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

NYC REMAC

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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 following protocol revisions have been approved:

1) GOP: Medication Administration
   a) New paragraph (page 13 of GOP)

2) Cyanide Poisoning (Adult and Pediatric)
   a) Hydroxocobalamin and Sodium Thiosulfate, clarified as "if available"

3) Weapons of Mass Destruction: Nerve Agent Exposure (Adult and Pediatric)
   a) Nerve Agent Antidote Kit (NAAK) auto-injector IM and/or Atropine 0.5 mg auto-injector IM, clarified as "if available"

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.

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- When noted in the protocols, or when other maneuvers used to ventilate the pediatric patient are inadequate, endotracheal intubation should be attempted with a cuffed endotracheal tube

OROGASTRIC TUBE

- After performing advanced airway management and after the device is secured, consider placement of an orogastric tube

Blood Drawing

- Blood drawing by Paramedics is permitted at the discretion of an EMS agency Medical Director

Medication Administration

MEDICATION ADMINISTRATION

- With few exceptions, the medications in the REMAC protocols are written as weight-based dosages with maximums that refer to the maximum weight-based dose for the patient. When calculating the appropriate dose, a patient's actual body weight should be used. It is understood that weight-based dosing may lead to calculated patient doses that are difficult to accurately measure and administer. Additionally, the prehospital setting oftentimes necessitates the use of estimated patient weights that may also be less accurate. Therefore, medication dosages may be rounded to the closest, practical-to-administer dose. The actual administered dose must be documented in the ePCR.

ENDOTRACHEAL MEDICATION ADMINISTRATION

- Medication administration via the endotracheal tube is not the standard of care in the NYC region

INTRANASAL (IN) MEDICATION ADMINISTRATION

- In the absence of intravascular access, the following medications are approved for intranasal administration when an appropriate atomizer device is available. Use the dosing as specified in the protocols for the following medications:
  - Glucagon
  - Fentanyl
  - Lorazepam
  - Midazolam
  - Naloxone

Cyanide Poisoning (Adult and Pediatric)

CRITERIA

- This protocol is for critical patients with exposure to cyanide
- A class order is required when operating at a scene with suspected cyanide exposure secondary to weapons of mass destruction (WMD)
- 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 via online medical control or FDNY Emergency Medical Dispatch
- The issuance of any class order shall be conveyed to all regional online medical control facilities for relay to units in the field
- Treatment within the “hot” and “warm” zones is to be performed only by appropriately trained personnel wearing appropriate chemical protective clothing (CPC) as determined by the FDNY Incident Commander
- If providers encounter a patient who has not been appropriately decontaminated from liquid cyanide, the providers should leave the area immediately until appropriate decontamination has been performed

CFR and All Provider Levels

1. ABCs and vital signs
2. Airway management
3. Administer oxygen via non-rebreather
4. Assess for shock and treat as needed
5. Assess and treat for burns as needed

CFR STOP

EMT

6. Request ALS assistance
7. Transport

EMT STOP

Paramedic

8. Perform advanced airway management as needed
9. Begin cardiac monitoring
10. Obtain at least two sites of intravascular access

11. Administer Hydroxocobalamin and Sodium Thiosulfate, **if available,** for patients with ANY of the following conditions:
    - Cardiac arrest
    - Respiratory arrest
    - Altered mental status
    - Seizures
    - Hypotension not attributable to obvious causes

    Obtain three blood samples using the tubes provided in the Cyanide Toxicity Kit PRIOR to the administration of Hydroxocobalamin as soon as possible

    11.1 Administer Hydroxocobalamin, **if available,** as follows:
    - **ADULT:** Hydroxocobalamin 5 g IV over 15 minutes. Repeat if patient has persistent symptoms
    - **PEDIATRIC:** Hydroxocobalamin 75 mg/kg IV (3 ml/kg of prepared solution) (maximum 5 g) over 15 minutes. Repeat if patient has persistent symptoms

    11.2 Administer Sodium Thiosulfate, **if available**, as follows:
    - **ADULT:** Sodium Thiosulfate 12.5 g IV (150 ml of prepared solution) over 10 minutes
    - **PEDIATRIC:** Sodium Thiosulfate 250 mg/kg IV (3 ml/kg of prepared solution) (maximum 12.5 g) over 10 minutes

Paramedic STOP

Medical Control Options

Key Points / Considerations

Cyanide Toxicity Kit

Item	Quantity
Hydroxocobalamin 5 g bottle (crystalline powder)	1
Sodium Thiosulfate 12.5 g bottle (25% solution)	1
Normal Saline or D_5W (100 ml bag)	3
20 ml syringe	1
Three-way stopcock connector	1
2 ml fluoride oxalate whole blood tube	1
2 ml K2 EDTA tube	1
2 ml lithium heparin tube	1

- Hydroxocobalamin solution is prepared by adding 200 ml of Normal Saline or D_5W to Hydroxocobalamin 5 g powder in the bottle provided. The vented macro-drip tubing that accompanies the Cyanide Toxicity Kit should be used to administer the Hydroxocobalamin solution. For an adult dose, use in wide-open position to ensure the correct administration time of approximately 15 minutes
- Sodium Thiosulfate solution is prepared by adding Sodium Thiosulfate 12.5 g (50 ml) to a 100 ml bag of Normal Saline or D_5W
- In the event that only one intravascular access line is established, administer Hydroxocobalamin BEFORE Sodium Thiosulfate since Sodium Thiosulfate will inactivate Hydroxocobalamin
- Whenever Hydroxocobalamin is administered, follow with a 20 ml flush of crystalloid fluid prior to administering other medications
- A class order is 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

