THE REGIONAL EMERGENCY MEDICAL SERVICES COUNCIL OF NEW YORK CITY, INC.

NYC REMAC

Advisory No.	2018-10		
Title:	Revision/Update of REMAC Prehospital Treatment & Transport Protocols		
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Supersedes:	n/a	Page:	1 of 23

The Regional Emergency Medical Advisory Committee (REMAC) of New York City is responsible to develop, approve and implement prehospital treatment and transport protocols for use within the five boroughs of the City of New York. The Regional Emergency Medical Advisory Committee (REMAC) of New York City operates under the auspices of Article Thirty of the New York State Public Health Law.

The Regional Emergency Medical Advisory Committee (REMAC) of New York City has revised and updated the regional prehospital treatment and transport protocols. All protocols have been approved by the New York State Emergency Medical Advisory Committee for use in the NYC region.

A list of all revised protocols summarizing changes is attached, along with actual protocols identifying specific changes. New Language is **underlined and bold**. Deleted Language is ~~**struck-out**~~.

PROTOCOLS ARE TO BE IMPLEMENTED JANUARY 1ST, 2019.

Agencies that require additional time for implementation must submit requests for extension in writing to the NYC REMAC. Requests can be emailed to mdiglio@nycremsco.org

Current and Updated Protocols can be accessed at the Regional EMS Council website: www.nycremsco.org.

Owners/operators of Ambulance and ALS First Response Services providing prehospital medical treatment within the five boroughs of the City of New York are responsible to provide copies of the NYC REMAC Prehospital Treatment Protocols to their personnel, and to ensure that Service Medical Directors and EMS personnel are informed of all changes/updates to the NYC REMAC Prehospital Treatment Protocols.

In order to provide evidence that all EMS personnel have been updated in current protocols, the EMS Agency must provide a list of updated personnel accompanied by a letter of affirmation signed by the service medical director and Chief Executive Officer no later than FOUR (4) weeks after completion of training/in-service.

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Summary of Protocol Revisions

Section	Items Revised
GENERAL OPERATING PROCEDURES	
Airway Management	EXCEPTION ADDED: Suspension of the requirement for waveform capnography for supraglottic airway placement when there are insufficient resources to provide waveform capnography to all patients requiring advanced airway management. This is not limited to MCI events.
Prehospital Sedation	Typographical correction. States administer Midazolam IV/IN for Endotracheal Intubation and Cardioversion. This should read IO rather than IN.
	Midazolam dose for Prehospital Sedation is changed to, "…up to 5mg." This will be a universal change in all protocols with midazolam, except in the Seizure Protocol and where administered IV. Max dose of 20 mg.
CERTIFIED FIRST RESPONDER PROTOCOLS	
301: Respiratory Distress / Failure	Add albuterol administration to be consistent with NYS Protocol
304: Non-Traumatic Chest Pain	Add chewable aspirin administration to be consistent with NYS Protocol
310: Anaphylactic Reaction	NEW: Add to be consistent with NYS Protocol
350: Pediatric Respiratory Distress / Failure	Add albuterol administration to be consistent with NYS Protocol
355: Pediatric Anaphylactic Reaction	NEW: Add to be consistent with NYS Protocol
PARAMEDIC PROTOCOLS	
Paramedic Protocols: **500A: Smoke Inhalation** **500B: Cyanide Exposure** **504B: Cardiogenic Shock** **510: Allergic / Anaphylactic Reaction** **515-B: Severe Septic Shock**	NEW language added: "Administer epinephrine 10 mcg IV Bolus. Repeat epinephrine 10 mcg IV Bolus every 5 minutes. Titrate to a systolic BP greater than 90 mmHg."

2019 Protocol Revisions

506 Acute Pulmonary Edema	Revised language: • Administer Midazolam**, up to** 5 mg, IV/IO**/IN bolus.** • 10 mg IM midazolam removed.
521: Head Injury **530: Excited Delirium**	• Midazolam dose for IV/IO/IN changed to, "up to 5mg. Max dose 10 mg" • Midazolam dose for IM changed to "10 mg. Max dose 20 mg".
556: Pediatric Altered Mental Status	Standing Order #5: • Because the IN route for naloxone is part of BLS Protocol 411 (AMS), it is not necessary to repeat in this ALS Protocol. • IV/IO routes added for Naloxone. • Re-written for clarification

Deleted language is ~~**Bold Red Strike-out**~~
New Language is **Bold Blue Underscored**

AIRWAY MANAGEMENT

All patients require continuous monitoring of their airways to ensure airway patency. Wherever the term "Monitor Airway" is used throughout these protocols, the following elements shall be utilized:

Position of the patient's head

Need for airway adjuncts

Need for oropharyngeal suctioning

Need for Advanced Life Support airway management techniques

Use of Pulse Oximetry (S_pO_2):

- Mandatory for Advanced Life Support
- Optional for Basic Life Support

Use of End Tidal Capnography ($ETCO_2$)

- Mandatory for Advanced Life Support

NOTE: **Whenever Advanced Airway Management is implemented, the use of continuous end-tidal waveform Capnography is mandatory**.

