



<h1>NYC REMAC</h1>			
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Title:	Revision/Update of REMAC Prehospital Treatment & Transport Protocols		
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Supersedes:	n/a	Page:	1 of 42

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 AND ALL EMS PERSONNEL UPDATED BY JULY 1, 2012. 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.

Lewis W. Marshall, Jr., MD, JD
Chair, Regional Emergency Medical Advisory Committee of New York City

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

Revision/Update of REMAC Prehospital Treatment & Transport Protocols

Protocol Revisions approved by NYC REMAC and NYS SEMAC

General Operating Procedures: Transportation Procedures and Decisions

Acute Stroke

- Recommend change time parameter to be consistent with the upcoming changes in time parameters (TPA guidelines for NYS being revised).
- Recommend: Page A.6, 3rd bullet, GOP, “The total time from when the patient’s symptoms and/or signs first began to when the patient is first assessed by EMS is greater than ~~two (2)~~ three and one half (3 ½) hours.”

EMT Protocols

400 WMD

- updated the WMD table to have same language as CFR Protocol 300 WMD

Paramedic (ALS) Protocols

500-A Smoke Inhalation and /or Suspected CO Exposure:

- Change name of protocol to “Smoke Inhalation”.

500-A and 500-B:

- Change sub-note **A** for Tables 1 to eliminate “7.5 minutes per bottle,” administration time.

503A V-Fib/V-Tach: The need to dilute **Amiodarone** was based on the discomfort caused by administering the undiluted medication to *conscious* patients. The following recommendations were made:

- 503A (V-Fib/V-Tach) – eliminate dilution

511 Altered Mental State

- Glucometer note moved
- Dextrose/Glucagon should be withheld if glucometer reading is above 120 mg/dl

513 Seizures

- First line: “For patients experiencing generalized seizures that are ongoing or recurring.”
 - SO # 5, “...A single repeat dose of Diazepam 5 mg, IV/Saline Lock bolus, may be given ~~if~~ for generalized seizure activity persists or recurs.”
 - Dextrose/Glucagon should be withheld if glucometer reading is above 120 mg/dl
-

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Revision/Update of REMAC Prehospital Treatment & Transport Protocols

Paramedic (ALS) Protocols: Pediatrics

543 Neonate Resuscitation

- Moving IV/IO and epinephrine to Standing Order, and resulting removal of all Medical Control Options

Rationale: Although neonatal resuscitation to the point of requiring or receiving epinephrine is a rare event, the committee felt that those neonatal resuscitations progressing to this stage in the prehospital setting should not require OLMC contact for medications that are routinely given under standing orders in other resuscitations, particularly given the delay in care that occurs with OLMC contacts. For this reason, it was recommended that the use of epinephrine in neonatal resuscitations be moved from medical control options to standing orders.

550 Pediatric Respiratory Arrest

- Naloxone changes

Rationale: Consistent with the adult ALS respiratory failure / arrest management protocol, the committee recommends that this protocol be changed to emphasize the airway management aspects of such cases and therefore recommends the removal of Naloxone from the protocol. Reference will be made to the altered mental status protocol, but the committee felt that a child for whom airway management had already been performed (and therefore the narcotic-induced issue already remedied) should not routinely receive Naloxone and put that airway management at risk.

551: Pediatric Obstructed Airway

- Cuffed endotracheal tube clarification

553: Pediatric Non-Traumatic Cardiac Arrest

- AHA change regarding joule setting, also includes clarification regarding advanced airway management

557: Pediatric Seizures

- Revised to increase the dosage of midazolam from 0.1mg/kg to 0.2mg/kg
- Dextrose/Glucagon should be withheld if glucometer reading is above 120 mg/dl

559 Pediatric Traumatic Cardiac Arrest

- Clarification of advanced airway management
-

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General Operating Procedures (Page A. 6)

TRANSPORTATION PROCEDURES AND DECISIONS

Acute Stroke

If the historical/physical findings indicate an acute stroke, transport the patient to the nearest NYS DOH designated Stroke Center (See Appendix R, Stroke Patient Criteria), unless **one** of the following conditions is met:

- The patient is in cardiac arrest;
 - The patient has other medical conditions that warrant transport to the nearest appropriate hospital emergency department as per protocol;
 - The total time from when the patient's symptoms and/or signs first began to when the patient is first assessed by EMS is greater than ~~two (2)~~ three and one half (3 ½) hours;
 - The closest NYS DOH designated Stroke Center is **more** than 20 minutes away;
 - An on-line medical control physician so directs.
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WEAPONS OF MASS DESTRUCTION NERVE AGENT EXPOSURE PROTOCOL

Authorization for the use of the Nerve Agent Antidote kits comes ONLY from the FDNY Office of Medical Affairs (OMA) through a class order* issued by a FDNY-OMA Medical Director who is on-scene or as relayed by 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.