Weapons of Mass Destruction: Nerve Agent Exposure (Adult and Pediatric)

CRITERIA

- A class order issued by the FDNY Office of Medical Affairs is required for the use of this protocol
- 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 via online medical control or FDNY Emergency Medical Dispatch
- The issuance of any class order shall be conveyed to all regional online medical control facilities for relay to units in the field
- Only providers who are trained and who are wearing appropriate chemical protective clothing (CPC) may operate in the treatment zones as directed by the FDNY Incident Commander:
  - Hot Zone (Exclusion Zone): FDNY CFR, FDNY HazTac EMTs and Paramedics, FDNY Rescue Paramedics
  - Warm Zone (Contamination Reduction Zone): FDNY providers
  - Cold Zone (Support Zone): All EMS providers

CFR and All Provider Levels

1. Assign triage tags according to the patient's signs and symptoms and administer the nerve agent antidote kit (NAAK) auto-injector IM and/or Atropine 0.5 mg auto-injector IM, **if available**, according to symptom severity and weight as follows:

Tag Color	Signs and Symptoms	Weight (kg)	NAAK (unit)	Atropine 0.5 mg auto-injector
RED	SLUDGEM AND one of the following: AMS or Respiratory Distress	< 18	1	
		18-40	2	
		> 40	3	
YELLOW	SLUDGEM OR Respiratory Distress	< 18	0	1
		18-40	1	
		> 40	2	
GREEN	Asymptomatic		0	

   - If multiple doses of NAAK are required, administer each unit in rapid succession
   - NAAK refers to either the dual-injector set [Mark-1 (one atropine auto-injector and one pralidoxime auto-injector)] or a single injector containing both medications [DuoDote® (Atropine and Pralidoxime)]
   - NAAK auto-injectors contain Atropine 2 mg and Pralidoxime 600 mg
2. Treat patients according to tag color as follows:
   - Red and Yellow tag patients: do not delay treatment for decontamination

- Green tag patients: decontaminate and observe closely

3. Monitor the patient every 5 minutes
4. For patients with persistent symptoms of excessive secretions or respiratory distress after initial management, administer Atropine auto-injector IM, **if available**, according to weight as follows. Repeat Atropine auto-injector IM every 5 minutes as needed

Signs and Symptoms	Weight (kg)	Atropine auto-injector (mg)
Excessive Secretions or Respiratory Distress	< 18	0.5
	18-40	1
	> 40	2

CFR STOP

EMT

5. Transport

EMT STOP

Paramedic

1. For patients who are actively seizing, administer one of the following:

Weight (kg)	OPTION A: Diazepam	OPTION B: Midazolam
< 18	• 0.5 mg/kg IM (0.1 ml/kg of a 5 mg/ml concentration) [maximum 5 mg] • Repeat Diazepam 0.5 mg/kg IM (maximum 5 mg) every 10 minutes as needed (maximum cumulative dose 10 mg)	• 0.2 mg/kg IM (0.04 ml/kg of a 5 mg/ml concentration) [maximum 3 mg] • Repeat Midazolam 0.15 mg/kg IM (maximum 5 mg) every 10 minutes as needed (maximum cumulative dose 10 mg)
18-40	• 0.5 mg/kg IM (0.1 ml/kg of a 5 mg/ml concentration) [maximum 10 mg] • Repeat Diazepam 0.5 mg/kg IM (maximum 10 mg) every 10 minutes as needed (maximum cumulative dose 30 mg)	• 0.2 mg/kg IM (0.04 ml/kg of a 5 mg/ml concentration) [maximum 5 mg] • Repeat Midazolam 0.15 mg/kg IM (maximum 5 mg) every 10 minutes as needed (maximum cumulative dose 20 mg)
> 40	• 10 mg auto-injector IM • Repeat Diazepam 10 mg auto-injector IM every 10 minutes as needed (maximum cumulative dose 30 mg)	• 5 mg IM (1ml of a 5 mg/ml concentration) • Repeat Midazolam 5 mg IM every 10 minutes as needed (maximum cumulative dose 20 mg)

Paramedic STOP

Medical Control Options

FDNY OMA Response Physician Medical Control Options

2. Administer additional dosing of any standing order medication

Key Points / Considerations

- Symptoms for nerve agent exposure are described using the acronym SLUDGEM:
  - Salivation
  - Lacrimation
  - Urination
  - Defecation/diarrhea
  - Gastrointestinal upset
  - Emesis
  - Miosis/muscle twitching
- Any discretionary orders or medical control options **MUST** be approved by the FDNY OMA Response Physician
- The goal of treatment for patients is the drying of secretions and resolution of other symptoms
- Diazepam is the medication of choice when treating a patient with seizures secondary to nerve agent exposure
- Do not administer more than 3 NAAK units to any patient
- Asymptomatic patients do not require treatment
- Record the number and/or amount of Atropine, NAAK, and benzodiazepines administered on the patient's triage tag
- Victims whose skin or clothing is contaminated with liquid nerve agent can contaminate rescuers by direct contact or through off-gassing vapor
- Victims who have ingested nerve agents may off-gas dangerous levels of vapor, including from vomit if ingested, even after skin decontamination