EXCEPTION:

Suspension of the requirement for waveform capnography for supraglottic airway placement when there are insufficient resources to provide waveform capnography to all patients requiring advanced airway management. This is not limited to MCI events.

PREHOSPITAL SEDATION

Definition of Prehospital Sedation:
Prehospital sedation is a fully monitored pharmacologic intervention applied in instances where conscious patients may need short-term analgesic and/or anxiolytic therapy for procedures that may be painful or anxiety-producing, such as Endotracheal Intubation, Synchronized Cardioversion, and Transcutaneous Pacing. Prior permission from Medical Control is required.

Indications for Prehospital Sedation:

Conscious patients requiring *Endotracheal Intubation*

a) Administer Diazepam 5 – 10 mg, IV bolus. Repeat doses of Diazepam 5 – 10 mg, IV bolus, may be given as necessary. (Maximum total dosage is 20 mg.)

OR

b) Administer Midazolam ~~1 – 2~~ **up to 5** mg, IV/**IO**/~~**IN**~~ bolus**, with a repeat dose of up to 5 mg. After successful intubation, Midazolam up to 5 mg IV/IO may be repeated.** ~~**Repeat doses of Midazolam 1 mg, IV/IN bolus, may be given as necessary**~~. (Maximum total dosage is ~~5~~ **20** mg.)

OR

c) Administer Etomidate 0.3 mg/kg, IV bolus. (Maximum total dose is 40 mg.) After successful intubation, administer Diazepam 5 mg IV bolus or Lorazepam 2 mg, IV or IM, or midazolam **up to** 5mg IV/**IO** for continued sedation.

d) Administer oxygen by nasal cannula at maximum flow rate during laryngoscopy and intubation.

Conscious patients requiring *Synchronized Cardioversion* OR *Transcutaneous Pacing*

a) Administer Diazepam 5 – 10 mg, IV bolus. Repeat doses of Diazepam 5 – 10 mg, IV bolus, may be given as necessary. (Maximum total dosage is 20 mg.)

OR

b) Administer Midazolam ~~**1 – 2**~~ **up to 5** mg, IV/**IO**/~~**IN**~~ bolus**. Midazolam up to 5 mg IV/IO may be repeated.** ~~**Repeat doses of Midazolam 1 mg, IV/IN bolus, may be given as necessary.**~~ (Maximum total dosage is ~~5~~ **20** mg.)

OR

c) For synchronized Cardioversion only, administer Etomidate, 0.15mg/kg, IV bolus. (Maximum total dose is 20 mg.)

NOTE: Patients receiving prehospital sedation must be continuously administered high concentration oxygen and must be continuously monitored using cardiac monitoring and pulse oximetry.

301

RESPIRATORY DISTRESS / FAILURE

1. Monitor the airway.
2. If an obstructed airway is suspected (see Protocol #302).
3. Administer oxygen.
4. Do NOT permit physical activity.
5. Update dispatch of a high priority patient.
6. Monitor breathing for adequacy.
7. Place the patient in a position of comfort.
8. Monitor breathing continuously for signs of hypoxia and / or increasing respiratory distress.
9. For the patient with signs of on-going hypoxia, inability to adequately protect their airway, and/or exhibiting signs of inadequate respiration, assisted ventilations may be required.
    - If unable to maintain an open airway and if tolerated, an airway adjunct may be required.
10. If respiratory arrest, ventilate using one of the ventilation devices and an airway adjunct, if tolerated.

NOTE: All patients who are in respiratory arrest must have ventilatory assistance unless a valid New York State Prehospital DNR Order and/or MOLST is presented (GOP).

Ventilation Devices

- Pocket Mask with supplemental oxygen set at 10-15 liters/minute.
- Bag-Valve-Mask with reservoir with supplemental oxygen set at 10-15 liters/minute.
- Mouth-to-Mouth or Mouth-to-Mouth/Nose (at provider option, only when adjuncts are not available).

NOTE: Do not use a Demand Valve Resuscitator

11. . For patients who are experiencing exacerbation of asthma or wheezing:

- **If the patient has a previous diagnosis of asthma and is prescribed albuterol (either by inhaler or nebulizer) and they have their albuterol with them, assist them in taking their albuterol (*if trained to do so*).**

304

NON-TRAUMATIC CHEST PAIN

1. Monitor the airway.
2. Monitor breathing for adequacy.
3. Administer oxygen.
4. DO NOT permit physical activity.
5. Update dispatch of a high priority patient.
6. Place patient in a position of comfort.
7. Continue to monitor initial assessment.
8. **Administer two (2) Chewable Aspirins, if available, totaling 162 mg, by mouth, unless the patient has a known Aspirin allergy or hypersensitivity, *if trained to do so*.**

310

ANAPHYLACTIC REACTION

NOTE: **Anaphylaxis can be a potentially life threatening situation most often associated with a history of exposure to an inciting agent/allergen (bee sting or other insect venom, medications/drugs, or foods such as peanuts, seafood, etc.). The presence of respiratory distress (upper airway obstruction [stridor], severe bronchospasm [wheezing]) and/or cardiovascular collapse/hypotensive shock characterize the clinical findings that authorize and require treatment according to this protocol.**

Patients 9 years of age and older or weighing more than 30 kg (66 lbs) use adult Epi-auto injector (0.3 mg); patients younger than 9 years of age or weighing less than 30 kg (66 lbs) use pediatric Epi-auto injector (0.15 mg).