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.

- **RED Tag** may be treated simultaneously with decontamination.
- **YELLOW Tag** will be treated as soon as possible following decontamination.
- **GREEN Tag** (asymptomatic) will be decontaminated and receive close observation.

NOTE: Nerve agent kit contains one (1) each: 2 mg Atropine auto-injector, and 600 mg 2-PAM (Pralidoxime Chloride) auto-injector.

Initial Treatment (Table 1)

Tag Color	Signs & Symptoms	Auto-injector Administration	Atropine Dose and Monitor Interval
RED	Severe Respiratory Distress, Agitation SLUDGEM	3 Auto-injector Kits	6 mg Monitor every 5 minutes.
YELLOW	Respiratory Distress, SLUDGEM	2 Auto-injector Kits	4 mg Monitor every 10 minutes
GREEN	Asymptomatic None	None	None Monitor every 15 minutes.

NOTE: Do not give more than three auto-injector kits to any patient.

Tag-Color	Signs & Symptoms	Atropine-Dose Monitor-Interval	2-PAM-Dose
RED	Severe Respiratory Distress, Agitation SLUDGEM	3 Auto-injectors (6 mg) Monitor every 5 minutes	3 Auto-injectors (1.8 gm)
YELLOW	Respiratory Distress, SLUDGEM	2 Auto-injectors (4 mg) Monitor every 10 minutes	2 Auto-injector (1.2 gm)
GREEN	Asymptomatic None	Monitor for signs & symptoms Monitor every 15 minutes	None

~~**NOTE:** Do not give more than three (3) 2-PAM auto-injectors to any patient. The maximum total dose of 2-PAM is 1.8 grams.~~

* 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.

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All treatment subsequent to the initial doses shall follow Table 2. This will include extended on-scene operations, transport to ambulance destinations, and treatment at casualty collection points. The end point of treatment is drying of secretions and resolution of other symptoms.

Extended Re-Evaluation & Treatment (Table 2)

Tag Color	Signs & Symptoms	Monitor Interval	Auto-injector Administration	Atropine Repeat Dosing Frequency
RED	Severe Respiratory Distress, Agitation, SLUDGEM	Monitor every 5 minutes	Up to a total maximum of 3 auto-injectors	2mg every 3-5 minutes as needed
YELLOW	Respiratory Distress SLUDGEM	Monitor every 5 to 15 minutes	Up to a total maximum of 1 auto-injector	2mg every 5-10 minutes as needed
GREEN	Asymptomatic	Monitor every 15 minutes	None	None

NOTE: Do not give more than three auto-injector kits to any patient.

- Record on the Triage Tag the number of Atropine and Auto-injector Kits used
- **ASYMPTOMATIC PATIENTS DO NOT REQUIRE TREATMENT**
 - monitor every 15 minutes

~~Extended Re-Evaluation & Treatment (Table 2)~~

Tag Color	Signs & Symptoms	Atropine Dose Monitor Interval	2-PAM Dose	Atropine Repeat Dosing Frequency
RED	Severe Respiratory Distress, Agitation, SLUDGEM	2 mg Monitor every 5 minutes	Up to a maximum of 1.8 gm (3 auto-injectors)	2 mg every 3-5 minutes as needed
YELLOW	Respiratory Distress SLUDGEM	2 mg Monitor every 5 to 15 minutes	Up to a maximum of 600 mg (1 auto-injector)	2 mg every 5-10 minutes as needed
GREEN	Asymptomatic	None Monitor every 15 minutes	None	None

~~NOTE: Do not give more than three (3) 2-PAM auto-injectors to any patient. The maximum total dose of 2-PAM is 1.8 grams.~~

- ~~• Record on the Triage Tag the number of Atropine and 2-PAM Auto-injectors used~~
- ~~• ASYMPTOMATIC PATIENTS DO NOT REQUIRE TREATMENT Monitor every 15 minutes~~

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PEDIATRIC PATIENTS

Tag Color	Exposure, and/or Signs of Respiratory Distress, Agitation, SLUDGEM	Atropine and Antidote Kit Doses Monitor Interval		Atropine Repeat Dosing Frequency
RED (Peds)	Yes	Age <1 years	1 Peds Atropine Auto-injector (0.5 mg) No Antidote Kit Monitor every 3 minutes	Atropine every 3 minutes as needed
		Age 1-8 years	1 Antidote Kit Monitor every 3 minutes	
GREEN (Peds)	No	None Monitor every 10 minutes for evidence of exposure		

NOTE: Pediatric patients older than 8 years old should be treated via the adult protocol.

