

# Nassau Regional Emergency Medical Services



Advanced Life Support  
Pediatric Protocol Manual

2016

5/1/16

# Nassau Regional Emergency Medical Services



## PEDIATRIC ADVANCED LIFE SUPPORT PROTOCOLS

### TABLE OF CONTENTS

---

		<u>Approved</u>	<u>Effective</u>
Newborn Resuscitation—————→	P 1	<b>2/3/16</b>	<b>5/01/16</b>
Respiratory Arrest—————→	P 2	10/30/13	4/01/14
Obstructed Airway—————→	P 3	10/30/13	4/01/14
Respiratory Distress / Failure (Croup/Epiglottitis) —————→	P 4	10/30/13	4/01/14
Non-Traumatic Cardiac Arrest —————→	P 5	10/30/13	4/01/14
Asthma/Wheezing —————→	P 6	10/30/13	4/01/14
Anaphylactic Reaction—————→	P 7	10/30/13	4/01/14
Altered Mental Status—————→	P 8	<b>2/3/16</b>	<b>5/01/16</b>
Status Eilepticus —————→	P 9	<b>2/3/16</b>	<b>5/01/16</b>
Decompensated Shock —————→	P 10	10/30/13	4/01/14
Traumatic Cardiac Arrest —————→	P 11	<b>2/3/16</b>	<b>5/01/16</b>

*A "length/weight based" dosing device should be used on all pediatric patients to assure the correct administration of medications.*

**Latest revisions are in BOLD print**

# Nassau Regional Emergency Medical Services



<b>Pediatric ALS Protocols</b>	<b>NEWBORN RESUSCITATION</b>	<b>Protocol P1</b>
		Revised: 2/3/16
		Effective: <b>5/01/16</b>

**Suction immediately after birth ONLY if there is an obvious obstruction to spontaneous breathing or positive-pressure ventilation is necessary.**

### **Standing Orders**

- BLS Newborn Resuscitation procedures.
- If newborn is depressed and meconium staining is present, delay drying and stimulation. Suction airway before taking other resuscitative measures.
- Begin Newborn Resuscitation procedures only after the airway has been cleared of thick meconium, as follows:
  - Perform endotracheal intubation and directly suction the endotracheal tube via a meconium aspirator/adaptor while slowly withdrawing the endotracheal tube.  
*Note: Do not exceed 100-mmHg suction vacuum*
  - Repeat this procedure until little or no meconium is acquired or until the heart rate indicates resuscitation must begin immediately.
  - Do not replace the endotracheal tube once the airway has been cleared of thick meconium unless obstruction continues.

**For all newborns requiring resuscitation once BLS Newborn Resuscitation procedures have begun:**

### **During transport, or if transport is delayed:**

- If the newborn appears to be in respiratory distress and the heart rate is below **120** BPM, administer oxygen in as high a concentration as possible.
- If the newborn appears to be in respiratory distress and the heart rate is below **100** BPM, ventilate via BVM or mouth-to-mask with oxygen attached.
- If the newborn appears to be in respiratory distress and the heart rate is below **60** BPM, ventilate via BVM or mouth to mask, **begin CPR**, administer:
- Epinephrine 1:10,000 0.01 mg/kg via IV / IO

*Note: It is recommended to use 3-lead ECG to verify heart rate*

### **MEDICAL CONTROL OPTIONS**

- Repeat Epinephrine every 3-5 minutes
- Endotracheal Intubation
- Epinephrine 1:1000 0.1 mg/kg via Endotracheal tube
- Check for Blood Glucose < 60 mg/dl
- IV / IO infusion of Normal Saline (0.9% NaCl) 10 ml/kg.  
*Reassess & document after each bolus. Attempt IV or IO only once each.*

# Nassau Regional Emergency Medical Services



<b>Pediatric ALS Protocols</b>	<b>PEDIATRIC RESPIRATORY ARREST</b>	<b>Protocol P2</b>
		Approved: 10/30/13
		Effective: 4/01/14