1. **Determine that the patient's history includes a history of anaphylaxis, severe allergic reaction and/or recent exposure to an allergen or inciting agent.**
2. **Update dispatch of a high priority patient.**
3. **Administer high concentration oxygen.**
4. **Assess the cardiac and respiratory status of the patient.**
5. **If both the cardiac and respiratory status of the patient are normal, monitor the patient.**
   a. **If either the cardiac or respiratory status of the patient is abnormal, proceed as follows:**
      i. **If the patient is having severe respiratory distress or shock and has been prescribed an Epinephrine auto-injector, assist the patient in administering the Epinephrine.**
      ii. **If the patient's auto-injector is not available or expired, or the patient has not been prescribed an Epinephrine auto-injector, administer Epinephrine, if available, (ONE DOSE ONLY) via an auto-injector*, if trained to do so*.**

NOTE: **Administration of epinephrine via auto-injector must be reported to your agency's medical director as soon as possible**

      iii. **Refer immediately to the REMAC Prehospital Treatment Protocol for Respiratory Distress/Failure (#301), Obstructed Airway (#302), or Shock (#315) as appropriate.**
6. **If cardiac arrest occurs, refer immediately to the REMAC Prehospital Treatment Protocol for Non-Traumatic Cardiac Arrest (#303).**

350

PEDIATRIC RESPIRATORY DISTRESS/FAILURE

Respiratory Distress is characterized by:

- Increased respiratory effort *without* central cyanosis (anxiety, nasal flaring, and accessory muscle use)

Respiratory Failure is characterized by:

- Ineffective respiratory effort *with* central cyanosis (agitation or lethargy, labored breathing, bobbing or grunting, and accessory muscle use.)

A slow pulse rate is an ominous sign that indicates hypoxic cardiac arrest may be imminent.

1. Monitor the airway.
   - If an obstructed airway is suspected, see Protocol #351.
   - If Respiratory Distress is present:

     Administer oxygen and allow patient to maintain a comfortable, upright position.

     NOTE: High concentration oxygen should always be used in pediatric patients.

     DO NOT allow the mask to press against the eyes.
   - If Respiratory Failure is present:

     Assist ventilations at a rate of 20 breaths per minute.

     NOTE: DO NOT use a demand valve resuscitator due to the possibility of causing severe life-threatening complications.

     Chest rise is the best indication of adequate ventilation in the pediatric patient; DO NOT over inflate the lungs.
2. Update dispatch of a high priority patient.
3. Monitor breathing for adequacy.
4. ***4.*** **For patients over one (1) year of age who are experiencing exacerbation of asthma or wheezing:**
   - **If the patient has a previous diagnosis of asthma and is prescribed albuterol (either by inhaler or nebulizer) and they have their albuterol with them, assist them in taking their albuterol (*if trained to do so*).**
5. Continue to monitor initial assessment. Keep the child warm.

355

PEDIATRIC ANAPHYLACTIC REACTION

NOTE: **Anaphylaxis can be a potentially life threatening situation most often associated with a history of exposure to an inciting agent/allergen (bee sting or other insect venom, medications/drugs, or foods such as peanuts, seafood, etc.). The presence of respiratory distress (upper airway obstruction [stridor], lower airway disease/severe bronchospasm [wheezing]) and/or cardiovascular collapse/hypotensive shock characterize the clinical findings that authorize and require treatment according to this protocol. This protocol applies to patients under 9 years old or patients weighing less than 30 kg (66 lbs). For patients 9 years of age or older, or over 30 kg (66 lbs) refer to the adult anaphylaxis protocol (#410).**

1. **Determine that the patient's history includes a history of anaphylaxis, severe allergic reaction and/or recent exposure to an allergen or inciting agent.**
2. **Update dispatch of a high priority patient.**
3. **Administer high concentration oxygen.**
4. **Assess the cardiac and respiratory status of the patient.**
    a. **If both the cardiac and respiratory status of the patient are normal, monitor the patient.**
    b. **If either the cardiac or respiratory status of the patient is abnormal, proceed as follows:**
        i. **If the patient is having severe respiratory distress or shock and has been prescribed pediatric (0.15 mg) Epinephrine auto-injector, assist the patient in administering the Epinephrine 0.15 mg via an auto-injector.**
        ii. **If the patient's auto-injector is not available or expired, administer Epinephrine 0.15 mg, if available, via an auto-injector, if available and *if trained to do so*.**
        iii. **If the patient has not been prescribed a pediatric (0.15 mg) Epinephrine auto-injector, monitor the patient.**