PEDIATRIC PATIENTS

Tag Color	Exposure (and/or Signs of Respiratory Distress, Agitation, SLUDGEM)	Atropine and 2-Pam Doses Monitor Interval		Atropine Repeat Dosing Frequency
RED (Peds)	Yes	Age <1 years	1 Peds Atropine Auto-injector (0.5 mg) No 2-PAM Monitor every 3 minutes	Atropine every 3 minutes as needed
		Age 1-8 years	1 Atropine Auto-injector (2 mg) 1 2-PAM Auto-injector (600 mg) Monitor every 3 minutes	
GREEN (Peds)	No	None Monitor every 10 minutes for evidence of exposure		

NOTE: ~~———— Pediatric patients older than 8 years old should be treated via the adult protocol.~~

500-A

SMOKE INHALATION ~~AND/OR SUSPECTED CARBON MONOXIDE EXPOSURE~~

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 or Table 2, 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.

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), administer Dopamine 5 ug/kg/min, IV/Saline Lock 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 ug/kg/min, IV/Saline Lock drip.)

* *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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TABLE 1 <u>Two Bottle Kit (2.5gm/100mL/bottle)</u>		
Age Group	Hydroxocobalamin ^A	Sodium Thiosulfate ^B
Infant/Toddler (0-2 years)	¼ bottle	250mg/kg (3cc/kg prepared solution) administered over 10 minutes, IV
Preschool (3-5 years)	½ bottle	
Grade School (6-13 years)	1 bottle	
Adult (≥14 years)	2 bottles (entire kit)	12.5g 150mL of a prepared solution) administered over 10 minutes IV

TABLE 2 <u>One Bottle Kit (5.0gm/200mL/bottle)</u>		
Age Group	Hydroxocobalamin ^A	Sodium Thiosulfate ^B
<u>Infant/Toddler (0-2 years)</u>	<u>¼ bottle</u>	<u>250mg/kg (3cc/kg prepared solution) administered over 10 minutes, IV</u>
<u>Preschool (3-5 years)</u>	<u>1/4 bottle</u>	
<u>Grade School (6-13 years)</u>	<u>1/2 bottle</u>	
<u>Adult (≥14 years)</u>	<u>1 bottle</u>	<u>12.5g 150mL of a prepared solution) administered over 10 minutes IV</u>

^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 (7.5 minutes per bottle).

^B Sodium Thiosulfate solution should be prepared by adding 12.5g (50mL) to a 100cc bag of D5W.

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)

2 – 2.5 g bottles <u>or 1-5.0 g bottle</u> of crystalline powder Hydroxocobalamin	1 – 2 ml fluoride oxalate whole blood tube
1 – 12.5 g bottles of Sodium Thiosulfate (50 mL of 25% solution)	1 – 2 ml K2 EDTA tube
2 – 100 mL bag 0.9% NS, D ₅ W, LR	1 – 2 ml lithium heparin tube
1 – 100 mL bag D ₅ W	

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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 order¹ 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 [or Table 2](#), if available.
 - Hypotension not attributable to other obvious causes
 - Altered Mental Status
 - Coma
 - Seizures
 - Respiratory arrest
 - Cardiac arrest

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.

