

THE REGIONAL EMERGENCY MEDICAL ADVISORY COMMITTEE
NEW YORK CITY



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PREHOSPITAL TREATMENT PROTOCOLS

ADVANCED LIFE SUPPORT (PARAMEDIC) PROTOCOLS

Effective September 1, 2017
Version ALS09012017B

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

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ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

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 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 (eg. 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.)

* *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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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 ₅ W, LR	One (1) 2 ml lithium heparin tube
One (1) 100 mL bag D ₅ W	

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

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, 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, 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 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.

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

- 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 (eg. 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 ₅ W, LR	One (1) 2 ml lithium heparin tube
One (1) 100 mL bag D ₅ W	

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

502

OBSTRUCTED AIRWAY

1. Begin Basic Life Support Obstructed Airway procedures.
2. Perform Direct Laryngoscopy. Attempt to remove the foreign body with Magill Forceps.
3. Perform Advanced Airway Management.
4. If able to confirm intubation via direct visualization, but unable to ventilate:
 - a. Note the Endotracheal Tube depth.
 - b. Deflate the Endotracheal Tube cuff.
 - c. Advance the Endotracheal Tube to its deepest depth.
 - d. Return the Endotracheal Tube to its original depth.
 - e. Re-inflate the Endotracheal Tube cuff and attempt ventilation again.
 - f. If unable to effectively ventilate the patient using the above maneuvers, immediately initiate transport.
5. Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

503

NON-TRAUMATIC CARDIAC ARREST

1. Begin Basic Life Support Non-Traumatic Cardiac Arrest procedures.
2. Begin Cardiac Monitoring, record and evaluate EKG rhythm.
3. If BLS care is already being provided, transition from AED use to ALS monitor use must occur only after the completion of the next analysis / shock decision.

Sub-Protocols*

503-A Ventricular Fibrillation/Pulseless Ventricular Tachycardia

503-B Pulseless Electrical Activity (PEA)/Asystole

- * In the event that initial EKG rhythm changes, refer to the appropriate cardiac arrest sub-protocol. Complete Standing Orders without repetition of previously administered drugs and contact Medical Control for further orders.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

503-A

VENTRICULAR FIBRILLATION/PULSELESS VENTRICULAR TACHYCARDIA

1. Continue CPR with minimal interruption.
NOTE: Perform CPR until defibrillator is attached
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.
8. Administer Epinephrine 1 mg (10 ml of a 1:10,000 solution).
9. If there is no change in the rhythm, administer Amiodarone 300mg, IV/IO bolus.
10. If there is no change in the rhythm within 3 – 5 minutes administer Epinephrine 1 mg (10 ml of a 1:10,000 solution), IV/IO 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, IV/IO Bolus may be given.
- OPTION B: Administer Sodium Bicarbonate 44-88 mEq IV/IO bolus. Repeat doses of Sodium Bicarbonate 44 mEq, IV/IO bolus, may be given every 10 minutes.
- OPTION C: Administer Magnesium Sulfate 2 gm, IV/IO 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 bolus. Follow with a Normal Saline (0.9% NS) flush.
- OPTION E: Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

503-B

PULSELESS ELECTRICAL ACTIVITY (PEA)/ASYSTOLE

NOTE: Consider the possibility of conditions masquerading as PEA/Asystole which require immediate treatment.

1. Continue CPR with minimal interruption.
2. If a tension pneumothorax is suspected, perform Needle Decompression. (See Appendix O.)
3. Perform Advanced Airway Management.
4. Begin an IV/IO/ infusion of Normal Saline (0.9% NS) to keep vein open.
5. Administer Epinephrine 1 mg (10 ml of a 1:10,000 solution) IV/IO bolus.
6. Administer up to 25 gm Dextrose, IV/IO bolus.
7. If there is no change in the rhythm within 3 – 5 minutes, administer Epinephrine 1 mg (10 ml of a 1:10,000 solution), IV/IO bolus, every 3 – 5 minutes.
8. 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: Administer Sodium Bicarbonate 44-88 mEq IV/IO bolus. Repeat doses of Sodium Bicarbonate 44 mEq, IV/IO bolus, may be given every 10 minutes.
- OPTION B: In cases of hyperkalemia or Calcium Channel Blocker overdose administer Calcium Chloride (CaCl₂) 1 gm, SLOWLY, IV/IO bolus. Follow with a Normal Saline (0.9% NS) flush.
- OPTION C: Begin rapid IV/IO infusion of Normal Saline (0.9% NS), up to three (3) liters.
- OPTION D: Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

504

SUSPECTED MYOCARDIAL INFARCTION

1. Begin Basic Life Support Chest Pain procedures.
2. Begin Cardiac Monitoring, record and evaluate EKG rhythm.
3. Perform, record, and evaluate a 12 Lead EKG.