NOTE: **Administration of epinephrine via auto-injector must be reported to your agency's medical director as soon as possible**

5. **Refer immediately to the REMAC Prehospital Treatment Protocol for Respiratory Distress/Failure (#350), Obstructed Airway (#351), or Shock (#358) as appropriate.**
6. **If cardiac arrest occurs, refer immediately to the REMAC Prehospital Treatment Protocol for Non-Traumatic Cardiac Arrest (#353).**

MANDATORY QUALITY ASSURANCE COMPONENT

For every administration of Epinephrine via auto-injector, the ACR/PCR documentation must be reviewed by the service medical director who is responsible for forwarding ACR/PCR data electronically to the NY REMAC for system-wide QA purposes. Patient specific identifiers can be omitted. This QA component is effective immediately. For the purposes of patient confidentiality, email mdiglio@nycremsco.org for directions on how to submit data electronically.

500-A

SMOKE INHALATION

This protocol should be utilized ONLY for the management of symptomatic patients after exposure to smoke in an enclosed space and cyanide exposure is suspected.

1. Begin Basic Life Support Procedures
2. If necessary, perform Advanced Airway Management *.
3. Begin Cardiac & Pulse Oximetry monitoring.
4. Begin SpCO monitoring, if available
5. Begin two IV infusions of Normal Saline (0.9% NS). Refer also to Protocol #528 for all patients with burns.
6. Patients with the following symptoms, after exposure to smoke in an enclosed space, should be administered the medications listed in Table 1, if available.
   - Hypotension not attributable to other obvious causes
   - Altered mental status
   - Coma
   - Seizures
   - Respiratory arrest
   - Cardiac arrest

   NOTE: **Prior to administration of Hydroxocobalamin, obtain three blood samples using the tubes provided in the cyanide toxicity kit, if available.**

   Whenever Hydroxocobalamin is administered, follow with a 20 ml flush of normal saline (0.9% NS) prior to administration of any other medication.
7. In the event of continued hypotension (SBP <90mmHg):

   a. Administer epinephrine 10 mcg IV Bolus. Repeat epinephrine 10 mcg IV Bolus every 5 minutes. Titrate to a systolic BP greater 90mmHg.

   OR

   b. Administer Norepinephrine 2 mcg/min IV drip. If there is insufficient improvement in hemodynamic status, the infusion rate may be increased until the desired therapeutic effects are achieved, or adverse effects appear. Maximum dosage is 20 mcg/min, IV drip.

   Note: **Norepinephrine must be administered via 18 gauge or larger IV/IO, using an IV drip chamber or other suitable metering device (e.g. Dial a flow, infusion pump).**

   OR

   c. Administer Dopamine 5 mcg/kg/min, IV drip. If there is insufficient improvement in hemodynamic status, the infusion rate may be increased until the desired therapeutic effects are achieved, or adverse effects appear. (Maximum dosage is 20 mcg/kg/min, IV drip.)

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* *If the patient is alert prior to performing Advanced Airway Management, refer to Prehospital Sedation in General Operating Procedures. Prior permission from Medical Control is required.*

TABLE 1: One Bottle Kit (5.0gm/200mL/bottle)		
Age Group	Hydroxocobalamin [A]	Sodium Thiosulfate [B]
Infant/Toddler (0-2 years)	¼ bottle	250mg/kg (prepare by mixing 12.5gm of Sodium Thiosulfate with 100mL of D5W, then drawing 3mL/kg of prepared solution) administered over 10 minutes, IV.
Preschool (3-5 years)	1/4 bottle	
Grade School (6-14 years)	1/2 bottle	
Adult (≥15 years)	1 bottle	12.5gm (150 mL of a prepared solution) administered over 10 minutes, IV.

[A] Hydroxocobalamin may be mixed with D5W, Normal Saline, or Lactated Ringers. The vented macro drip tubing that accompanies the Cyanokit, should be used, wide open to ensure correct administration time of approximately 15 minutes for the kit.

[B] Sodium Thiosulfate solution should be prepared by adding 12.5gm (50mL) to a 100cc bag of D5W for a total of 150mL.

NOTE: In the event that only one intravascular access line is established, administer Hydroxocobalamin first before Sodium Thiosulfate.

MEDICAL CONTROL OPTIONS:

OPTION A: Transportation Decision.

NOTE: For patients exhibiting signs and symptoms consistent with carbon monoxide poisoning, refer to General Operating Procedures – Transportation Decisions and Procedures.

