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# P E D I A T R I C P R O T O C O L S

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**\* STANDING ORDERS**

1. Initiate Routine Medical Care
2. If airway is obstructed, **DIRECT LARYNGOSCOPY** and remove foreign body using Magill forceps
3. If a tension pneumothorax is suspected, perform **NEEDLE DECOMPRESSION**.
4. If basic life support airway management cannot maintain adequate ventilation and oxygen saturation, initiate **ADVANCED AIRWAY MANAGEMENT**
5. If patient needs facilitated advanced airway management, **CONTACT MEDICAL CONTROL**
6. If unable to manage airway using basic or advanced airway procedures due to an obstruction, perform **NEEDLE CRICOTHYROTOMY**
7. Continuous EKG, pulse oximetry and wave-form capnography.

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** MEDICAL CONTROL OPTIONS**

- Repeat of any of the above standing orders.
- For **FACILITATION** of ETT consider the following:
  - **DIAZEPAM** 0.1 mg/kg slow IVP or IO
  - **ETOMIDATE** 0.3 mg/kg IV or IO
  - **MIDAZOLAM** 0.1 mg/kg IV or IO (maximum dose 5 mg)
  - **MORPHINE SULFATE** 0.1 mg/kg IV or IO (maximum dose 10 mg)
- **LIDOCAINE** 1 - 2 mg/kg IV or IO before ETT

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**\* STANDING ORDERS**

1. Initiate Routine Medical Care
2. **PULSE OXIMETRY**; measure **PEAK FLOW** if possible.
3. Administer one (1) unit dose of **ALBUTEROL** 2.5 mg plus one (1) unit dose of **IPRATROPIUM** 0.5 mg via nebulizer, followed by measuring **PEAK FLOW** if possible; may repeat once if needed.

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** MEDICAL CONTROL OPTIONS**

- Repeat of any of the above standing orders.
- **DEXAMETHASONE** 0.6 mg/kg IM
- **EPINEPHRINE** 1:1,000 0.01 mg/kg IM (maximum single dose 0.3 mg); repeat as directed.
- **MAGNESIUM SULFATE** 50 mg/kg IV or IO over 5 minutes (maximum dose 2 gm).
- **METHYLPREDNISOLONE** 2 mg/kg IV or IO over 2 minutes.

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**\* STANDING ORDERS**

1. Initiate Routine Medical care, **EXCEPT:**
  - a) If the patient has **STRIDOR** or **DROOLING**, **DO NOT** agitate or stimulate the patient. **DO NOT** initiate IV or IO access without contacting **MEDICAL CONTROL**.
2. Administer **EPINEPHRINE** 1:1,000 3 ml nebulized, or **RACEMIC EPINEPHRINE** 2.25% 0.5 ml in 3 ml 0.9% Normal Saline nebulized, if available.
3. Transport patient in position of comfort.

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** MEDICAL CONTROL OPTIONS**

- Any **PARENTERAL** access.
- **DEXAMETHASONE** 0.6 mg/kg IM.
- **METHYLPREDNISOLONE** 1 – 2 mg/kg in 50 ml 0.9% Normal Saline IV or IO over 2 minutes.

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**\* STANDING ORDERS**

1. Initiate Routine Medical Care
2. Obtain a **12 LEAD EKG** as directed in each cardiac sub-protocol.
3. Follow the appropriate sub-protocol (**a**):
  - a) **Bradycardia: P - 4.1**
  - b) **Narrow Complex Tachycardia: P - 4.2**
  - c) **Wide Complex Tachycardia - Unstable: P - 4.3**
  - d) **Wide Complex Tachycardia - Stable: P - 4.4**

**FOR ALL CARDIAC RELATED PRESENTING PROBLEMS**

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**☑ NOTE**

- a. Remember to search for and treat (if possible) any likely contributing factors: Hypovolemia, Hypoxia, Hydrogen Ion (Acidosis), Hypo/Hyperkalemia, Hypoglycemia, Hypothermia, Toxins, Tamponade, Tension Pneumothorax, Thrombosis, and Trauma.

