs of hypovolemia, administer 2 mL/kg/hr of 0.9% NS.
8. If unable to obtain IV access, establish an IO (if indicated) and begin infusion of 0.9% Normal Saline.
   a. Use of intraosseous access shall include extremity and sternal sites and only attempted after traditional methods of intravenous access have been unsuccessful.
      i. If intraosseous access is established on a conscious patient, infuse 0.5 mg/kg of 2% preservative-free lidocaine via IO port prior to infusion up to a maximum of 50 mg.
      ii. For continued discomfort or pain due to infusion repeat lidocaine infusion of 0.25 mg/kg via IO port up to a maximum of 25 mg.
      iii. For prolonged on-scene operations, additional dosing may be provided at the discretion of the FDNY OMA Physician.
9. Monitor patient for hypothermia or hyperthermia. Obtain core temperature measurement. Provide necessary treatment as per sub-protocols.
10. If possible, draw blood sample and analyze blood chemistry using point of care testing. Continue analyzing PRN.
Sub-Protocols

A: CRUSH SYNDROME
B: HYPERKALEMIA
C: HYPERTHERMIA
D: HYPOTHERMIA
E: BURNS
F: LIMB AMPUTATION
G: AIRWAY MANAGEMENT
H: SEDATION
I: PAIN MANAGEMENT
A

CRUSH SYNDROME

Consider that the patient may be in the early stages of Crush Syndrome if the patient remains trapped for a period greater than 1 hour or is presenting with signs and symptoms of Crush Syndrome.

ADULT:

1. Perform Initial Management Protocol
2. Administer IV fluids to correct volume deficit.
3. When possible, obtain urine and test for the presence of hemoglobin/myoglobin.
4. Prior to extricating/releasing entrapped patient
   a. Administer sodium bicarbonate 44 mEq, IV/IO or saline lock bolus.
   b. Administer sodium bicarbonate 44 mEq in 1L D5W 1/2NS at a rate of 1L per hour.
5. For patients with point of care values or EKG findings consistent with hyperkalemia refer to Protocol B: Hyperkalemia

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

Option A: If renal failure/insufficiency is suspected and has documented urine output;
   Administer Mannitol 0.25 g/kg IV/IO via an in-line filter over 30 minutes

NOTE: ANURIC PATIENTS MAY NOT BE GIVEN MANNITOL.

Option B: For extended operations, foley insertion by an on-scene physician may be required to monitor urinary output and for BBP precautions. Maintain urinary output of 300 mL per hour and a pH ≥7.65.

Option C: Point of care testing as indicated.
PEDIATRIC:
1. Perform Initial Management Protocol
2. Administer IV fluids to correct volume deficit.
3. When possible, obtain urine and test for the presence of hemoglobin/myoglobin.
4. Prior to extricating/releasing entrapped patient
   a. Administer 4.2% sodium bicarbonate 1 mEq/kg (maximum 44 mEq), IV/IO or saline lock bolus.
   b. Mix 8.4% sodium bicarbonate 44 mEq in 1L D$_2$W and administer as follows:
      i. <10kg:  8 mL/kg/hr
      ii. 10-20kg:  80 mL/hr + 4mL/kg/hr
      iii. >20kg:  160 mL/hr + 2mL/kg/hr

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

Option A: If renal failure/insufficiency is suspected and has documented urine output; Administer Mannitol 0.25 g/kg IV/IO via in-line filter over 30 minutes.

NOTE: ANURIC PATIENTS MAY NOT BE GIVEN MANNITOL.

Option B: For extended operations, foley insertion by on-scene physician may be required to monitor urinary output and for BBP precautions. Maintain urinary output of 3 mL/kg per hour and a pH $\geq$7.65.

Option C: Obtain point of care testing as indicated.

Option D: For patients with EKG findings consistent with hyperkalemia refer to Protocol B: Hyperkalemia.
ADULT:

1. Perform Initial Management Protocol
2. Administer 10% Calcium Gluconate or 10% Calcium Chloride 1 g IV/IO solution or Saline Lock bolus, slowly over 2 min.
   
   **NOTE: DISCONTINUE CALCIUM ADMINISTRATION IF SEVERE BRADYCARDIA DEVELOPS**

3. Administer 44 mEq of Sodium Bicarbonate, IV/IO or saline lock bolus.
4. Administer 0.5% Albuterol 10-20 mg via nebulizer or in-line administration device.

**ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS**

**Option A:** Obtain glucose level with point of care testing. Administer 10 units of regular Insulin, IV/IO or Saline Lock bolus and D₅₀ as follows:

1. For serum glucose level equal to or less than 120 mg/dL administer D₅₀ 50 g (100 mL of a 50% solution) IV/IO or saline lock bolus.
2. For serum glucose level greater than 120 mg/dL and less than 300 mg/dL administer D₅₀ 25 g (50 mL of a 50% solution) IV/IO or saline lock bolus
3. For serum glucose level equal to or great than 300 mg/dL do not administer dextrose.
4. If unable to obtain glucose level, administer D₅₀ 25 g IV/IO or saline lock bolus.

**Option B:** Lasix 40-80 mg, IV/IO or saline lock bolus.
PEDIATRIC:

1. Perform Initial Management Protocol
2. Administer 10% Calcium Gluconate 1 mL/kg (100 mg/kg) or 10% Calcium Chloride 0.2 mL/kg (20 mg/kg) over 3-5 minutes IV/IO or saline lock bolus

**NOTE:** DISCONTINUE CALCIUM ADMINISTRATION IF SEVERE BRADYCARDIA DEVELOPS

3. Administer Sodium Bicarbonate IV/IO or saline lock bolus:
   a. Infants: 4.2% Sodium Bicarbonate 0.5 mEq/kg IV/IO over 5-10 min; repeat in 10 min prn.
   b. Children: 7.5% Sodium Bicarbonate 1-2 mEq/kg IV/IO over 5-10 min; repeat in 10 min prn.
4. Administer Albuterol via nebulizer or in-line administration device:
   a. ≤ 30kg: Administer 0.5% Albuterol 10 mg
   b. > 30kg: Administer 0.5% Albuterol 20 mg

**ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS**

**Option A:** Administer Dextrose and Regular Insulin 0.1 units/kg, IV/IO or saline lock bolus.
   a. Infants: D_{10}W 0.5 g/kg (5 mL/kg) IV/IO or saline lock bolus
   b. Children: D_{25}W 0.5 -1 g/kg (2-4 mL/kg) IV/IO or saline lock bolus

**Option B:** Lasix 0.5-1 mg/kg, IV/IO or saline lock bolus.
C

HYPERTHERMIA

ADULT/PEDIATRIC:

1. Perform Initial Management Protocol

2. Cool the patient at a rate of at least 0.2°C/min (0.36°F/min) to a core temperature of 39°C (102.2°F). This can be done by wrapping the patient in sheets wetted in cold water or placing ice packs in the axillary region and the groin.

3. If the patient presents with a fluid related heat exhaustion, infuse 20-40 mL/kg of Normal Saline IV/IO in the first hour, monitoring electrolytes and fluid administration vs. output and respiratory status.
HYPOTHERMIA

ADULT/PEDIATRIC:

1. Perform Initial Management Protocol
2. Re-warm (decrease/control heat loss) the patient using blankets and heat packs placed in the axillary region, the groin.
3. Administer 0.9% Normal Saline IV/IO fluids at a rate of 20 mL/kg heated to 45°C/113°F titrated to a rate to increase measurable temperature by 0.3 to 1.2°C per hour.
ADULT/PEDIATRIC:

1. Perform Initial Management Protocol
2. For pain management refer to Protocol I: Pain Management.
3. Initiate the following fluid resuscitation for any patient with second or third degree burns whose involved body surface area exceeds 20%.
   a. Using the Parkland Formula (4 ml x weight in Kg x % of BSA) as a guideline, infuse half the amount at a drip rate to deliver the desired dose over a period of 8 hours from the time of the initial injury. Infuse the 2nd half at a rate to be delivered over 16 hours.
   b. Additionally provide maintenance fluids as follows:
      i. Adults: 125mL/hr
      ii. Pediatrics
         1. <10kg: 4 mL/kg/hr
         2. 10-20kg: 40 mL +2 mL/kg/hr
         3. >20kg: 60 mL + 1 mL/kg/hr (maximum 125 mL/hr)
ADULT/PEDIATRIC:

1. OMA Physician may perform limb amputation as required.
2. For sedation and pain management see Protocol H: Sedation and Protocol I: Pain Management
AIRWAY MANAGEMENT

ADULT/PEDIATRIC:

1. Begin Basic Life Support Airway Procedures
2. If necessary perform advanced airway management utilizing direct in-line stabilization when appropriate
   a. Pre-medication:
      i. In cases of suspected head injury:
         1. Administer 2% Lidocaine 1.5 mg/kg IV/IO or saline lock bolus.
         2. ADULTS ONLY: Administer Fentanyl 3 mcg/kg IV/IO or saline lock bolus slowly over 2-3 minutes.
      ii. In cases of history of reactive airway disease, administer 2% Lidocaine 1.5 mg/kg IV/IO or saline lock bolus.
      iii. PEDIATRICS ONLY: < 1 years-old: Atropine 0.02 mg/kg IV/IO or saline lock bolus minimum dose 0.1mg and maximum dose 1 mg.
         NOTE: Pre-medication should be given at least 2 minutes prior to induction. Premedication should not delay advanced airway management in cases of hypoxia.
   b. Induction:
      In the spontaneously breathing patient with an intact gag reflex:
      OPTION A: Administer Etomidate 0.3 mg/kg, IV/IO or saline lock bolus (maximum dose 30 mg)
      OPTION B: Administer Ketamine 2 mg/kg, IV/IO or saline lock bolus
   c. Advanced airway techniques
      i. Intubate using endotracheal tube via direct or video/fiberoptic laryngoscopy.
      ii. If unable to obtain endotracheal intubation alternative airway measures may be utilized.
      iii. If adequate airway management cannot be achieved by any other means, and patient is non-responsive, perform cricothyrotomy.
   d. Post-airway management sedation and monitoring
      i. Patient must be placed on cardiac respiratory monitor with end-tidal CO₂.
      ii. For continued sedation after successful advanced airway maneuvers:
         OPTION A: Administer Diazepam 0.5 mg/kg, IV/IO or saline lock bolus (maximum dose 5 mg). May provide a repeat dose of Diazepam 0.5 mg/kg IV/IO or saline lock bolus as needed (maximum cumulative dose 10 mg)
         OPTION B: Administer Ketamine 1 mg/kg, IV/IO or saline lock bolus
3. For an awake advanced airway placement:
   a. 5 mL of 4% Lidocaine nebulized at 5 liters per minute or spray airway using Mucosal Atomizer Device (MAD).
   b. Administer Midazolam 0.1mg/kg (maximum 2 mg) IV/IO, saline lock bolus, or IN.
   c. Administer Ketamine 1-2 mg/kg, IV/IO or saline lock bolus.

**ONSENCE OMA PHYSICIAN MEDICAL CONTROL OPTIONS**

**Option A:** Consider inducing paralysis by administering:
   a. Succinylcholine 1mg/kg, IV/IO or saline lock bolus.
   b. Rocuronium 1mg/kg, IV/IO or saline lock bolus, may be substituted for succinylcholine if hyperkalemia and/or crush syndrome is suspected.

**Option B:** Repeat Diazepam 0.5 - 1 mg/kg IV/IO or saline lock bolus or Ketamine 1 mg/kg IV/IO or saline lock bolus for prolonged onscene operations.

**NOTE:** THE USE OF A PARALYTIC AGENT IS ONLY ALLOWED WHEN DIRECTED BY AN FDNY OMA PHYSICIAN.
NOTE: THE USE OF THIS PROTOCOL IS ONLY ALLOWED WHEN DIRECTED BY AN FDNY OMA PHYSICIAN. USE WAVEFORM CAPNOGRAPHY IF SPECIAL OPERATIONS PERMITS FOR CONTINUOUS AIRWAY MONITORING.

ADULT/PEDIATRIC:

1. If sedation is necessary for anxiolysis in event of difficult or prolonged extrication:
   Administer Midazolam 0.1 mg/kg (maximum 2 mg) IV/IO, saline lock bolus, or IN

2. For continued sedation after successful advanced airway maneuvers, refer to Protocol G: Airway Management, post sedation and monitoring.

3. If sedation is necessary for disentanglement or difficult procedure:
   a. Administer Midazolam 0.1 mg/kg (maximum 2 mg) IV/IO, saline lock bolus, or IN
   b. Administer Ketamine 1 mg/kg IV/IO or saline lock bolus, or 3 mg/kg IM repeating every 60 seconds as needed

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

For prolonged on-scene operations, additional dosing may be provided at the discretion of the FDNY OMA Physician
NOTE: USE WAVEFORM CAPNOGRAPHY IF SPECIAL OPERATIONS PERMITS FOR CONTINUOUS AIRWAY MONITORING.

ADULT/PEDIATRIC:

2. Begin Cardiac, pulse oximetry, capnography monitoring if rescue operations permit
3. For patients with a systolic blood pressure greater than 110 mmHg, administer:
   a. Morphine:
      i. Initial dose of 0.1 mg/kg, IV/IO or saline lock bolus (maximum dose 5 mg).
      ii. May provide repeat dose 0.1 mg/kg, IV/IO or saline lock bolus as needed (maximum cumulative dose 10 mg)
   OR
   b. Fentanyl:
      Initial dose of 1 mcg/kg, IV/IO or saline lock bolus (maximum dose 100 mcg).
4. For hypotensive patients administer Fentanyl:
   Initial dose of 1 mcg/kg, IV/IO or saline lock bolus (maximum dose 100 mcg).

ONSCENE OMA PHYSICIAN MEDICAL CONTROL OPTIONS

For prolonged on-scene operations, additional dosing may be provided at the discretion of the FDNY OMA Physician