CYANIDE TOXICITY KIT (if available)

One (1) 5.0 gm bottle of crystalline powder Hydroxocobalamin	One (1) 2 ml fluoride oxalate whole blood tube
One (1) 12.5 gm bottles of Sodium Thiosulfate (50 mL of 25% solution)	One (1) 2 ml K2 EDTA tube
Two (2) 100 mL bag 0.9% NS, D_5W, LR	One (1) 2 ml lithium heparin tube
One (1) 100 mL bag D_5W	

500-B

CYANIDE EXPOSURE

This protocol should be utilized ONLY for the management of critically ill patients with suspected exposure to cyanide.

If operating at a scene with suspected cyanide exposure where the total patient count is greater than 5, a class order[1] is required by an FDNY-OMA Medical Director to utilize this protocol due to the likelihood of a Weapons of Mass Destruction attack. Refer to REMSCO WMD protocol management decisions. The class order may be issued by a FDNY-OMA Medical Director who is on-scene or as relayed through an FDNY-OMA Medical Director through On-Line Medical Control (Telemetry) or through FDNY Emergency Medical Dispatch.

NOTE: The issuance of any class order shall be conveyed to all regional medical control facilities for relay to units in the field.

If operating at a scene with suspected cyanide exposure where the total patient count is 5 or less at one time, the following protocol remains as a Standing Order.

NOTE: Treatment within the "hot" and "warm" zones may be performed only by appropriately trained personnel wearing appropriate chemical protective clothing (CPC) as determined by the FDNY Incident Commander.

NOTE: If providers encounter a patient who has not been appropriately decontaminated from liquid cyanide, the providers should leave the area immediately until such time as appropriate decontamination has been performed.

1. Begin Basic Life Support Procedures.
2. If necessary, perform Advanced Airway Management *.
3. Begin Cardiac & Pulse Oximetry monitoring.
4. Begin two IV infusions of Normal Saline (0.9% NS).

* *If the patient is alert prior to performing Advanced Airway Management, refer to Prehospital Sedation in General Operating Procedures. Prior Permission from Medical Control Is Required.*

5. Patients with the following symptoms, after exposure to cyanide, should be administered the medications listed in Table 1, if available.

- Hypotension not attributable to other obvious causes
- Altered Mental Status
- Coma
- Seizures
- Respiratory arrest
- Cardiac arrest

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[1] Class Order - A general order given by a FDNY-OMA Medical Director to perform a specific intervention or interventions at a specific location/s during a specified time period. This order is generally reserved for disaster situations.

NOTE: Prior to administration of Hydroxocobalamin, obtain three blood samples using the tubes provided in the cyanide toxicity kit, if available.

TABLE 1: One Bottle Kit (5.0gm/200mL/bottle)		
Age Group	Hydroxocobalamin [A]	Sodium Thiosulfate [B]
Infant/Toddler (0-2 years)	¼ bottle	250mg/kg (prepare by mixing 12.5gm of Sodium Thiosulfate with 100mL of

Preschool (3-5 years)	1/4 bottle	D5W, then drawing 3mL/kg of prepared solution) administered over 10 minutes, IV
Grade School (6-14 years)	1/2 bottle	
Adult (≥15 years)	1 bottle	12.5gm (150 mL of a prepared solution) administered over 10 minutes, IV

[A] Hydroxocobalamin may be mixed with D5W, Normal Saline, or Lactated Ringers. The vented macro drip tubing that accompanies the Cyanokit, should be used, wide open to ensure correct administration time of approximately 15 minutes for the kit.

[B] Sodium Thiosulfate solution should be prepared by adding 12.5gm (50mL) to a 100cc bag of D5W for a total of 150ml.

6. In the event of continued hypotension (SBP <90mmHg):

   a. Administer epinephrine 10 mcg IV Bolus. Repeat epinephrine 10 mcg IV Bolus every 5 minutes. Titrate to a systolic BP greater 90mmHg.

   OR

   a. Administer Norepinephrine 2 mcg/min IV drip. If there is insufficient improvement in hemodynamic status, the infusion rate may be increased until the desired therapeutic effects are achieved, or adverse effects appear. Maximum dosage is 20 mcg/min, IV drip.

   NOTE: Norepinephrine must be administered via 18 G or larger IV/IO, using an IV drip chamber or other suitable metering device (e.g. Dial a flow, infusion pump).

   OR

   b. Administer Dopamine 5 mcg/kg/min, IV drip. If there is insufficient improvement in hemodynamic status, the infusion rate may be increased until the desired therapeutic effects are achieved, or adverse effects appear. (Maximum dosage is 20 mcg/kg/min, IV drip.)

NOTE: Whenever Hydroxocobalamin is administered, follow with a 20 ml flush of normal saline (0.9% ns) prior to administration of any other medication.

MEDICAL CONTROL OPTIONS:

OPTION A: Transportation Decision.

