

# Childbirth / Labor



## History

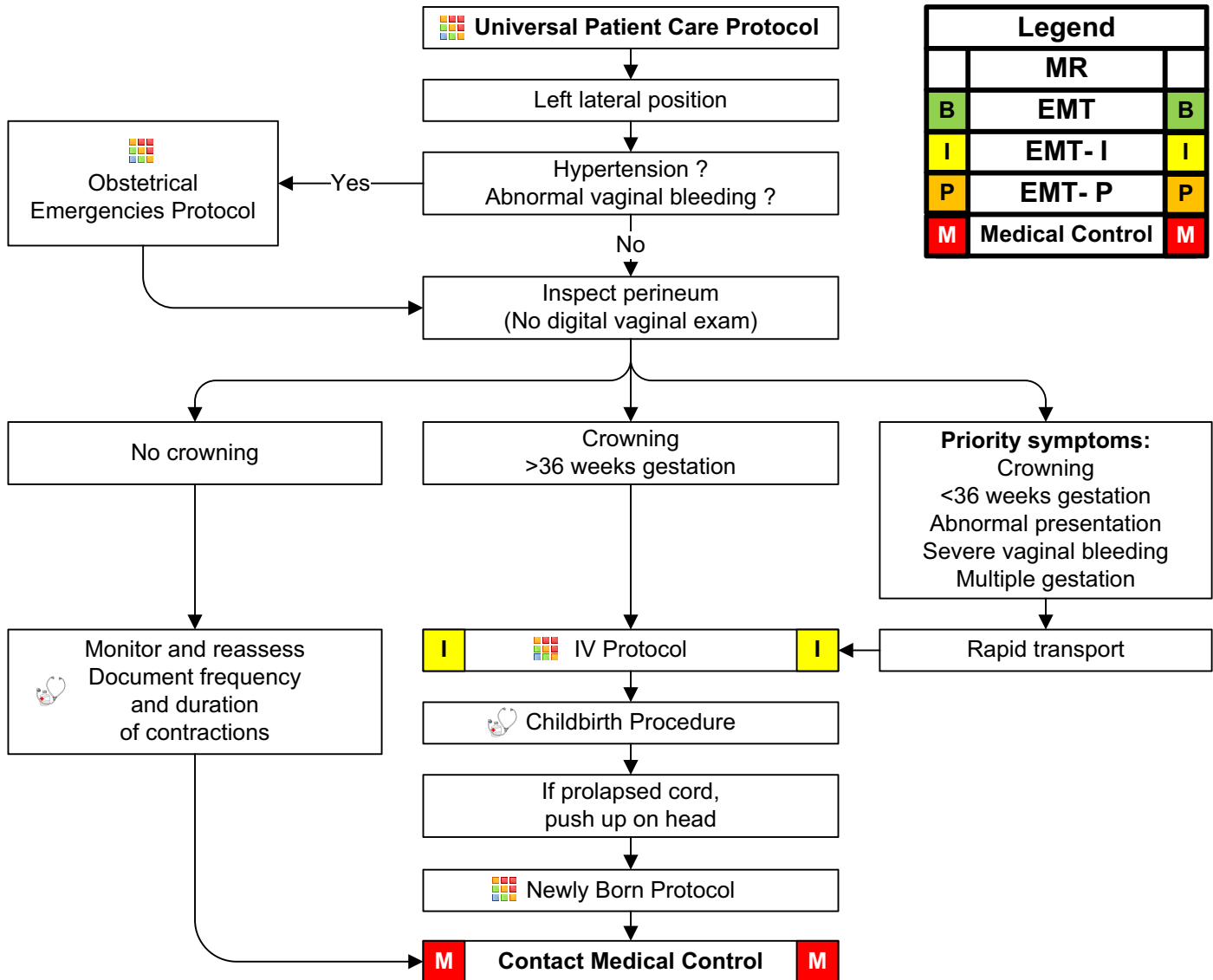
- Due date
- Time contractions started / how often
- Rupture of membranes
- Time / amount of any vaginal bleeding
- Sensation of fetal activity
- Past medical and delivery history
- Medications
- Gravida/Para Status
- High Risk pregnancy