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

## **Standing Orders**

- Open airway and begin ventilation as per BLS Pediatric Respiratory Distress/Failure procedures. If narcotic overdose is suspected, refer AMS protocol (P8)
- If an obstructed airway is suspected, refer obstructed airway protocol. (P3)
- Perform endotracheal intubation if BLS measures are not adequate.  
*Consider a supraglottic airway*
- I.V. of Normal Saline (0.9% NaCl) KVO or a saline lock

## **Paramedic** \_\_\_\_\_

*During transport or if transport is delayed*

- Administer Naloxone,  
Patients  $\geq 2$  years old - titrate in increments of 0.1mg/kg- until effective (max 2 mg)  
Patients  $< 2$  years old - titrate to (max 1 mg)

---

## **MEDICAL CONTROL OPTIONS:**

- IO infusion of Normal Saline (0.9% NaCl).
- Naloxone IV/ IO / ET / IN / IM as directed.  
(No more than 2 attempts at vascular access)

*Paramedic - If a tension pneumothorax is suspected consider orders to perform needle decompression, using an 18-20 gauge catheter*

# Nassau Regional Emergency Medical Services



<b>Pediatric ALS Protocols</b>	<b>PEDIATRIC OBSTRUCTED AIRWAY</b>	<b>Protocol P3</b>
		Approved: 10/30/13
		Effective: 4/01/14

For pediatric patients who are unconscious or present with signs & symptoms of inadequate air exchange:

## **Standing Orders**

- Begin BLS Pediatric Obstructed Airway procedures.
- Perform direct laryngoscopy - attempt to remove the foreign body with appropriate size Magill Forceps.

### ***NOTE:***

***IF AN ENLARGED EPIGLOTTIS IS VISUALIZED - DO NOT ATTEMPT ENDOTRACHEAL INTUBATION. USE BAG-VALVE-MASK (w/ pop-off disabled)***

- Perform endotracheal intubation, if BLS measures are not adequate.  
*Consider a supraglottic airway*

## **Paramedic**

*If unable to ventilate despite confirmed intubation by direct visualization:*

- Note the endotracheal tube depth
- Deflate cuff (if cuffed tube is used)
- Advance tube to its deepest depth - and return to original depth
- Re-inflate tube cuff and attempt ventilation
- If unable to ventilate effectively - immediately initiate transport

---

## **MEDICAL CONTROL OPTIONS:**

*Paramedic - If a tension pneumothorax is suspected consider orders to perform needle decompression, using an 18-20 gauge catheter*

# Nassau Regional Emergency Medical Services



Pediatric ALS Protocols	<b>PEDIATRIC RESPIRATORY DISTRESS</b> or Suspected Croup / Epiglottitis	<b>Protocol P4</b>
		Approved: 10/30/13
		Effective: 4/01/14

## Standing Orders

- Begin BLS Pediatric Respiratory Distress / Failure procedures.
- If child is alert and oriented, transport in position of comfort with parent.  
Offer cool mist 100% Oxygen if child will allow.
- If child presents with signs & symptoms of inadequate air exchange, refer to protocol (P3)

---

**NOTE: DO NOT ATTEMPT ENDOTRACHEAL INTUBATION. USE BAG-VALVE-MASK**

---

## MEDICAL CONTROL OPTIONS:

- Racemic Epinephrine, 0.05 mg/kg in 3cc 0.9% saline (Max. 5 ml) via Nebulizer  
*(if unavailable, Epinephrine may be used at the same nebulizer dose)*
- Consider Endotracheal Intubation in acute epiglottitis with an ET tube one mm smaller than calculated.
- Dexamethasone (Decadron) 0.6 mg/kg IV / IO
- Methylprednisolone (Solu-Medrol) 2 mg/kg IV / IO (max 60 mg)