CYANIDE TOXICITY KIT (if available)

One (1) 5.0 gm bottle of crystalline powder Hydroxocobalamin	One (1) 2 ml fluoride oxalate whole blood tube
One (1) 12.5 gm bottles of Sodium Thiosulfate (50 mL of 25% solution)	One (1) 2 ml K2 EDTA tube
Two (2) 100 mL bag 0.9% NS, D_5W, LR	One (1) 2 ml lithium heparin tube
One (1) 100 mL bag D_5W	

504-B

CARDIOGENIC SHOCK

1. Administer a 250 ml IV bolus of Normal Saline (0.9% NS). Repeat once for a maximum total dose of 500 ml.
2. In the event of continued hypotension (SBP <90mmHg):
   - **a. Administer epinephrine 10 mcg IV Bolus. Repeat epinephrine 10 mcg IV Bolus every 5 minutes. Titrate to a systolic BP greater 90mmHg.**

     OR

   - b. Norepinephrine 2 mcg/min IV/IO. If there is insufficient improvement in hemodynamic status, the infusion rate may be increased until the desired therapeutic effects are achieved, or adverse effects appear. Maximum dosage is 20 mcg/min, IV/IO.

     OR

   - c. Dopamine 5 mcg/kg/min, IV/IO drip. If there is insufficient improvement in hemodynamic status, the infusion rate may be increased until desired therapeutic effects are achieved, or adverse effects appear. (Maximum dosage is 20 mcg/kg/min, IV/IO drip.)

506

ACUTE PULMONARY EDEMA

1. Begin Basic Life Support Respiratory Distress procedures.
2. Begin Cardiac Monitoring, record and evaluate EKG rhythm.
3. Begin an IV infusion of Normal Saline (0.9% NS) to keep vein open.
4. Monitor vital signs every 2-3 minutes.
5. Administer Nitroglycerin Tablet 1/150 gr or Spray 0.4 mg, sublingually, every 5 minutes. Before each administration, check the patient's pulse and blood pressure to ensure the patient is hemodynamically stable.

   NOTE: Unless otherwise directed by On-Line Medical Control, Nitroglycerin shall not be administered to patients:

   - **with a systolic blood pressure of less than 100 mm hg**

   and/or

   - **who have used erectile dysfunction medications in the previous 72 hours**

6. Initiate CPAP Therapy, if available. (see Appendix P)
7. Contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

OPTION A: Administer Lorazepam 1 – 2 mg, IV/IN bolus.

OR

Administer Midazolam**, up to** 5 mg, IV/IO**/IN bolus**~~**, or if IV/IO access is unavailable, 10 mg, IM or IN**~~.

OPTION B: Administer Furosemide 20 – 80 mg, IV bolus. (Maximum combined total dosage is 80 mg.)

OPTION C: Transportation Decision.

510

ALLERGIC / ANAPHYLACTIC REACTION

1. Begin Basic Life Support Anaphylactic Reaction procedures.

2. If the patient is exhibiting obvious airway compromise, perform Advanced Airway Management* simultaneous with # 3a.

3. If the patient has signs of shock OR has a past history of anaphylaxis:

   a. Administer Epinephrine 0.3 mg (0.3 ml of a 1:1,000 solution), IM.

   b. Begin an IV infusion of Normal Saline (0.9% NS) or Ringer's Lactate (RL) via a large bore (14-16 gauge) catheter up to 3 liters via macro-drip.

   c. *Administer Methylprednisolone 125 mg IV bolus, slowly, over 2 minutes*

   OR

   Administer Dexamethasone 12 mg, IV bolus, slowly over 2 minutes.

   d. Administer Diphenhydramine 50 mg, IV bolus, or IM, if IV access has not been established.

4. If the patient does not have signs of shock and does not have a past history of anaphylaxis:

   a. Begin an IV infusion of Normal Saline (0.9% NS) or Ringer's Lactate (RL) via a large bore (14-16 gauge) catheter to keep vein open.

   b. *Administer Methylprednisolone 125 mg IV bolus, slowly, over 2 minutes*

   OR

   Administer Dexamethasone 12 mg, IV-bolus, slowly over 2 minutes.

   c. Administer Diphenhydramine 50 mg, IV bolus, or IM, if IV access has not been established.

5. If the patient has signs of bronchospasm, administer Albuterol Sulfate 0.083% (one-unit dose bottle of 3 ml), by nebulizer, at a flow rate that will deliver the solution over 5 – 15 minutes.

   NOTE: PATIENTS WITH AN ALLERGIC REACTION AND SIGNS OF BRONCHOSPASM MAY REQUIRE TREATMENT FOR ANAPHYLAXIS.

6. Monitor vital signs every 5 minutes.

7. Begin Cardiac Monitoring, record and evaluate EKG rhythm.

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8. Contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

OPTION A: Repeat any of the above Standing Orders.

OPTION B: In the event of continued hypotension (SBP <90mmHg):

a. Administer epinephrine 10 mcg IV Bolus. Repeat epinephrine 10 mcg IV Bolus every 5 minutes. Titrate to a systolic BP greater 90mmHg.