## Signs and Symptoms

- Spasmodic pain
- Vaginal discharge or bleeding
- Crowning or urge to push
- Meconium

## Differential

- **Abnormal presentation**  
Buttock  
Foot  
Hand
- **Prolapsed cord**
- **Placenta previa**
- **Abruptio placenta**



Pediatric and OB Protocols

## Pearls

- **Recommended Exam (of Mother): Mental Status, Heart, Lungs, Abdomen, Neuro**
- Document all times (delivery, contraction frequency, and length).
- If maternal seizures occur, refer to the Obstetrical Emergencies Protocol.
- After delivery, massaging the uterus (lower abdomen) will promote uterine contraction and help to control post-partum bleeding.
- Some perineal bleeding is normal with any childbirth. Large quantities of blood or free bleeding are abnormal.
- Record APGAR at 1 minute and 5 minutes after birth.

## Protocol 38

Any local EMS System changes to this document must follow the NC OEMS Protocol Change Policy and be approved by OEMS

2009



# Newly Born



## History

- Due date and gestational age
- Multiple gestation (twins etc.)
- Meconium
- Delivery difficulties
- Congenital disease
- Medications (maternal)
- Maternal risk factors
  - substance abuse
  - smoking

## Signs and Symptoms

- Respiratory distress
- Peripheral cyanosis or mottling (normal)
- Central cyanosis (abnormal)
- Altered level of responsiveness
- Bradycardia

## Differential

- Airway failure
- Secretions
- Respiratory drive
- Infection
- Maternal medication effect
- Hypovolemia
- Hypoglycemia
- Congenital heart disease
- Hypothermia

### Universal Patient Care Protocol (for mother)

Thick Meconium in amniotic fluid?

**Yes**

<b>B</b>	<b>Airway Suction</b>	<b>B</b>
<b>I</b>	Visualize hypopharynx and Perform Deep Suction Repeat until free of meconium <b>Oral Intubation</b>	<b>I</b>

**No**  
Dry infant and keep warm. Bulb syringe suction mouth / nose

Stimulate infant and note **APGAR Score**

Respirations present?

**Yes**  
**Heart rate**  
HR > 100

Reassess and Give report to receiving hospital

HR < 60      HR 60-100      HR > 100

**Peds Airway Protocol / CPR**

**IV Protocol**

Appropriate Protocol  
**Pediatric Bradycardia**  
**Pediatric Pulseless Arrest**

**D10, Naloxone and NS bolus**

**Pediatric Airway Protocol**

Reassess heart rate

**HR 60-100**

**IV Protocol**

**Notify Destination or Contact Medical Control**

Legend		
	<b>MR</b>	
<b>B</b>	<b>EMT</b>	<b>B</b>
<b>I</b>	<b>EMT- I</b>	<b>I</b>
<b>P</b>	<b>EMT- P</b>	<b>P</b>
<b>M</b>	<b>Medical Control</b>	<b>M</b>

Pediatric and OB Protocols

HR < 100  
**BVM 30 seconds** at 40-60 Breaths/minute with 100% Oxygen

Monitor Reassess 5 Minute **APGAR**

**Continue Oxygen**

## Pearls

- **Recommended Exam: Mental Status, Skin, HEENT, Neck, Chest, Heart, Abdomen, Extremities, Neuro**
- CPR in infants is 120 compressions/minute with a 3:1 compression to ventilation ratio
- It is extremely important to keep infant warm
- Maternal sedation or narcotics will sedate infant (Naloxone effective but may precipitate seizures).
- Consider hypoglycemia in infant.
- Document 1 and 5 minute Apgars in PCR
- D10 = D50 diluted (1 ml of D50 with 4 ml of Normal Saline)