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

TABLE 1		
Age Group	Hydroxocobalamin ^A	Sodium Thiosulfate ^B
Infant/Toddler (0-2 years)	¼ bottle	250mg/kg (3cc/kg prepared solution) administered over 10 minutes, IV
Preschool (3-5 years)	½ bottle	
Grade School (6-13 years)	1 bottle	
Adult (≥14 years)	2 bottles (entire kit)	12.5g 150mL of a prepared solution) administered over 10 minutes IV

TABLE 2		
<u>Age Group</u>	<u>Hydroxocobalamin ^A</u>	<u>Sodium Thiosulfate ^B</u>
<u>Infant/Toddler (0-2 years)</u>	<u>¼ bottle</u>	<u>250mg/kg (3cc/kg prepared solution) administered over 10 minutes, IV</u>
<u>Preschool (3-5 years)</u>	<u>1/4 bottle</u>	
<u>Grade School (6-13 years)</u>	<u>1/2 bottle</u>	
<u>Adult (≥14 years)</u>	<u>1 bottle</u>	<u>12.5g 150mL of a prepared solution) administered over 10 minutes IV</u>

^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 (7.5 minutes per bottle).**

^B Sodium Thiosulfate solution should be prepared by adding 12.5g (50mL) to a 100cc bag of D5W.

6. In the event of continued hypotension (SBP <90mmHg), Administer Dopamine 5 ug/kg/min, IV/Saline Lock 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 ug/kg/min, IV/Saline Lock 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)

2 – 2.5 g bottles or 1-5.0 g bottle of crystalline powder Hydroxocobalamin	1 – 2 ml fluoride oxalate whole blood tube
1 – 12.5 g bottles of Sodium Thiosulfate (50 mL of 25% solution)	1 – 2 ml K2 EDTA tube
2 – 100 mL bag 0.9% NS, D ₅ W, LR	1 – 2 ml lithium heparin tube
1 – 100 mL bag D ₅ W	

503-A

VENTRICULAR FIBRILLATION/PULSELESS VENTRICULAR TACHYCARDIA

1. Continue CPR with minimal interruption.

NOTE: In arrests witnessed by EMS, perform CPR until defibrillator is attached
In arrests not witnessed by EMS, perform two (2) minutes of CPR prior to defibrillator use

2. Defibrillate using the maximum joule setting possible (may vary depending on the defibrillator in use).

NOTE: If the patient has a permanent pacemaker in place, position the semi-automated defibrillator pads at least one (1) inch away from the pacemaker device.

3. Continue CPR. If after two minutes of additional CPR if there is no change in the rhythm, Defibrillate a 2nd time as previously stated.

4. Continue CPR. If after two minutes of additional CPR if there is no change in the rhythm, Defibrillate a 3rd time as previously stated.

5. Perform Advanced Airway Management.

6. If, after every two minute interval of additional CPR, there is no change in the rhythm, Defibrillate as previously stated.

7. Begin an IV/IO infusion of Normal Saline (0.9% NS) to keep vein open, or a Saline Lock.

8. Administer Vasopressin 40 units IV/IO/Saline Lock Bolus, single dose.

9. If there is no change in the rhythm, administer Amiodarone 300mg, ~~diluted up to a total of 20mL of D5W,~~ IV/IO/ Saline Lock bolus.

10. If there is no change in the rhythm within 3 – 5 minutes after the administration of Vasopressin, administer Epinephrine 1 mg (10 ml of a 1:10,000 solution), IV/IO/Saline Lock bolus, every 3 – 5 minutes.

11. If there is insufficient improvement in hemodynamic status, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

OPTION A: If Ventricular Fibrillation or Pulseless Ventricular Tachycardia recurs, a repeat dose of 150 mg Amiodarone ~~diluted up to a total of 10 ml D5W,~~ IV/IO/Saline Lock Bolus may be given.

OPTION B: Administer Sodium Bicarbonate 44-88 mEq IV/IO/Saline Lock bolus. Repeat doses of Sodium Bicarbonate 44 mEq, IV/IO/Saline Lock bolus, may be given every 10 minutes.

OPTION C: Administer Magnesium Sulfate 2 gm, IV/IO/Saline Lock bolus, diluted in 10 ml of Normal Saline (0.9% NS), over 2 minutes.

OPTION D: In cases of hyperkalemia or Calcium Channel Blocker overdose administer Calcium Chloride (CaCl₂) 1 gm, SLOWLY, IV/IO/Saline Lock bolus. Follow with a Normal Saline (0.9% NS) flush.

OPTION E: Transportation Decision.

ALTERED MENTAL STATUS

1. Begin Basic Life Support Altered Mental Status procedures.
2. Begin an IV infusion of Normal Saline (0.9% NS) to keep vein open, or Saline Lock.

NOTE: A glucometer should be used to document blood glucose level prior to administration of Dextrose or Glucagon.

If the glucometer reading is above 120 mg/dl, Dextrose and Glucagon should be withheld.