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**\* STANDING ORDERS**

1. IF SIGNS OR SYMPTOMS OF **CARDIO-RESPIRATORY COMPROMISE (a)** CAUSED BY THE BRADYCARDIA:
  - a) If despite adequate oxygenation and ventilation the pulse remains less than 60 BPM, **BEGIN CPR.**
  - b) **EPINEPHRINE** 1:10,000 0.01 mg/kg IV or IO; repeated every 3 - 5 minutes.
  - c) If increased vagal tone, or primary AV Block, administer **ATROPINE** 0.02 mg/kg IV or IO, minimum dose 0.1mg, maximum single dose:
    - 0.5 mg for children
    - 1 mg for adolescentsIf inadequate response, may repeat once.
  - d) Consider **TRANSCUTANEOUS PACING; CONTACT MEDICAL CONTROL** for sedation orders.
  - e) If pacing is ineffective, **CONTACT MEDICAL CONTROL.**
2. IF SIGNS OR SYMPTOMS OF **ADEQUATE PERFUSION:**
  - a) Continue to monitor patient's vital signs and cardiac rhythm.
  - b) Obtain **12 LEAD EKG.**

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**☎ MEDICAL CONTROL OPTIONS**

- Repeat of any of the above standing orders.
- For sedation / analgesia for **TRANSCUTANEOUS PACING**; consider:
  - **DIAZEPAM** 0.1 mg/kg slow IV or IO.
  - **MIDAZOLAM** 0.1 mg/kg IV or IO.
  - **MORPHINE SULFATE** 0.1 mg/kg IV or IO.
- **FLUID CHALLENGE** of 0.9% Normal Saline (10 - 20 ml/kg rapid infusion).
- **DOPAMINE HCL** 400 mg in 250 ml of 0.9% Normal Saline; initial rate of 2 - 10 mcg/kg/min titrated until the desired therapeutic effect is achieved (maximum dose of 25 mcg/kg/min).
- **EPINEPHRINE** 1:10,000 1 mg/ 250 ml 0.9% Normal Saline (4 mcg/ml); administer at a rate of 0.1 - 1 mcg/kg/min IV or IO, titrated until the desired therapeutic effect is achieved.

**NOTE**

- a. Signs of **CARDIO-RESPIRATORY COMPROMISE** includes acute altered mental status, respiratory distress, ongoing chest pain, hypotension or other signs of shock.
- b. If beta or calcium channel blocker overdose suspected, **CONTACT MEDICAL CONTROL.**

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**\* STANDING ORDERS**

1. Apply cardiac monitor to determine rhythm **(a)**.
2. If SINUS RHYTHM, consider **FLUID CHALLENGE** of 0.9% Normal Saline (10 - 20 ml/kg rapid infusion) if indicated; search for and treat any causes found as appropriate.
3. If SUPRAVENTRICULAR TACHYCARDIA (i.e. A-V NODAL RE-ENTRY TACHYCARDIA), and patient is **STABLE**:
  - a) Obtain a 12 lead EKG.
  - b) Consider performing a **VAGAL MANEUVER** if possible; may be repeated if necessary.
  - c) ADENOSINE 0.1 mg/kg IV or IO (max dose 6 mg) by rapid bolus.
  - d) If ineffective, give ADENOSINE 0.2 mg/kg IV or IO (maximum dose 12 mg) by rapid bolus.
  - e) Follow each dose with 20 ml 0.9% Normal Saline bolus.
4. IF PATIENT IS **UNSTABLE (b) AND UNCONSCIOUS**:
  - a) **SYNCHRONOUS CARディオVERSION** 0.5 to 1 J/kg (may increase to 2 J/kg if initial dose is ineffective).
5. IF PATIENT IS **UNSTABLE (b) AND CONSCIOUS**:
  - a) **CONTACT MEDICAL CONTROL.**



**MEDICAL CONTROL OPTIONS**

- Repeat of any of the above standing orders.
- **AMIODARONE** 5 mg/kg IV over 20 - 60 minutes **(c)**; maximum dose 300 mg.
- **PROCAINAMIDE** 15 mg/kg IV or IO over 30 – 60 minutes **(c, d)**.
- For sedation / analgesia for **CARDIOVERSION**; consider:
  - **DIAZEPAM** 0.1 mg/kg slow IV or IO
  - **MIDAZOLAM** 0.1 mg/kg IV or IO
  - **MORPHINE SULFATE** 0.1 mg/kg IV or IO