*Paramedic - If child is in respiratory arrest, perform needle cricothyrotomy.*

# Nassau Regional Emergency Medical Services



<b>Pediatric ALS Protocols</b>	<b>NON-TRAUMATIC CARDIAC ARREST</b>	<b>Protocol P5</b>
		Approved: 10/30/13
		Effective: 4/01/14

## Standing Orders

- Begin BLS Pediatric Cardiac Arrest procedures. Initiate CPR  
Perform endotracheal intubation, if BLS airway measures are not adequate.
- Cardiac Monitoring.
  - If in ventricular fibrillation or pulseless ventricular tachycardia, immediately defibrillate at 2 joules/kg. Resume CPR immediately. - (2 min.)
  - If still in ventricular fibrillation or pulseless ventricular tachycardia, immediately repeat defibrillation at 4 joules/kg. Resume CPR immediately - (2 min.)
  - Epinephrine 1:10,000 **0.01** mg/kg via IV or IO (Repeat every 3-5 minutes)
    - **OR** Epinephrine 1:1,000 **0.1** mg/kg via ET (only if no IV/IO) (Repeat every 3-5 minutes)
  - If still in ventricular fibrillation or pulseless ventricular tachycardia, immediately repeat defibrillation at 4 joules/kg. Resume CPR immediately - (2 min.)
- **Begin transport**
- IV or IO infusion of Normal Saline (0.9% NaCl) KVO.
- Contact Medical Control for additional medication orders.

## MEDICAL CONTROL OPTIONS:

- Increase energy settings up to 10 joules / Kg
- Amiodarone 5mg/kg IV/ IO if V-Tach or V-Fib (max. 300mg)
  - OR**
  - Lidocaine 1 mg/kg rapid IV/IO push if Amiodarone is not available.
- Dextrose **D10**
- Sodium Bicarbonate 1 mEq/Kg IV/IO/saline lock.
- Magnesium Sulfate 25-50 mg/kg (max. 2g) - *for Torsades*

# Nassau Regional Emergency Medical Services



Pediatric ALS Protocols	<b>PEDIATRIC ASTHMA/WHEEZING</b>	<b>Protocol P6</b>
		Approved: 10/30/13
		Effective: 4/01/14

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

## Standing Orders

- Begin BLS Pediatric Respiratory Distress/Failure procedures.
- Administer Albuterol Sulfate 0.083% -one unit dose of 3 ml - via nebulizer.  
patients < 6 months - 1/2 unit dose  
If no response, 2nd unit dose to follow immediately.  
If still no response, contact medical control immediately.
- Administer Ipratropium Bromide 0.02% (one unit dose of 2.5 ml for children ≥ 6 years)  
(1/2 unit dose of 2.5 ml for children under 6), via nebulizer in conjunction with each  
Albuterol Sulfate dose.

*Patients ≥ 1 year, with severe respiratory distress, respiratory failure, and/or decreased breath sounds*

- Epinephrine 1:1000 0.01 mg/kg **IM** (max. 0.3 mg)
- Intubation
- Consider IV/IO and rapid transport - if Patient unstable.

---

## MEDICAL CONTROL OPTIONS:

- IV infusion of Normal Saline (0.9% NaCl) KVO, IV/ IO
- Repeat Albuterol Sulfate via nebulizer.
- Repeat Ipratropium Bromide 0.02% by nebulizer.
- Repeat Epinephrine 1:1,000 0.01 mg/kg **IM** (max 0.3 mg)
- Methylprednisolone (Solu-Medrol) 2 mg/kg IV/IO (max 60 mg)



# Nassau Regional Emergency Medical Services



Pediatric ALS Protocols	<b>PEDIATRIC ANAPHYLACTIC REACTION</b>	<b>Protocol P7</b>
		Approved: 10/30/13
		Effective: 4/01/14