OR

b. Norepinephrine 2 mcg/min IV/IO. If there is insufficient improvement in hemodynamic status, the infusion rate may be increased until the desired therapeutic effects are achieved, or adverse effects appear. Maximum dosage is 20 mcg/min, IV/IO.

OR

c. Dopamine 5 mcg/kg/min, IV/IO drip. If there is insufficient improvement in hemodynamic status, the infusion rate may be increased until desired therapeutic effects are achieved, or adverse effects appear. (Maximum dosage is 20 mcg/kg/min, IV/IO drip.)

OPTION C: Transportation Decision.

* *If the patient is alert prior to performing Advanced Airway Management, refer to Prehospital Sedation in General Operating Procedures. Prior permission from Medical Control is required.*

515-B

SEVERE SEPSIS/SEPTIC SHOCK

NOTE: THIS PROTOCOL IS TO BE USED FOR PATIENTS WITH ILLNESS OF A PRESUMED INFECTIOUS SOURCE. REFER TO APPENDIX U FOR CRITERIA.

1. Begin Basic Life Support Shock Measures.
2. If the patient is demonstrating signs of inadequate ventilation, perform Advanced Airway Management*.
3. Begin rapid IV infusion of Normal Saline (0.9% NS) or Ringers' Lactate (RL) via one to two large bore (14-16) gauge catheters, up to 2 liters, via a macro-drip. Attempt IV access no more than twice. Consider using the intraosseous route if peripheral attempts have failed.
    a. Accurate documentation of pre-arrival fluid administration is required.
4. Begin Cardiac Monitoring, record and evaluate EKG rhythm.
5. Measure and record lactate level (if available).
6. Measure and record oral temperature (if available), also consider using last temperature obtained at patient's facility (if available).
7. Transport decision.
8. Contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

OPTION A: Administer one (1) additional liter of Normal Saline (0.9% NS) or Ringers' Lactate (RL) via one to two large bore (14-16) gauge catheters.

OPTION B: **Administer epinephrine 10 mcg IV Bolus. Repeat epinephrine 10 mcg IV Bolus every 5 minutes. Titrate to a systolic BP greater 90mmHg.**

OPTION C: In the event of continued hypotension (SBP <90mmHg) administer Norepinephrine 2 mcg/min IV/IO. If there is insufficient improvement in hemodynamic status, the infusion rate may be increased until the desired therapeutic effects are achieved, or adverse effects appear. Maximum dosage is 20 mcg/min, IV/IO.

* *If the patient is alert prior to performing Advanced Airway Management, refer to Prehospital Sedation in General Operating Procedures. Prior permission from Medical Control is required.*

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HEAD INJURIES

In patients with head trauma with a Glasgow Coma Scale (GCS) score of 13 or lower

1. Begin Basic Life Support Head and Spine Injuries procedures.
2. Perform Advanced Airway Management* in patients for whom the Glasgow Coma Scale score is less than 8 AND if less invasive methods of airway management are not effective.
3. Begin Cardiac Monitoring, record and evaluate EKG rhythm.
4. Begin an IV infusion of Normal Saline (0.9% NS) to keep vein open.
5. If a seizure is witnessed:
   a. Administer Lorazepam 2 mg, IV bolus, or, if IV access is unavailable, IN or IM. A single repeat dose of Lorazepam 2 mg, may be given after 5 minutes if seizure activity persists or recurs.

      OR

   b. Administer Diazepam 5 mg, IV bolus. A single repeat dose of Diazepam 5 mg, IV bolus, may be given if seizure activity persists or recurs. (Rate of administration may not exceed 5 mg/min.)

      OR

   ~~**c. Administer Midazolam 5 mg, IV/IO, or if IV/IO access is unavailable, 10 mg, IM or IN.**~~

   c. Administer Midazolam up to 5 mg, IV/IO/IN bolus. Midazolam, up to 5 mg, IV/IO/IN may be repeated once. (Maximum total dosage is 10 mg.)

   OR

   d. Administer Midazolam 10 mg, IM. Midazolam 10 mg, IM may be repeated once. (Maximum total dosage is 20 mg.)

6. If the Glasgow Coma Scale (GCS) score is less than 8, and active seizures or one or more of the following signs of brain herniation are present, hyperventilate the patient to maintain a continuous end-tidal waveform capnography value between 30-35mmHg:
   a. Fixed or asymmetric pupils
   b. Abnormal flexion or extension (neurologic posturing)
   c. Hypertension and bradycardia (Cushing's Reflex)
   d. Intermittent apnea (periodic breathing)
   e. Further decrease in GCS score of 2 or more points (neurologic deterioration)

7. If seizure activity persists, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

OPTION A: Repeat Lorazepam 2 mg, IV bolus, or, if IV access is unavailable, IN or IM.
OR
Repeat Diazepam 5 mg, IV bolus. (Rate of administration may not exceed 5 mg/min.)
OR
Repeat Midazolam **up to** 5 mg, IV/IO**/IN**, or if IV/IO**/IN** access is unavailable, 10 mg, IM ~~**or IN**~~.