NOTE: An unstable dysrhythmia must be treated prior to initiation of a 12 lead EKG.

**For patients exhibiting ST-elevation, refer to General Operating Procedures –
Transportation Decisions and Procedures: STEMI Patients**

4. Initiate transport.
5. Begin an IV infusion of Normal Saline (0.9% NS) to keep vein open.
6. Monitor vital signs every 2 - 3 minutes.

Sub-Protocols

504-A Drug Therapy of Myocardial Ischemia

504-B Cardiac Shock

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504-A

DRUG THERAPY OF MYOCARDIAL ISCHEMIA

1. Administer two (2) Aspirin Tablets, total of 162 mg.
2. If chest pain persists, administer a 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 may not be administered to patients with a systolic blood pressure of less than 100 mm Hg.**

Unless otherwise directed by On-Line Medical Control, patients who have used erectile dysfunction medications in the previous 72 hours shall not be given Nitroglycerin.

For patients exhibiting ST-elevation, refer to General Operating Procedures – Transportation Decisions and Procedures: STEMI Patients

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

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. 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

- b. 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.)

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

505

CARDIAC DYSRHYTHMIAS

1. Begin appropriate Basic Life Support 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 blood pressure every 2-3 minutes.

Sub-Protocols

505-A: Supraventricular Tachycardia

505-B: Atrial Fibrillation/Atrial Flutter

505-C: Ventricular Tachycardia with a Pulse/Wide Complex Tachycardia of Uncertain Type

505-D: Bradydysrhythmias/Complete Heart Block

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

505-A

SUPRAVENTRICULAR TACHYCARDIA

1. In patients with unstable supraventricular tachycardia, perform Synchronized Cardioversion* using 100 joules. If this fails to convert the dysrhythmia and the patient still has a pulse, Synchronized Cardioversion may be repeated as necessary, using, 200, 300 and 360 joules.

NOTE: When using a defibrillator for which the maximum joule setting is less than 360 joules, utilize equivalent cardioversion energies.

Further repeated attempts at synchronized cardioversion should be performed using the defibrillator's maximum setting in place of the energies noted above.

2. In patients with stable supraventricular tachycardia, administer Adenosine as follows:
 - a. Administer Adenosine 6 mg, IV bolus, rapidly, followed by a Normal Saline (0.9% NS) flush.
 - b. Observe EKG monitor for 1 – 2 minutes for evidence of cardioversion.
 - c. If there is no evidence of cardioversion, administer Adenosine 12 mg, IV bolus, rapidly, followed by a Normal Saline (0.9% NS) flush.
 - d. If there is still no evidence of cardioversion, repeat Adenosine 12 mg IV bolus, rapidly, followed by a Normal Saline (0.9% NS) flush.
3. If Adenosine fails to convert the dysrhythmia or the patient has evidence of low cardiac output, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

OPTION A: If complex width is narrow and blood pressure is normal or elevated, administer Diltiazem 0.25 mg/kg, IV bolus, slowly, over 2 minutes, monitoring blood pressure continuously.

OPTION B: If complex width is narrow and blood pressure is low, perform Synchronized Cardioversion* using 100 joules. If this fails to convert the dysrhythmia and the patient still has a pulse, Synchronized Cardioversion* may be repeated as necessary using, 200, 300, and 360 joules.

OPTION C: Administer Amiodarone 150 mg, diluted in 100 ml D₅W over 10 minutes.

OPTION D: Transportation Decision.

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

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

505-B

ATRIAL FIBRILLATION / ATRIAL FLUTTER

1. In patients with unstable Atrial Fibrillation or Atrial Flutter, perform Synchronized Cardioversion* using 100 joules. If this fails to convert the dysrhythmia and the patient still has a pulse, Synchronized Cardioversion may be repeated as necessary, using, 200, 300 and 360 joules.