## Standing Orders

- Begin BLS Anaphylactic Reaction procedures.
- Epinephrine 1:1000 0.01 mg/kg **IM** (max. 0.3 mg)  
*or*
- Epinephrine Autoinjector JR. 0.15 mg IM
- Administer Albuterol Sulfate 0.083% one unit dose of 3 ml - via nebulizer. - *if wheezing*  
patients < 6 months - 1/2 unit dose

*If patient develops signs of respiratory failure or airway obstruction:*

- Endotracheal intubation
- **Initiate rapid transport.**

## Paramedic \_\_\_\_\_

- Diphenhydramine 1mg/kg IV/ IO / IM

*During transport, or if transport is delayed:*

- IV infusion of Normal Saline (0.9% NaCl) via a large bore IV (18-22 gauge) to keep the vein open, or a saline lock.
- **IF PATIENT IS IN ANAPHYLACTIC SHOCK** and IV cannot be established,  
IO infusion of Normal Saline (0.9% NaCl) at KVO rate.

---

## MEDICAL CONTROL OPTIONS:

- Repeat any of the above standing orders.
- Begin rapid IV or IO infusion of Normal Saline (0.9% NaCl), 20 ml/kg.  
*Repeat as necessary.*
- Methylprednisolone (Solu-Medrol) 2 mg/kg IV/IO (max 60 mg)

# Nassau Regional Emergency Medical Services



<b>Pediatric ALS Protocols</b>	<b>PEDIATRIC ALTERED MENTAL STATUS</b>	<b>Protocol P8</b>
		Revised: 2/3/16
		Effective: <b>5/01/16</b>

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 FIRST 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.

## Standing Orders

- Assess respiratory and circulatory status.
- Begin BLS Altered Mental Status procedures.
- IV of Normal Saline (0.9% NaCl) KVO, or a saline lock. Attempt IV only once.

***Perform a glucometer test for blood sugar level. If less than 60 mg/dL administer dextrose or glucagon and continue to monitor as needed after administration.***

- Dextrose **D10** IV / IO - (0.5 gm/kg)
- OR**
- Glucagon 0.1 mg/kg IM / IN (if no IV established).

---

## MEDICAL CONTROL OPTIONS:

- Repeat any of the above orders.
- IO infusion of Normal Saline (0.9% NaCl).
- Naloxone 0.1mg/kg IV / IO / IM / IN - *if there is no change in mental status*
- Transport to a Pediatric specialty receiving facility

# Nassau Regional Emergency Medical Services



<b>Pediatric ALS Protocols</b>	<b>PEDIATRIC STATUS EPILEPTICUS</b>	<b>Protocol P9</b>
		Revised: 2/3/16
		Effective: <b>5/01/16</b>

For pediatric patients in Status Epilepticus:

## Standing Orders

- Begin BLS Seizures procedure - cardiac monitor, pulse oximetry, waveform capnography.

***Perform a glucometer test for blood sugar level. If  $\leq 60$  mg/dL:***

- IV / IO infusion of Normal Saline (0.9% NaCl) KVO
- Dextrose **D10** IV / IO - (0.5 gm/kg)

**OR**

- Glucagon 0.1 mg/kg IM/IN (if no IV established).

## Paramedic

---

***If patient is still seizing or blood sugar is normal:***

- Midazolam 0.2 mg/kg IM / IN (max. 5 mg) *Note: IN route is preferred*

***If seizures persist - contact Medical control of options.***

---

## **MEDICAL CONTROL OPTIONS:**

- IO infusion of Normal Saline (0.9% NaCl).
- Midazolam 0.2 mg/kg IM / IN (max. 5 mg) - *Note: IN route is preferred*
- Lorazepam 0.05 mg/kg IV/ IN/ IO (*slowly over 2 minutes*)  
*Repeat doses may be given if seizures persist*
- Diazepam 0.1 mg/kg IV/ IO (*slowly over 2 minutes*)  
*Repeat doses may be given if seizures persist*