3. Administer Dextrose 25 gm (50 ml of a 50% solution), IV/Saline Lock bolus.

~~**NOTE:** A glucometer (if available) may be used to document blood glucose level prior to Dextrose administration.~~

~~If the glucometer reading is above 120 mg/dl, Dextrose may be withheld.~~

4. In patients with diabetic histories where an IV/Saline Lock route is unavailable, administer Glucagon 1 mg, IM.
5. If the patient's mental status fails to improve significantly, administer Naloxone, titrate in increments of 0.4 mg up to response, up to 2 mg, IV/Saline Lock bolus. If IV/Saline Lock access has not been established, administer Naloxone 0.8 mg, up to response, up to 2 mg IM or IN.

NOTE: IF AN OVERDOSE IS STRONGLY SUSPECTED, ADMINISTER NALOXONE PRIOR TO DEXTROSE.

6. If there still is no change in mental status or it fails to improve significantly, repeat Dextrose 25 gm (50 ml of a 50% solution), IV/Saline Lock bolus.
7. 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.

SEIZURES

For patients experiencing **generalized** seizures that are ongoing or recurring

1. Begin Basic Life Support Seizures procedure.
2. Begin Cardiac Monitoring, record and evaluate EKG rhythm.
3. Begin an IV/Saline Lock infusion of Normal Saline (0.9% NS) to keep vein open, or a Saline Lock.

NOTE: A glucometer should be used to document blood glucose level prior to administration of Dextrose or Glucagon.

If the glucometer reading is above 120 mg/dl, Dextrose and Glucagon should be withheld.

4. Administer Dextrose 25 gm (50 ml of a 50% solution), IV/Saline Lock bolus.
5. In patients with diabetic histories where an IV/Saline Lock route is unavailable, administer Glucagon 1 mg, IM.
6. Administer Lorazepam 2 mg, IV/Saline Lock 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 for generalized seizures that are ongoing or recurring seizure activity persists or recurs.**

OR

Administer Diazepam 5 mg, IV/Saline Lock bolus. A single repeat dose of Diazepam 5 mg, IV/Saline Lock bolus, may be given **if for generalized seizures that are ongoing or recurring seizure activity persists or recurs.** (Rate of administration may not exceed 5 mg/min.)

OR

Administer Midazolam 10 mg, IM or IN, if IV access is unavailable.

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/Saline Lock bolus, or, if IV access is unavailable, IN or IM.

OR

Repeat Diazepam 5 mg, IV/Saline Lock bolus. (Rate of administration may not exceed 5 mg/min.)

OR

Repeat Midazolam 10 mg, IN or IM, if IV access is unavailable.

OPTION B: Transportation Decision.

NEONATE RESUSCITATION

~~For neonates requiring resuscitation whose amniotic fluid does not contain thick meconium:~~

1. Begin Basic Life Support Neonatal Resuscitation procedures.

~~For neonates requiring resuscitation whose amniotic fluid does contain thick meconium and who are limp, apneic, or pulseless:~~

- ~~1. Begin Basic Life Support Neonatal Resuscitation procedures only after the airway has been cleared of thick meconium, as follows:~~
 - ~~a. Perform Endotracheal Intubation and directly suction the Endotracheal Tube via a Meconium Aspirator/Adapter while slowly withdrawing the Endotracheal Tube.~~
 - ~~b. Repeat this procedure until the Endotracheal Tube is clear of thick meconium, up to 2 more times (total of 3 times).~~

~~NOTE: DO NOT REPLACE THE ENDOTRACHEAL TUBE ONCE THE AIRWAY HAS BEEN CLEARED OF THICK MECONIUM UNLESS THE NEONATE REMAINS LIMP, APNEIC, OR PULSELESS.~~

~~For ALL neonates requiring resuscitation once Basic Life Support Neonatal Resuscitation procedures have begun:~~

2. If CPR has been initiated, and the heart rate remains less than 60 beats per minute and not rapidly increasing after 30 seconds of CPR, perform Endotracheal Intubation.