NOTE: When using a defibrillator for which the maximum joule setting is less than 360 joules, utilize equivalent cardioversion energies.

Further repeated attempts at synchronized cardioversion should be performed using the defibrillator's maximum setting in place of the energies noted above.

2. If Synchronized Cardioversion fails to convert the dysrhythmia, or the patient has stable Atrial Fibrillation or Atrial Flutter with a heart rate of 150 beats per minute or higher, contact Medical Control for implementation of one or more of the following Medical Control options:

MEDICAL CONTROL OPTIONS:

OPTION A: If complex width is narrow and blood pressure is normal or elevated, administer Diltiazem 0.25 mg/kg, IV bolus, slowly, over 2 minutes, monitoring blood pressure continuously.

OPTION B: Administer Amiodarone 150 mg, diluted in 100 ml D₅W over 10 minutes.

OPTION C: Transportation Decision.

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

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

505-C

**VENTRICULAR TACHYCARDIA WITH A PULSE/
WIDE COMPLEX TACHYCARDIA OF UNCERTAIN TYPE**

NOTE: In patients with pulseless ventricular tachycardia, see Sub-Protocol 503-A.

1. In patients with unstable ventricular tachycardia with a pulse, perform Synchronized Cardioversion* using 100 joules. If this fails to convert the dysrhythmia and the patient still has a pulse, Synchronized Cardioversion* may be repeated as necessary using 200, 300 and 360 joules.

NOTE: When using a defibrillator for which the maximum joule setting is less than 360 joules, utilize equivalent cardioversion energies.

Further repeated attempts at synchronized cardioversion should be performed using the defibrillator's maximum setting in place of the energies noted above.

2. Administer Amiodarone 150 mg, diluted in 100 ml D₅W over 10 minutes.
3. If Amiodarone fails to convert the dysrhythmia or the patient has evidence of low cardiac output, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS

OPTION A: Perform Synchronized Cardioversion* using 100 joules. If this fails to

convert the dysrhythmia and the patient still has a pulse, Synchronized Cardioversion may be repeated as necessary using 200, 300, and 360 joules.

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

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

OPTION D: Administer Sodium Bicarbonate 44 - 88 mEq, IV bolus, for pre-existing acidosis. Repeat doses of Sodium Bicarbonate 44 mEq, IV bolus, may be given every 10 minutes.

OPTION E: Transportation Decision.

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

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

505-D

BRADY DYSRHYTHMIAS and COMPLETE HEART BLOCK

1. If the patient has a ventricular rate of less than 60 beats/min and signs of decompensated shock:
 - a. Administer Atropine Sulfate 0.5 mg, IV bolus.
 - b. Begin Transcutaneous Pacing*.
2. If there is insufficient improvement in cardiac status, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

- OPTION A: Repeat Atropine Sulfate 0.5 mg, IV bolus every 3 – 5 minutes. (Maximum total dosage is 3 mg.)
- OPTION B: Administer Dopamine 2 mcg/kg/min, IV drip. If there is insufficient improvement in hemodynamic status, the infusion may be increased until the desired therapeutic effects are achieved or adverse effects appear. (Maximum dosage is 10 mcg/kg/min, IV drip.)
- OPTION C: In cases of hyperkalemia or Calcium Channel Blocker overdose administer Calcium Chloride (CaCl₂) 1 gm, **slowly**, IV bolus. Follow with a Normal Saline (0.9% NS) flush.
- OPTION D: Administer Sodium Bicarbonate 44 - 88 mEq, IV bolus, for pre-existing acidosis. Repeat doses of Sodium Bicarbonate 44 mEq, IV bolus, may be given every 10 minutes.
- OPTION E: Transportation Decision.

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

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

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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 1 – 2 mg, IV/IN bolus.

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

OPTION C: Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

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ASTHMA

In patients with acute asthma and/or active wheezing

1. Begin Basic Life Support Respiratory Distress procedures.
2. Administer Albuterol Sulfate 0.083% (one unit dose of 3 ml), by nebulizer, at a flow rate that will deliver the solution over 5 to 15 minutes. May be repeated until patient shows improvement.
3. Administer Ipratropium Bromide 0.02% (1 unit dose of 2.5 ml), by nebulizer, in conjunction with the first three (3) doses of Albuterol Sulfate.