**NOTE**

- a. If at any time the rhythm is determined to be a **WIDE COMPLEX TACHYCARDIA**, go to **Protocol P – 4.3**.
- b. **UNSTABLE** denotes signs or symptoms of **POOR PERFUSION**, including acute altered mental status, ongoing chest pain, hypotension or other signs of shock.
- c. It is recommended that not more than one antidysrhythmic agent be used on any patient.
- d. Stop **PROCAINAMIDE** if hypotension occurs, or if the QRS widens more than 50%.

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**\* STANDING ORDERS**

1. Apply cardiac monitor to determine rhythm **(a)**.
2. IF PATIENT IS **UNSTABLE (b)**:
  - a) If it does not delay **CARDIOVERSION**, administer **ADENOSINE** 0.1 mg/kg IV or IO first to determine if the rhythm is SVT with aberrant conduction.
  - b) **SYNCHRONOUS CARDIOVERSION** 0.5 J/kg – 1 J/kg; if no change, repeat at 2 J/kg **(c)**; consider sedation / analgesia, **CONTACT MEDICAL CONTROL**.
  - c) If rhythm **FAILS TO COVERT** after 2<sup>nd</sup> **CARDIOVERSION** to a supraventricular rhythm, **CONTACT MEDICAL CONTROL**.
3. IF PATIENT IS **STABLE**:
  - a) Obtain a **12 LEAD EKG** to determine the rhythm **(b)**.
  - b) **CONTACT MEDICAL CONTROL**.

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**☎ MEDICAL CONTROL OPTIONS**

- Repeat of any of the above standing orders.
- **For sedation / analgesia for CARDIOVERSION; consider:**
  - **DIAZEPAM** 0.1 mg/kg slow IV or IO.
  - **MIDAZOLAM** 0.1 mg/kg IV or IO.
  - **MORPHINE SULFATE** 0.1 mg/kg IV or IO.
- **AMIODARONE** 5 mg/kg IV or IO over 20 - 60 minutes **(d)**.
- **LIDOCAINE** 0.5 - 1.5 mg/kg IV or IO **(d)**.
- **LIDOCAINE INFUSION** at 20 mcg/kg/min **(d)**.
- **MAGNESIUM SULFATE** 25 - 50 mg/kg IV or IO over 10 - 20 minutes (maximum dose 2 g).
- **PROCAINAMIDE** 15 mg/kg IV or IO over 30 - 60 minutes **(d, e)**.

**NOTE**

- a. If at any time the rhythm is determined to be a **NARROW COMPLEX TACHYCARDIA**, go to **Protocol P - 4.2**.
- b. **UNSTABLE** denotes signs or symptoms of **POOR PERFUSION**, including acute altered mental status, ongoing chest pain, hypotension or other signs of shock.
- c. If unable to perform **SYNCHRONOUS CARDIOVERSION** for technical reasons, then **DEFIBRILLATE** at same joulage.
- d. It is recommended that not more than one antidysrhythmic agent be used on any patient.
- e. Stop **PROCAINAMIDE** if hypotension occurs, or rhythm resolves.

**\* STANDING ORDERS**

1. Initiate **CARDIOPULMONARY RESUSCITATION (CPR)**:
  - a) If patient has been in arrest for more than 4 minutes without CPR, complete **10 CYCLES (2 minutes) of CPR**, prior to rhythm check.
  - b) If patient has been intubated, ventilate patient with 8 – 10 breaths per minute, perform continuous chest compressions at 100 per minute and check rhythm every 2 minutes.
  