OPTION B: Transportation Decision.

* *If the patient is alert prior to performing Advanced Airway Management, refer to Prehospital Sedation in General Operating Procedures. Prior permission from Medical Control is required.*

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EXCITED DELIRIUM

(ADULT PATIENTS ONLY)

1. Begin Basic Life Support procedures.
2. Prehospital Chemical Restraint Procedure: If patient continues to struggle while being physically restrained **administer Midazolam, 10 mg, IM**.

   ~~**a. Administer Midazolam, 10 mg, IM or IN.**~~

   ~~**NOTE: If patient is agitated, the PREFERRED route of choice is IM. Once the patient is sedated, IV access should be established in the event additional sedation is necessary.**~~

3. After adequate sedation, begin IV infusion of Normal Saline (0.9% NS) or Ringers' Lactate (RL) via a 14 to 20-gauge catheter, up to 1 liter, via a macro-drip.
4. Begin Cardiac Monitoring, record and evaluate EKG rhythm.
5. Begin pulse oximetry~~, and cardiac monitoring~~. Obtain Finger Stick Blood Glucose (FSBG) level.

   NOTE: A GLUCOMETER SHALL BE USED TO DOCUMENT BLOOD GLUCOSE LEVEL PRIOR TO ADMINISTRATION OF DEXTROSE.

   IF THE GLUCOMETER READING IS ABOVE 60 MG/DL, WITHHOLD TREATMENT FOR HYPOGLYCEMIA.

   DIABETIC PATIENTS WITH A BLOOD GLUCOSE LEVEL READING BETWEEN 60-80 MAY STILL BE EXPERIENCING HYPOGLYCEMIA, AND IF THEY DISPLAY SUCH SIGNS AND SYMPTOMS SHOULD BE TREATED ACCORDINGLY.

6. If the patient continues to struggle while being physically restrained after Standing Orders have been administered, contact medical control for implementation of one of the following MEDICAL CONTROL OPTIONS.

MEDICAL CONTROL OPTIONS:

Option	Class	Medication	Route	Dose
Option A	Dissociative Agents	Ketamine	IntraMUSCULAR	2-4 mg/kg
		Ketamine	IntraNASAL	1-2 mg/kg
Option B	IM Benzodiazepines	Midazolam	IntraMUSCULAR	**Up to 10** mg
		Lorazepam	IntraMUSCULAR	4 mg
Option C	IN or IV Benzodiazepines	Diazepam	IV /IO bolus	5-10 mg
		Midazolam	IV/IO bolus IntraNASAL	**Up to** 5 mg
		Lorazepam	IV bolus IntraNASAL	2 mg

OPTION D: Transportation Decision.

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PEDIATRIC ALTERED MENTAL STATUS

For pediatric patients in coma, with evolving neurological deficit,

or with altered mental status of unknown etiology.

NOTE: Maintenance of normal respiratory and circulatory function is always the priority. Patients with altered mental status due to respiratory failure or arrest, obstructed airway, shock, trauma, near drowning or other anoxic injury should be treated under other protocols.

1. Begin Basic Life Support Altered Mental Status procedures.
2. During transport, or if transport is delayed:
   a. Administer Glucagon 1 mg, IM or IN.
3. Begin an IV or IO infusion of Normal Saline (0.9% NS) to keep vein open. Attempt vascular access no more than twice.

NOTE: A GLUCOMETER SHALL BE USED TO DOCUMENT BLOOD GLUCOSE LEVEL PRIOR TO ADMINISTRATION OF DEXTROSE OR GLUCAGON.

IF THE GLUCOMETER READING IS ABOVE 60 MG/DL, DEXTROSE AND GLUCAGON SHOULD BE WITHHELD.

DIABETIC PATIENTS WITH A BLOOD GLUCOSE LEVEL READING BETWEEN 60-80 MAY STILL BE EXPERIENCING HYPOGLYCEMIA, AND IF THEY DISPLAY SUCH SIGNS AND SYMPTOMS SHOULD BE TREATED ACCORDINGLY.

4. Administer Dextrose 0.5 gm/kg, IV or IO bolus. Use 10% Dextrose in patients less or equal to one (1) month of age. Use 25% Dextrose in patients greater than one (1) month of age and less than 15 years of age. (Refer to Length Based Dosing Device)
5. If the patient's mental status fails to improve significantly, administer Naloxone ~~**IN/**~~IM **IV/IO**:
   a. In patients two (2) years of age or older, titrate in increments of 0.5 mg up to response, up to 2 mg. (Refer to Length Based Dosing Device).
   b. In patients, less than two (2) years of age, titrate up to 1 mg. (Refer to Length Based Dosing Device). ~~**If IV/IO access has not been established, administer Naloxone 0.5 mg up to response, up to 2 mg, IM or IN.**~~
6. If there is still no change in mental status, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

OPTION A: Repeat any of the above standing orders.

OPTION B: Transportation Decision.