NOTE: Albuterol Sulfate and Ipratropium Bromide shall be mixed and administered simultaneously, for a maximum of three doses.

Do not delay transport to administer additional nebulizer treatments.

4. In patients with signs of impending respiratory failure, administer Epinephrine 0.3 mg (0.3 ml of a 1:1,000 solution), IM.
5. Begin Cardiac Monitoring, record and evaluate EKG rhythm, in patients in severe respiratory distress with history of dysrhythmia or cardiac disease.
6. In patients in severe respiratory distress, begin an IV infusion of Normal Saline (0.9% NS) to keep vein open.
7. In patients with persistent severe respiratory distress, administer Magnesium Sulfate, 2 gm, IV, diluted in 50-100 ml Normal Saline (0.9% NS) over 10-20 minutes.
8. In patients with persistent severe respiratory distress, administer Methylprednisolone 125 mg, IV bolus, or IM,
OR
Administer Dexamethasone, 12 mg, IV bolus, or IM.
9. If the patient develops or remains in severe respiratory distress, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

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

OPTION B: Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

508

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

In patients in severe respiratory distress due to chronic obstructive pulmonary disease

1. Begin Basic Life Support Respiratory Distress procedures.
2. Begin Cardiac Monitoring, record and evaluate EKG rhythm.
3. Administer Albuterol Sulfate 0.083% (one unit dose of 3 ml), by nebulizer, at a flow rate that will deliver the solution over 5 - 15 minutes. May be repeated until patient shows improvement.
4. Administer Ipratropium Bromide 0.02% (1 unit dose of 2.5 ml), by nebulizer, in conjunction with the first three (3) doses of Albuterol Sulfate.

NOTE: Albuterol Sulfate and Ipratropium Bromide shall be mixed and administered simultaneously, for a maximum of three doses.

Do not delay transport to administer additional nebulizer treatments.

5. Begin an IV infusion of Normal Saline (0.9% NS) to keep vein open.
6. In patients with persistent severe respiratory distress, administer Methylprednisolone 125 mg, IV bolus, or IM,
OR
Administer Dexamethasone, 12 mg, IV bolus, or IM.
7. Transportation Decision

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

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.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

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) 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

- b) 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.*

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

511

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.

NOTE: A GLUCOMETER SHOULD 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.

3. Administer up to 25 gm Dextrose, IV/IO bolus.
4. In patients with diabetic histories where an IV route is unavailable, administer Glucagon 1 mg, IM or IN.
5. If an overdose is strongly suspected, and the patient's respiratory rate is less than 10/minute, administer Naloxone, titrate in increments of 0.5 mg up to response, up to 4 mg, IV/IO/IN/IM.

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 administration of up to 25 gm Dextrose, IV/IO 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.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

512

HYPERGLYCEMIA

(ADULT & PEDIATRIC PATIENTS)

1. Begin Basic Life Support Shock Measures.
2. If the patient is demonstrating signs of inadequate ventilation, perform Advanced Airway Management.
3. Use a glucometer to measure a blood glucose level.
4. For patients with blood glucose levels above 300 mg/dL who have altered mental status, tachypnea, or signs of dehydration; or any patient with a blood glucose level above 500 mg/dL or a glucometer reading of “high”:
 - a. For adult patients: Begin rapid IV infusion of Normal Saline (0.9% NS) or Ringer’s Lactate (RL) IV, up to a maximum of 1 liter.
 - b. For pediatric patients: Begin rapid IV infusion of Normal Saline (0.9% NS) or Ringer’s Lactate (RL), up to 20ml/kg (maximum of 1 liters).

*Accurate documentation of pre-arrival fluid administration is required.
5. Begin Cardiac Monitoring, record and evaluate EKG rhythm.
6. Transport decision.
7. Contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

OPTION A: For adult patients, administer one (1) additional liter of Normal Saline (0.9% NS) or Ringer’s Lactate (RL).

OPTION B: For pediatric patients, administer an additional bolus of 10 ml/kg (maximum of 1 liter) of Normal Saline (0.9% NS) or Ringer’s Lactate (RL).