2. Follow the appropriate sub-protocol:
  - a) **Shockable Rhythm: P - 5.1**
  - b) **Non-shockable Rhythm: P - 5.2**

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**\* STANDING ORDERS**

1. **DEFIBRILLATE** 2 J/kg **(a)**; **CONTINUE CPR** immediately after defibrillation;
2. When possible during CPR, initiate airway control, monitor adequate ventilation and oxygenation, and obtain IV or IO access.
3. After 2 minutes of CPR, check rhythm **(b, c, g)**.
4. **DEFIBRILLATE** 4 J/kg **(a)**; **CONTINUE CPR** immediately after defibrillation.
5. **EPINEPHRINE** 1:10,000 0.01 mg/kg IV or IO **(d, e)**; repeated once during every 5 cycles of CPR.
6. After 2 minutes of CPR, check rhythm **(b, c, g)**.
7. **DEFIBRILLATE (a)**; **CONTINUE CPR** immediately after defibrillation.
8. When possible during cycles of CPR administer an antidysrhythmic **(f)**:
  - a) **AMIODARONE** 5 mg/kg IV or IO **(d, e)**.
- OR**
- b) LIDOCAINE** 1 mg/kg IV or IO **(d, e)**.
9. After 2 minutes of CPR, check rhythm **(b, c, g)**.
10. Consider **MAGNESIUM SULFATE** 50 mg/kg IV or IO over 5 minutes (maximum 2 g) **(d)** for known hypomagnesemia or multifocal ventricular tachycardia (Torsades de Pointes).
11. **DEFIBRILLATE (a)**; **CONTINUE CPR** immediately after defibrillation.

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**☑ NOTE**

- a. **DEFIBRILLATION** dose is the same for both monophasic and biphasic units.
- b. Assessment of rhythm should take no longer than 10 seconds. If at any time rhythm has converted to a **NON-SHOCKABLE RHYTHM**, go to **PROTOCOL P - 5.2**
- c. If at any point the rhythm converts to supraventricular and the patient **HAS NOT** received **LIDOCAINE**, administer **LIDOCAINE** 1 mg/kg IV or IO and then start a **LIDOCAINE** drip at 20 mcg/kg/min.
- d. Administer drug during CPR as soon as possible after rhythm check confirms **SHOCKABLE RHYTHM**.

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**NOTE**

- e. **IV or IO DRUG BOLUSES** are followed by a 20 - 30 ml bolus of 0.9% Normal Saline. When practical, elevation of the limb is recommended.
- f. If at any point after the administration of **LIDOCAINE** the rhythm converts to supraventricular, start a **LIDOCAINE** drip at 20 mcg/kg/min.
- g. In the event of return of spontaneous circulation (ROSC), **CONTACT MEDICAL CONTROL** for post-resuscitation care.

**PEDIATRIC –  
5.2**

**CARDIAC (ARREST)**

Non-shockable Rhythm (PEA/EMD, Asystole)

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**\* STANDING ORDERS**

1. **CONTINUE CPR**; when possible during CPR, initiate airway control, monitor adequate ventilation and oxygenation, and obtain IV or IO access.
2. Search for and treat for contributing factors; address as appropriate **(a)**.
3. **EPINEPHRINE** 1:10,000 0.01 mg/kg IV or IO **(b)**; repeated once during every 2 minutes of CPR.
4. **IV / IO FLUID CHALLENGE of 0.9% NORMAL SALINE** 20 ml/kg, rapid infusion. May be repeated as needed.
5. After each 2 minutes of CPR, check rhythm **(c, d)**.

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**☑ NOTE**

- a. If any of these factors are present: hypovolemia, hypoxia, hydrogen ion (acidosis), hyper / hypokalemia, hypoglycemia, hypothermia, toxins, tamponade, tension pneumothorax; thrombosis (coronary and pulmonary), or trauma, treat / transport accordingly.
- b. **IV DRUG BOLUSES** are followed by a 20 - 30 ml bolus of 0.9% Normal Saline. When practical, elevation of the limb is recommended.
- c. Assessment of rhythm should take no longer than 10 seconds. If at any time rhythm has converted to a **SHOCKABLE RHYTHM**, go to **PROTOCOL P - 5.1**.
- d. In the event of return of spontaneous circulation (ROSC), **CONTACT MEDICAL CONTROL** for post-resuscitation care.