~~NOTE: DO NOT INTUBATE UNLESS OTHER METHODS OF AIRWAY MANAGEMENT ARE NOT EFFECTIVE, I.E., DO NOT SUCCESSFULLY INCREASE THE HEART RATE.~~

During transport, or if transport is delayed:

3. If abdominal distention occurs, pass a Nasogastric Tube. If unsuccessful, pass an Orogastic Tube.
4. If Endotracheal Intubation has been performed, and the heart rate remains less than 60 beats per minute, administer Epinephrine 0.1 mg/kg (1 ml/kg of a 1:10,000 solution), via the Endotracheal Tube.
5. If transport is delayed or extended, begin an IV or IO infusion of Normal Saline (0.9% NS) to keep vein open, or a Saline Lock. Do not attempt vascular access more than twice.
6. Begin an IV/Saline Lock or IO infusion of Normal Saline (0.9% NS), 10ml/kg.
7. Administer Epinephrine 0.01 mg/kg (0.1 ml/kg of a 1:10,000 solution) IV/Saline Lock or IO, every 3-5 minutes.
8. Transport Decision
 - ~~1. If Epinephrine has been administered, and the heart rate still remains less than 60 beats per minute, the respiratory rate remains less than 30 breaths per minute, or the neonate remains cyanotic or limp, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:~~

~~MEDICAL CONTROL OPTIONS~~

~~OPTION A: Repeat Epinephrine 0.1 mg/kg (1 ml/kg of a 1:10,000 solution), via the Endotracheal Tube.~~

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~~OPTION B: If transport is delayed or extended, begin an IV or IO infusion of Normal Saline (0.9% NS) to keep vein open, or a Saline Lock. Do not attempt vascular access more than twice.~~

~~OPTION C: If transport is delayed or extended, and the neonate is pale and has slow or absent central pulses, administer Epinephrine 0.01 mg/kg (0.1 ml/kg of a 1:10,000 solution) IV/Saline Lock, or IO.~~

~~OPTION D: If transport is delayed or extended, and the neonate is pale and has weak but rapid central pulses, begin an IV/Saline Lock or IO infusion of Normal Saline (0.9% NS) 10 ml/kg.~~

~~OPTION E: Transportation Decision.~~

PEDIATRIC RESPIRATORY ARREST

For pediatric patients in actual or impending respiratory arrest, or who are unconscious and cannot be adequately ventilated:

NOTE: IF OVERDOSE IS SUSPECTED, REFER TO PROTOCOL 556 (Pediatric Altered Mental Status)

1. Begin Basic Life Support Pediatric Respiratory Distress/Failure procedures.

NOTE: **DO NOT** HYPER-EXTEND THE NECK. IF AN OBSTRUCTED AIRWAY IS SUSPECTED, SEE PROTOCOL #551.

2. Perform Endotracheal Intubation, if less invasive methods of airway management are not effective.
3. If a tension pneumothorax is suspected, perform Needle Decompression, using an 18-20 gauge catheter. (See Appendix O.)

NOTE: TENSION PNEUMOTHORAX IN A CHILD IN RESPIRATORY ARREST MAY DEVELOP AFTER RESUSCITATIVE EFFORTS HAVE BEGUN.

During transport, or if transport is delayed:

4. Administer Naloxone, **titrate in increments of 0.8 mg, IM, up to response, up to 2 mg, in patients two (2) years of age or older. In patients less than two (2) years of age, titrate up to 1 mg. 2 mg, IM, or via the Endotracheal Tube, in patients two (2) years of age or older. Use half the amount (1 mg) of this drug in patients less than two (2) years of age.** (Refer to Length Based Dosing Device)
5. If abdominal distention occurs, pass a Nasogastric Tube. If unsuccessful, pass an Orogastic Tube.
6. If there is insufficient improvement in respiratory status, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

OPTION A: Begin an IV or IO infusion of Normal Saline (0.9% NS) to keep vein open, or a Saline Lock. Attempt vascular access no more than twice.

~~OPTION B: Administer Naloxone 2 mg, IV/Saline Lock or IO bolus, via the Endotracheal Tube or IM, in patients two (2) years of age or older. Use half the amount (1 mg) of this drug in patients less than two (2) years of age. (Refer to Length Based Dosing Device)~~

OPTION C: Transportation Decision.

PEDIATRIC OBSTRUCTED AIRWAY

For pediatric patients who are unconscious or cannot breathe, cough, speak, or cry:

1. Begin Basic Life Support Pediatric Obstructed Airway procedures.
 2. Perform Direct Laryngoscopy. Attempt to remove the foreign body with appropriate size Magill Forceps.
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NOTE: IF AN ENLARGED EPIGLOTTIS IS VISUALIZED, SEE PROTOCOL #552.