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

513

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 infusion of Normal Saline (0.9% NS) to keep vein open.

NOTE: A GLUCOMETER SHOULD 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 up to 25 gm Dextrose, IV/IO bolus.
5. In patients with diabetic histories where an IV route is unavailable, administer Glucagon 1 mg, IM or IN.
6. 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 for generalized seizures that are ongoing or recurring.

OR

Administer Diazepam 5 mg, IV bolus. A single repeat dose of Diazepam 5 mg, IV-bolus, may be given for generalized seizures that are ongoing or recurring. (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-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 10 mg, IN or IM, if IV access is unavailable.

OPTION B: Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

515

NON-CARDIOGENIC SHOCK

1. Begin Basic Life Support Shock procedures.
2. If a tension pneumothorax is suspected, perform Needle Decompression. (See Appendix O.)
3. Begin rapid IV infusion of Normal Saline (0.9% NS) or Ringer's Lactate (RL) via one to two large bore (14 - 16) gauge catheters, up to 3 liters, via a macro-drip. **Consider using the intraosseous route if peripheral attempts have failed.**
4. Begin Cardiac Monitoring, record and evaluate EKG rhythm.
5. Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

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: 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.*

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

520

TRAUMATIC CARDIAC ARREST

NOTE: In 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.
2. If a tension pneumothorax is suspected, perform Needle Decompression. (See Appendix O.)
3. Perform Advanced Airway Management if other methods of airway control are not effective.
4. Excluding patients with penetrating chest trauma, begin cardiac monitoring, record and evaluate EKG rhythm. If the EKG demonstrates ventricular fibrillation or pulseless ventricular tachycardia, while in route, treat as per protocol 503A.
5. Begin rapid IV/IO infusion of Normal Saline (0.9% NS) or Ringer's Lactate (RL) via one or two large bore (14 -16 gauge) catheters, up to 3 liters, via a macro-drip.
6. Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

521

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

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

Repeat Diazepam 5 mg, IV 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.

* *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.*

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

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**CHEMICAL EYE INJURIES
(ADULT & PEDIATRIC PATIENTS)**

1. Begin Basic Life Support Eye Injuries procedures.
2. Assist the patient with removal of contact lens (if present).
3. If the patient is agitated or unable to hold eyelid open, instill Proparacaine HCl 0.5% solution or Tetracaine HCl 0.5% solution, 1-2 gtts, topically, into the affected eye(s) to facilitate irrigation. The initial dose may be repeated only once.
4. Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

528

**BURNS
(ADULT & PEDIATRIC PATIENTS)**

1. Begin Basic Life Support Burns procedures.
2. If there is evidence of burns to the upper airway or upper airway compromise is anticipated, perform Advanced Airway Management*.
3. For patients with electrical burns, begin Cardiac Monitoring, record and evaluate the EKG rhythm.
4. Begin Pulse Oximetry monitoring.
5. Begin an IV infusion of Normal Saline (0.9% NS) or Ringer's Lactate (RL) up to 2 liters, via a macro-drip, if transport is delayed or extended:
 - a. For adult patients: Begin rapid IV infusion of Normal Saline (0.9% NS) or Ringer's Lactate (RL) IV, up to a maximum of 1 liter.
 - b. For pediatric patients: Begin rapid IV infusion of Normal Saline (0.9% NS) or Ringer's Lactate (RL), up to 20ml/kg (maximum of 1 liters).

*Accurate documentation of pre-arrival fluid administration is required.

6. For patients who are experiencing severe pain

NOTE: FOR PATIENTS WITH BURNS INVOLVING THE FACE AND/OR AIRWAY, CONSULTATION WITH ON-LINE MEDICAL CONTROL IS REQUIRED PRIOR TO ADMINISTRATION OF ANALGESICS.

- a. Administer Morphine Sulfate, for patients with a systolic blood pressure greater than 110mmHg, 0.1mg/kg (not to exceed 5mg), IV/IO/IM. For continued pain, repeat dose of 0.1mg/kg (not to exceed 5mg) may be repeated five minutes following the initial dose. (Maximum total dose is 10mg.)

OR

- b. Administer Fentanyl 1mcg/kg (maximum total dose is 100mcg.), IV/IO/IN/IM, if available.