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**\* STANDING ORDERS**

1. Initiate Routine Medical Care.
2. For documented or suspected hypoglycemia:
  - a) Administer **DEXTROSE** 1g/kg IV or IO:
    - i. For patients 40 kg or less, **DEXTROSE** 25% 4 ml/kg
    - ii. For patients 40 kg or more, **DEXTROSE** 50% 2 ml/kgif no response in 5 minutes, repeat the same dose.
  - b) If an IV or IO route is unobtainable, administer **GLUCAGON** 0.1 mg/kg IM to a maximum dose of 1 mg.
3. For suspected opiate overdose, administer **NALOXONE** 0.1 mg/kg IV, IM, IO or IN.

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**\* STANDING ORDERS**

1. If patient presents with **CARDIOVASCULAR COLLAPSE** administer **EPINEPHRINE (a)** 1:1,000 0.01 mg/kg (maximum dose 0.3 mg) IM.
2. Initiate Routine Medical Care.
3. If patient still manifests **CARDIOVASCULAR COLLAPSE**, administer **EPINEPHRINE** 1:10,000 0.01 mg/kg IV or IO.
4. **DIPHENHYDRAMINE** 1 mg/kg slow IV, IO or IM.
5. **IV or IO FLUID CHALLENGE of 0.9% NORMAL SALINE** 20 ml/kg, rapid infusion; may be repeated as needed.
6. Administer **ALBUTEROL** 2.5 mg with 3 ml 0.9% Normal Saline via nebulizer as indicated.
7. Administer **METHYLPREDNISOLONE** 2 mg/kg in 50 ml 0.9% Normal Saline IV over 2 minutes as indicated.
8. If patient is taking BETA-BLOCKERS, also administer **GLUCAGON** 0.1 mg/kg IV, IO or IM up to 1 mg.

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** MEDICAL CONTROL OPTIONS**

- Repeat of any of the above standing orders.
- **EPINEPHRINE (a) 1:10,000** 1 mg in 250 ml 0.9% Normal Saline **INFUSION** started at 0.1 - 1 mcg/kg/min (titrated to desired effect).

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**\* STANDING ORDERS**

1. Initiate Routine Medical Care.
2. **SUSPECTED INGESTION** (i.e. prescription medications, chemicals, etc.), **CONTACT MEDICAL CONTROL.**
3. **CARBON MONOXIDE (CO) EXPOSURE** – If there is a history of potential CO exposure **AND** there are presenting signs and symptoms:
  - a) Monitor CO levels (if available).
  - b) 100% OXYGEN therapy.
4. **CYANIDE EXPOSURE** - If there is a history of potential cyanide exposure **AND** findings are consistent with cyanide toxicity:
  - a) Follow the manufacturer's guidelines for the facility provided "**CYANIDE ANTIDOTE KIT**"; or
  - b) Administer **CYANOKIT® (HYDROXYCOBALAMINE** for injection) per manufacturer's guidelines, if available.
5. **OPHTHALMIC EXPOSURE**
  - a) Administer **TETRACAINE** 2 drops in the affected eye.
  - b) Irrigate affected eye continuously with 0.9% Normal Saline; may use a Morgan Lens if available.
6. **ORGANOPHOSPHATE / CARBAMATE EXPOSURE**– If there is a known history of a cholinergic poisoning, **AND** there are severe presenting signs and symptoms;

**OR**

There has been a suspected cholinergic poisoning **AND** there are severe presenting signs and symptoms **AND** there is a communications failure:

  - a) If severe cholinergic signs and symptoms are present, administer **ATROPINE** 0.02 mg/kg IV, IO or IM every 5 minutes until symptoms resolve (maximum single dose 2 mg).
  - b) If mild cholinergic signs and symptoms are present, **CONTACT MEDICAL CONTROL.**

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 **MEDICAL CONTROL OPTIONS**

- Repeat of any of the above standing orders.
- **ACTIVATED CHARCOAL** 1 g/kg PO.



## MEDICAL CONTROL OPTIONS

- **CALCIUM CHLORIDE** 20 mg/kg slow IV or IO.
- **GLUCAGON** 0.1 mg/kg IV, IM or IO; up to 1 mg; may repeat as indicated.
- **SODIUM BICARBONATE** 1 mEq/kg IV or IO.