3. Perform Endotracheal Intubation, if less invasive methods of airway management are not effective.
4. If able to confirm intubation via direct visualization but unable to ventilate:
 - a. Note the Endotracheal Tube depth
 - b. **If using a cuffed tube, d**eflate the Endotracheal Tube cuff
 - c. Advance the Endotracheal Tube to its deepest depth
 - d. Return the Endotracheal Tube to its original depth
 - e. **If using a cuffed tube, r**einflate the Endotracheal Tube cuff and attempt ventilation again
 - f. If unable to effectively ventilate the patient using the above maneuvers, immediately initiate transport
4. Transportation Decision.

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553 (AHA Change)

PEDIATRIC NON-TRAUMATIC CARDIAC ARREST

1. Begin Basic Life Support Pediatric Non-Traumatic Cardiac Arrest procedures.
2. Begin Cardiac Monitoring, record and evaluate EKG rhythm.
3. If in ventricular fibrillation or pulseless ventricular tachycardia:
 - a. Immediately Defibrillate at **4 2** joules/kg, using paddles of appropriate size. (Refer to Length Based Dosing Device)
 - b. Immediately resume CPR for 5 cycles while defibrillator is recharging.
4. If still in ventricular fibrillation or pulseless ventricular tachycardia:
 - Immediately repeat Defibrillation at **10 4** joules/kg, using paddles of appropriate size. (Refer to Length Based Dosing Device)
4. Immediately resume CPR for 5 cycles while defibrillator is recharging.

NOTE: IF THE DEFIBRILLATOR IS UNABLE TO DELIVER THE RECOMMENDED DOSE, USE THE LOWEST AVAILABLE SETTING.

5. Perform ~~Endotracheal Intubation~~ **Advanced Airway Management** if less invasive methods of airway management are not effective.

During transport, or if transport is delayed:

6. If the patient is intubated, administer Epinephrine 0.1 mg/kg (0.1 ml/kg of a 1:1,000 solution), via the Endotracheal Tube. (Refer to Length Based Dosing Device)
7. If abdominal distention occurs, pass a Nasogastric Tube. If unsuccessful, pass an Orogastic Tube.
8. Begin an IV or IO infusion of Normal Saline (0.9% NS) to keep vein open, or a Saline Lock. Attempt vascular access no more than twice.
9. If still in ventricular fibrillation or pulseless ventricular tachycardia:
 - Immediately repeat Defibrillation at 4 joules/kg, using paddles of appropriate size. (Refer to Length Based Dosing Device)
 - Immediately resume CPR for 5 cycles while the Defibrillator is recharging.
 - Administer Amiodarone, 5 mg/kg, IV/Saline Lock, or IO. (Refer to Length Based Dosing Device)
10. Repeat Epinephrine 0.01 mg/kg (0.1 ml/kg of a 1:10,000 solution) IV/Saline Lock or IO bolus every 3-5 minutes. (Refer to Length Based Dosing Device)

OR

If vascular access has not been established, repeat epinephrine 0.1 mg/kg (0.1 ml/kg of a 1:1,000 solution) via the Endotracheal Tube every 3-5 minutes. (Refer to Length Based Dosing Device)

NOTE: THE IV/SALINE LOCK OR IO DOSE OF EPINEPHRINE FOR PEDIATRIC PATIENTS IS 0.01 MG/KG (0.1 ML/KG OF A 1:10,000 SOLUTION). THE ENDOTRACHEAL TUBE DOSE OF EPINEPHRINE FOR PEDIATRIC PATIENTS IS 0.1 MG/KG (0.1 ML/KG OF A 1:1,000 SOLUTION).

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11. If there is insufficient improvement in hemodynamic 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: Administer Naloxone 2 mg IV/Saline Lock or IO bolus, or via the Endotracheal Tube, in patients two years of age or older. Use half the amount (1 mg) of this drug in patients less than two (2) years of age. (Refer to Length Based Dosing Device)
 - OPTION C: Administer Dextrose 0.5 gm/kg, IV/Saline Lock 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 14 years of age. (Refer to Length Based Dosing Device)
 - OPTION D: Administer Sodium Bicarbonate 1 mEq/kg, IV/Saline Lock or IO bolus. (Refer to Length Based Dosing Device)
 - OPTION E: If torsades de pointes is present, administer Magnesium Sulfate, 25-50 mg/kg, IV/Saline Lock, or IO.
 - OPTION F: Begin rapid IV/Saline Lock, or IO infusion of Normal Saline (0.9% NS), 20 ml/kg. (Refer to Length Based Dosing Device)
 - OPTION G: Transportation Decision.
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557 PEDIATRIC SEIZURES

For patients experiencing seizures that are ongoing or recurring

1. Begin Basic Life Support Seizures procedures.

During transport, or if transport is delayed:

NOTE: A glucometer should be used to document blood glucose level prior to administration of Dextrose or Glucagon.