NOTE: If hypoventilation develops, administer Naloxone, titrate in increments of 0.5 mg up to response, up to 4 mg, IV/IO/IN/IM.

MEDICAL CONTROL OPTIONS:

OPTION A: 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.*

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

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**PAIN MANAGEMENT FOR ISOLATED EXTREMITY INJURY
(ADULT & PEDIATRIC PATIENTS)**

For patients with isolated extremity injury, if there is severe pain

NOTE: If mechanism of injury (e.g., pedestrian struck) suggests that there may be other injuries, transport should begin and pain management be done enroute after consultation with On-Line Medical Control.

1. Begin Basic Life Support Procedures.
 2. Begin Cardiac Monitoring, record and evaluate EKG rhythm.
 3. Begin Pulse Oximetry monitoring.
 4. Begin an IV infusion of Normal Saline (0.9% NS) at a KVO rate.
 5. Monitor vital signs every 5 minutes.
 6. For patients who are experiencing severe pain:
 - a. Administer Morphine Sulfate, for patients with a systolic blood pressure greater than 110mmHg, 0.1mg/kg (not to exceed 5mg), IV/IO/IM. For continued pain, repeat dose of 0.1mg/kg (not to exceed 5mg) may be repeated five minutes following the initial dose. (Maximum total dose is 10mg.)
- OR
- b. Administer Fentanyl 1mcg/kg (maximum total dose is 100mcg), IV/IO/IN/IM, if available.

NOTE: If hypoventilation develops, administer Naloxone, titrate in increments of 0.5 mg up to response, up to 4 mg, IV/IO/IN/IM.

MEDICAL CONTROL OPTIONS:

OPTION A: Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

530

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:
 - 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 GLUCOSE, FRUIT JUICE OR SODA.

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	10 mg
		Lorazepam	IntraMUSCULAR	4 mg
Option C	IN or IV Benzodiazepines	Diazepam	IV bolus	5-10 mg
		Midazolam	IntraNASAL	5 mg
		Lorazepam	IV bolus IntraNASAL	2 mg

OPTION D: Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

531

SEVERE NAUSEA / VOMITING

For adult and pediatric patients with persistent vomiting or severe nausea

1. Begin Basic Life Support Abdominal Pain procedures.
2. Begin an IV infusion of Normal Saline (0.9% NS).
3. Monitor vital signs every 5 minutes.
4. Consider and treat, as per the appropriate protocol, underlying causes of the patient's nausea/vomiting (i.e. Poisoning, Myocardial Ischemia, etc).
5. Administer Ondansetron 0.1mg/kg (not to exceed 4mg), IV bolus, slowly over 1-2 minutes. For continued vomiting, a repeat dose of 0.1mg/kg (not to exceed 4mg) may be administered. (Maximum total dose is 8mg.)

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

540

OBSTETRIC COMPLICATIONS

For patients with severe pre-eclampsia, eclampsia or post-partum hemorrhage

NOTE: Severe pre-eclampsia is characterized by a systolic blood pressure of 160 mm Hg or higher, a diastolic blood pressure of 110 mm Hg or higher, and/or severe headaches, visual disturbances, acute pulmonary edema, or upper abdominal tenderness.

1. Begin Basic Life Support Obstetric Emergencies procedures.
2. Begin an IV infusion of Normal Saline (0.9% NS) to keep vein open.
3. Contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

OPTION A: For severe pre-eclampsia or eclampsia, administer Magnesium Sulfate 2 gm, IV drip, diluted in 50 - 100 ml of Normal Saline (0.9% NS), over 10 - 20 minutes. If seizures develop, continue, or recur in transport, repeat Magnesium Sulfate 2 gm, IV drip, diluted in 100 ml of Normal Saline (0.9% NS), over 10 - 20 minutes.

OPTION B: Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

543

NEONATE RESUSCITATION

1. Begin Basic Life Support Neonatal Resuscitation procedures.
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.

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. Do not attempt vascular access more than twice.
6. Begin an IV 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 or IO, every 3-5 minutes.
8. Transport Decision

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

550

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 0.5 mg, IN/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. (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.
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. Attempt vascular access no more than twice.

OPTION C: Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

551

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.