***If NO IV / IO:***

- Repeat Midazolam 0.2 mg/kg IM / IN (max. 5 mg)
- Diazepam 0.1 mg/kg per rectum

***NOTE: DO NOT ADMINISTER DIAZEPAM or MIDAZOLAM IF THE SEIZURES HAVE STOPPED.***

***FLUSH IV LINE BETWEEN GLUCOSE AND DIAZEPAM or MIDAZOLAM***

# Nassau Regional Emergency Medical Services



Pediatric ALS Protocols	<b>PEDIATRIC DECOMPENSATED SHOCK</b>	<b>Protocol P10</b>
		Approved: 10/30/13
		Effective: 4/01/14

## Standing Orders

- Begin BLS Pediatric Shock procedures.
- If signs of hemorrhage or dehydration are not present, begin Cardiac Monitoring.

### **If adrenal cortical insufficiency (Addison's) / hyperplasia is confirmed \***

- Hydrocortisone Sodium Succinate (Solu-Cortef) 2mg/kg IV/IO (*max.100mg*)

**NOTE: FOR PATIENTS IN SUPRAVENTRICULAR TACHYCARDIA OR VENTRICULAR TACHYCARDIA WITH A PULSE, AND WITH EVIDENCE OF LOW CARDIAC OUTPUT, CONTACT MEDICAL CONTROL FOR OPTIONS.**

## **During transport, or if transport is delayed:**

- Begin rapid IV Bolus of Normal Saline (0.9% NaCl) 20 ml/kg, via a large-bore IV (18-22 gauge) or IO catheter. Attempt IV or IO only once each.
- If signs of hemorrhage or dehydration are present, and the patient remains in decompensated shock, begin second large bore IV and repeat bolus up to an additional 20 ml/kg, (total of 40 ml/kg), Attempt second IV only once.

---

## **MEDICAL CONTROL OPTIONS:**

- Begin IO infusion
- Continue rapid IV or IO bolus of Normal Saline (0.9% NaCl) up to an additional 20 ml/kg (total of 60 ml/kg).
- Hydrocortisone Sodium Succinate (Solu-Cortef) 2mg/kg IV/IO (*max.100mg*)
- If transport is delayed or extended, and the patient presents with:
  1. Supraventricular tachycardia or ventricular tachycardia with a pulse, with evidence of low cardiac output, perform synchronized cardioversion at 0.5-1 joules/kg, using pediatric pads. If necessary, repeat at 1-2 joules/kg.
  2. Supraventricular tachycardia with evidence of low cardiac output, *if the Defibrillator is not able to deliver a calculated dose*, administer Adenosine 0.1 mg/kg, rapid IV or IO bolus (not to exceed 6 mg), followed immediately by 5-10 ml of Normal Saline (0.9% NaCl) flush. If necessary, Adenosine may be repeated at 0.2 mg/kg, rapid IV or IO bolus (not to exceed 12 mg), followed immediately by 5-10 ml Normal Saline (0.9% NaCl) flush.

# Nassau Regional Emergency Medical Services



<b>Pediatric ALS Protocols</b>	<b>PEDIATRIC TRAUMATIC CARDIAC ARREST</b>	<b>Protocol P11</b>
		Revised: 2/3/16
		Effective: <b>5/01/16</b>

## **Standing Orders:**

- Initiate BLS stabilization procedures
- Perform Airway Management (use caution with possible C-spine injury)
- **Begin rapid transport**
- Establish IV or IO access, administer bolus Normal Saline (0.9% NaCl)  
(no more than 60 cc/Kg unless ordered by Medical Control)
- Monitor ECG
- If continued signs of inadequate perfusion persist repeat second IV bolus of up to 60cc/Kg

---

## **Medical Control Options:**

- Continue Normal Saline (0.9% NaCl) IV Drip beyond 60 cc/Kg
- Hospital Diversion
- Epinephrine 1:10,000 0.01 mg/kg IV/IO

*Paramedic - If a tension pneumothorax is suspected consider orders to perform needle decompression, using an 18-20 gauge catheter*