If the glucometer reading is above 120 mg/dl, Dextrose and Glucagon should be withheld.

2. Administer Glucagon 1 mg, IM.
3. If patient is still seizing, administer Midazolam 0.2 mg/kg, IM or IN. IN is the preferred route of administration.. (Maximum dose is 5 mg.) (Refer to Length Based Dosing Device)

During transport, or if transport is delayed:

4. Begin an IV or IO infusion of Normal Saline (0.9% NS) to keep vein open, or a Saline Lock. Attempt vascular access no more than twice.
5. Administer Dextrose 0.5 gm/kg, IV/Saline Lock 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 14 years of age. (Refer to Length Based Dosing Device)
6. If seizures persist, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

OPTION A: Administer Lorazepam 0.05 mg/kg, IV/IN/Saline Lock or IO bolus, slowly, over 2 minutes. Repeat doses of Lorazepam 0.05 mg/kg, IV/IN/Saline Lock or IO bolus, slowly, over 2 minutes, may be given if seizures persist. (Refer to Length Based Dosing Device)

OR

Administer Diazepam 0.1mg/kg, IV/Saline Lock or IO bolus, slowly, over 2 minutes. Repeat doses of Diazepam 0.1 mg/kg, IV/Saline Lock or IO bolus, slowly, over 2 minutes, may be given if seizures persist. (Refer to Length Based Dosing Device)

OPTION B: If IV/Saline Lock or IO access has not been established, ~~administer~~ **repeat administration of Midazolam 0.2 mg/kg, IM or IN. IN is the preferred route of administration.** (Maximum **repeated** dose is 5 mg.) (Refer to Length Based Dosing Device)

OR

OPTION C: ~~if~~ **Only if above options have been exhausted or are unavailable, IV/Saline Lock or IO access has not been established,** administer Diazepam 0.5 mg/kg, via rectum. (Refer to Length Based Dosing Device)

NOTE: Do not administer Lorazepam, Diazepam, or Midazolam if the seizures have stopped.

OPTION D: Transportation Decision.

PEDIATRIC TRAUMATIC CARDIAC ARREST

NOTE: FOR PEDIATRIC PATIENTS IN TRAUMATIC CARDIAC ARREST, RAPID TRANSPORT IS THE HIGHEST PRIORITY!

1. Begin transportation of the patient and other Basic Life Support Traumatic Cardiac Arrest procedures. During transport, or if transport is delayed:
2. Perform ~~Endotracheal Intubation~~ [Advanced Airway Management](#) if other methods of airway control are not effective.
3. If a tension pneumothorax is suspected, perform Needle Decompression. (See Appendix O.)
4. Begin rapid IV/Saline Lock or IO infusion of Normal Saline (0.9% NS) or Ringer's Lactate (RL), 20 ml/kg, via a large bore IV (18-22 gauge) or IO catheter, or a Saline Lock. Attempt vascular access no more than twice. (Refer to Length Based Dosing Device)
5. If abdominal distention occurs, pass a Nasogastric Tube. If unsuccessful, or in patients with craniofacial trauma, pass an Orogastric Tube.

NOTE: DO NOT PASS A NASOGASTRIC TUBE IN PATIENTS WITH CRANIOFACIAL TRAUMA.

6. If the patient remains in traumatic cardiac arrest, continue rapid IV/Saline Lock or IO infusion of Normal Saline (0.9% NS) or Ringer's Lactate (RL), 20 ml/kg (total of 40 ml/kg), via a second large bore IV (18-22) catheter, or a Saline Lock (if necessary). Attempt second IV no more than twice. (Refer to Length Based Dosing Device)
7. If the patient still remains in traumatic cardiac arrest, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

- OPTION A: Continue rapid IV or IO infusion of Normal Saline (0.9% NS) or Ringer's Lactate (RL) up to an additional 20 ml/kg (total of 60 ml/kg). (Refer to Length Based Dosing Device)
- OPTION B: Transportation Decision.
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