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, deflate 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, re-inflate the Endotracheal Tube cuff and attempt ventilation again
 - f. If unable to effectively ventilate the patient using the above maneuvers, immediately initiate transport
5. Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

552

PEDIATRIC CROUP/EPIGLOTTITIS

1. Begin Basic Life Support Pediatric Croup/Epiglottitis procedures.

NOTE: Do not attempt advanced airway management. Use high pressure bag-valve-mask or mouth-to-mask ventilation.

During transport, or if transport is delayed:

2. If abdominal distention occurs, pass a Nasogastric Tube. If unsuccessful, pass an Orogastic Tube.

NOTE: Do not attempt to pass a nasogastric or orogastric tube in a conscious patient.

3. Transportation Decision.

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

553

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 joules/kg, using pads 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:
 - a. Immediately repeat Defibrillation at 10 joules/kg, using pads of appropriate size. (Refer to Length Based Dosing Device)
5. 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.

6. Perform Advanced Airway Management if less invasive methods of airway management are not effective.

During transport, or if transport is delayed:

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

ADVANCED EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) PROTOCOLS

NOTE: The IV 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).

12. 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 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 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)

OPTION D: Administer Sodium Bicarbonate 1 mEq/kg, IV 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, or IO.

OPTION F: Begin rapid IV, 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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PEDIATRIC ASTHMA/WHEEZING

For pediatric patients with acute asthma and/or active wheezing:

1. Begin Basic Life Support Pediatric Respiratory Distress/Failure procedures.
2. Administer Albuterol Sulfate 0.083% (one unit dose of 3 ml), by nebulizer, at a flow rate that will deliver the solution over 5 – 15 minutes. (Refer to Length Based Dosing Device) May be repeated twice during transport (total of 3 doses).
3. Administer Ipratropium Bromide 0.02% (one unit dose of 2.5 ml in children 6 years of age or older, one half unit dose of 2.5 ml in children under 6 years of age), by nebulizer, in conjunction with each Albuterol Sulfate dose. (Refer to Length Based Dosing Device)
4. In patients one (1) year of age or older with severe respiratory distress, respiratory failure, and/or decreased breath sounds, administer Epinephrine 0.01 mg/kg (0.01 ml/kg of a 1:1,000 solution), IM. Maximum dose is 0.3 mg. (Refer to Length Based Dosing Device)

NOTE: Severe respiratory distress in a child is characterized by markedly increased respiratory effort, i.e., severe agitation, dyspnea, tripod position, and suprasternal and substernal retractions.

A silent chest is an ominous sign that indicates respiratory failure and arrest are imminent.

During transport, or if transport is delayed:

5. If the patient develops or remains in severe respiratory distress or respiratory failure, and/or continues to have decreased breath sounds, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

- OPTION A: Repeat Albuterol Sulfate 0.083% (one unit dose of 3 ml), by nebulizer, at a flow rate that will deliver the solution over 5 to 15 minutes. (Refer to Length Based Dosing Device).
- OPTION B: Administer, or repeat 20 minutes after the initial dose, Epinephrine 0.01 mg/kg (0.01 ml/kg of a 1:1,000 solution), IM. (Refer to Length Based Dosing Device)
- OPTION C: Begin an IV infusion of Normal Saline (0.9% NS) to keep vein open. Attempt IV no more than twice.
- OPTION D: Transportation Decision.

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PEDIATRIC ANAPHYLACTIC REACTION

1. Begin Basic Life Support Anaphylactic Reaction procedures.
2. If the patient develops signs of respiratory failure, airway obstruction, or decompensated shock, perform Endotracheal Intubation, and administer Epinephrine 0.01 mg/kg (0.1 ml/kg of a 1:10,000 solution), via the Endotracheal Tube. (Refer to Length Based Dosing Device)
3. If Endotracheal Intubation cannot be accomplished, administer Epinephrine 0.01 mg/kg (0.01 ml/kg of 1:1,000 solution), IM. Maximum dose is 0.3 mg (0.3 ml of a 1:1,000 solution.) (Refer to Length Based Dosing Device)

During transport, or if transport is delayed:

4. If abdominal distention occurs, pass a Nasogastric Tube. If unsuccessful, pass an Orogastic Tube.
5. If the patient develops or remains in decompensated shock, 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: Begin an IV or IO infusion of Normal Saline (0.9% NS) via a large bore IV (18-22 gauge) or IO catheter to keep the vein open. Attempt vascular access no more than twice.