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**\* STANDING ORDERS**

1. Initiate Routine Medical Care.
2. **FLUID CHALLENGE of 0.9% NORMAL SALINE IV or IO** 5 to 10 ml/kg, rapid infusion; may be repeated as needed. Avoid in the presence of pulmonary edema.

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** MEDICAL CONTROL OPTIONS**

- **EPINEPHRINE (a) 1:10,000** 1 mg in 250 ml 0.9% Normal Saline **INFUSION** started at 0.1 - 1 mcg/kg/min (titrated to desired effect).

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**\* STANDING ORDERS**

1. If thick meconium is observed in amniotic fluid **AND** the newborn demonstrates absent or depressed respirations, heart rate under 100 per minute, or poor muscle tone:
  - a) Clear the airway using endotracheal intubation and directly suction the endotracheal tube.
  - b) Repeat the procedure until the endotracheal tube is clear of thick meconium up to a maximum of three (3) times.
  - c) **DO NOT** re-intubate once the airway has been cleared of thick meconium unless the newborn still meets the criteria in **STEP 2**.
  
2. **SUCTION** the airway followed by drying the baby and maintaining warmth. If central cyanosis is present, administer **100% OXYGEN** and assist ventilation as indicated:
  - a) If patient is apneic and pulse rate is under 100 per minute, perform tactile stimulation and **VENTILATE with BVM** at a rate of 40 - 60 per minute.
  - b) If pulse rate is under 60 per minute, **VENTILATE with BVM** at a rate of 40 - 60 per minute and begin **CHEST COMPRESSIONS** at a rate of 120 a minute.
  - c) **IF BVM IS NOT EFFECTIVE, PERFORM INTUBATION.**
  
3. If pulse remains under 60 per minute despite ventilation and compressions for 1 minute:
  - a) Obtain vascular access.
  - b) Administer **EPINEPHRINE** 1:10,000 0.03 mg/kg (0.1 - 0.3 ml/kg) IV or IO; may be repeated every 3 minutes if pulse remains under 60 per minute.

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**☎ MEDICAL CONTROL OPTIONS**

- Repeat above standing orders.
- **DEXTROSE** 10% 5 ml/kg IV or IO.
- **FLUID CHALLENGE 0.9% NORMAL SALINE** 10 ml/kg IV or IO, rapid infusion.
- **NALOXONE** 0.1 mg/kg IV or IO(a); may be repeated every 2 – 3 minutes.

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**☑ NOTE**

- a. Naloxone should only be considered if patient continues to have respiratory depression **AFTER** positive-pressure ventilation has restored a normal pulse rate and color, **AND**, a history of maternal narcotic use within the past 4 hours.

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**\* STANDING ORDERS**

1. Initiate Routine Medical Care
2. Measure serum glucose. For hypoglycemia, administer:
  - a) **DEXTROSE** 1g/kg IV or IO:
    - i. For patients 40 kg or less, **DEXTROSE** 25% 4 ml/kg
    - ii. For patients 40 kg or more, **DEXTROSE** 50% 2 ml/kgIf no response in 5 minutes, repeat the same dose.
  - b) **GLUCAGON** 0.1 mg/kg IM if IV or IO route is not available, up to a maximum dose of 1 mg.
3. Administer a **BENZODIAZEPINE (a)**:
  - a) **DIAZEPAM** 0.1 mg/kg slow IV or IO (maximum single dose 5 mg); may be repeated once in 5 minutes.
  - b) **DIAZEPAM** 0.5 mg/kg rectal (maximum single dose 10 mg) with a syringe without the needle; may be repeated once in 10 minutes.
  - c) **LORAZEPAM** 0.1 mg/kg slow IV, IO or IM (maximum single dose 2 mg); may be repeated once in 5 minutes.
  - d) **MIDAZOLAM** 0.1 mg/kg IV, IO or IM (maximum single dose 2mg; maximum total dose: 6 mos – 5 yrs 6mg, 6 – 12 yrs 10 mg).

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** MEDICAL CONTROL OPTIONS**

- Repeat of any of the above standing orders.

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** NOTE**

- a. Discontinue the administration of a **BENZODIAZEPINE** once the seizure has stopped whether or not the entire dose has been administered.