OPTION C: Begin rapid IV or IO infusion of Normal Saline (0.9% NS), 20 ml/kg. Repeat as necessary. (Refer to Length Based Dosing Device)

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, titrate in increments of 0.5 mg up to response, up to 2 mg, IN/IM in patients two (2) years of age or older. 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.

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PEDIATRIC SEIZURES

For patients experiencing seizures that are ongoing or recurring

1. Begin Basic Life Support Seizures procedures.

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.

2. Administer Glucagon 1 mg, IM or IN.
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.)

NOTE: THE MIDAZOLAM DOSAGE LISTED ON THE LENGTH BASED DOSING DEVICE FOR INDUCTION (Pre-Intubation) MAY NOT BE USED FOR SEIZURES.

During transport, or if transport is delayed:

4. Begin an IV or IO infusion of Normal Saline (0.9% NS) to keep vein open. Attempt vascular access no more than twice.
5. 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)
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 0.1 mg/kg, IV/IN or IO bolus, slowly, over 2 minutes. Repeat doses of Lorazepam 0.1 mg/kg, IV/IN or IO bolus, slowly, over 2 minutes, may be given if seizures persist. (Refer to Length Based Dosing Device)

OR

Administer Diazepam 0.2 mg/kg, IV or IO bolus, slowly, over 2 minutes. Repeat doses of Diazepam 0.2 mg/kg, IV or IO bolus, slowly, over 2 minutes, may be given if seizures persist. (Refer to Length Based Dosing Device)

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OPTION B: If IV or IO access has not been established, repeat administration of Midazolam 0.2 mg/kg, IM or IN. IN is the preferred route of administration. (Maximum repeated dose is 5 mg.)

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

OPTION C: Transportation Decision.

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PEDIATRIC DECOMPENSATED SHOCK

For pediatric patients in decompensated shock

NOTE: Patients in compensated shock should not be treated under this protocol.

1. Begin Basic Life Support Pediatric Shock procedures.
2. If signs of hemorrhage or dehydration are not present, begin Cardiac Monitoring, record and evaluate EKG rhythm.

NOTE: For patients in supraventricular tachycardia or ventricular tachycardia with a pulse and with evidence of low cardiac output, proceed to medical control options.

During transport, or if transport is delayed:

3. Begin rapid IV 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. Attempt vascular access no more than twice. (Refer to Length Based Dosing Device)
4. If signs of hemorrhage or dehydration are present, and the patient remains in decompensated shock, 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 40 ml/kg), via a second large bore IV (18-22 gauge) catheter, if necessary. Attempt second IV no more than twice. (Refer to Length Based Dosing Device).
5. If the patient still remains in decompensated shock, contact Medical Control for implementation of one or more of the following MEDICAL CONTROL OPTIONS:

MEDICAL CONTROL OPTIONS:

OPTION A: If signs of hemorrhage or dehydration are still present, 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: If transport is delayed or extended, and:

- a. If in supraventricular tachycardia or ventricular tachycardia with a pulse, with evidence of low cardiac output, and the Defibrillator is able to deliver calculated dose, perform Synchronized Cardioversion at 0.5-1 joules/kg, using paddles of appropriate size. If this fails to convert the dysrhythmia, Synchronized Cardioversion may be repeated at 1-2 joules/kg, using paddles of appropriate size.

NOTE: Do not perform synchronized cardioversion in pediatric patients with supraventricular tachycardia or ventricular tachycardia with a pulse unless the defibrillator is able to deliver calculated dose.

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- b. If in supraventricular tachycardia with evidence of low cardiac output, but the Defibrillator is not able to deliver calculated dose, administer Adenosine 0.1 mg/kg, IV or IO bolus, rapidly, followed by 2 - 3 ml of Normal Saline (0.9% NS) flush. (Maximum initial dose is 6 mg.) If this fails to convert the dysrhythmia, Adenosine may be repeated twice at 0.2 mg/kg, IV or IO bolus, rapidly, followed by 2 - 3 ml Normal Saline (0.9% NS) flush. (Maximum subsequent doses are 12 mg.)

OPTION C: Transportation Decision.

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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 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 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. 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 Orogastic 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 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 (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.