# Obstetrical Emergency



## History

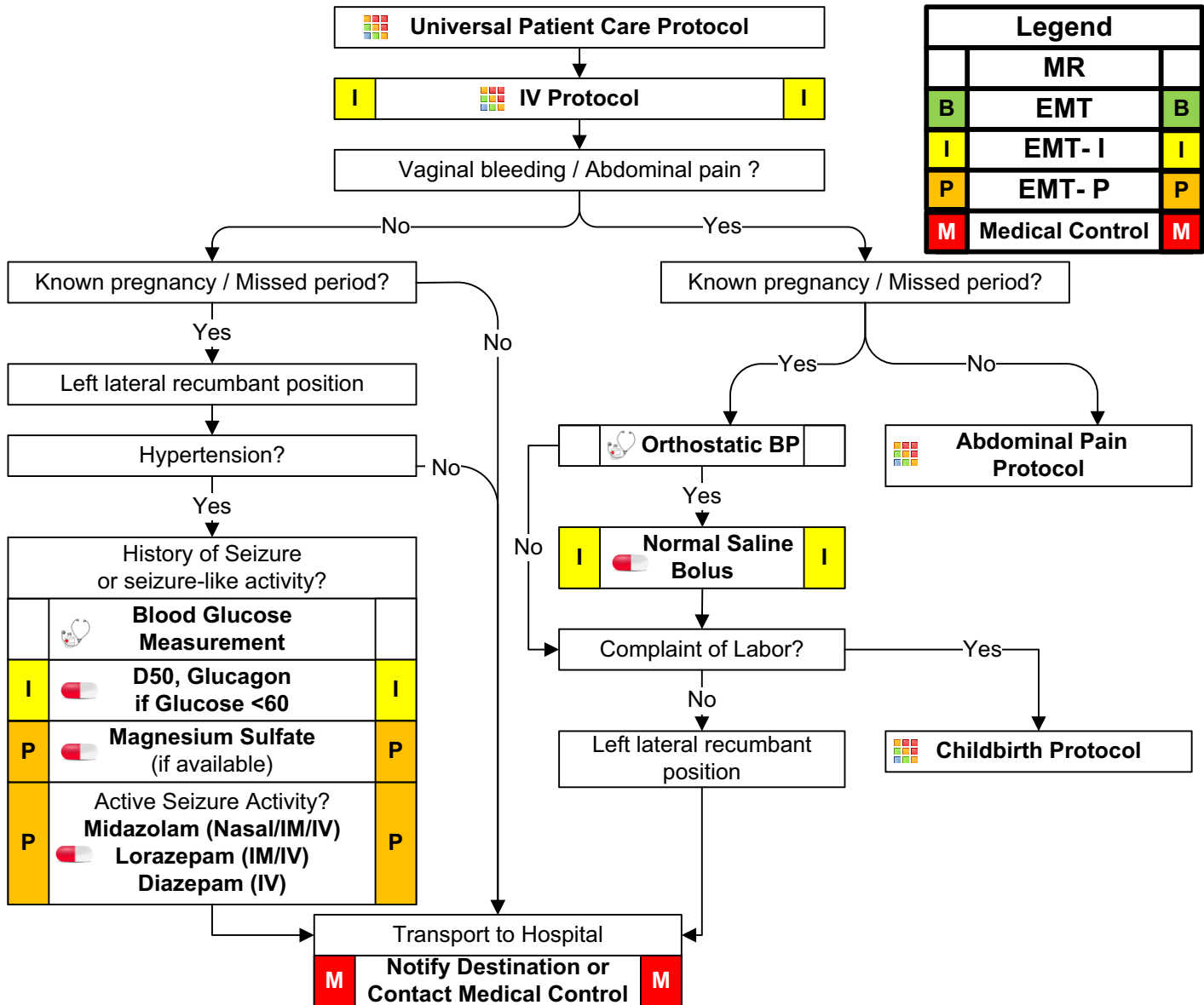
- Past medical history
- Hypertension meds
- Prenatal care
- Prior pregnancies / births
- Gravida / Para

## Signs and Symptoms

- Vaginal bleeding
- Abdominal pain
- Seizures
- Hypertension
- Severe headache
- Visual changes
- Edema of hands and face

## Differential

- Pre-eclampsia / Eclampsia
- Placenta previa
- Placenta abruptio
- Spontaneous abortion



Pediatric and OB Protocols

## Pearls

- **Recommended Exam: Mental Status, Abdomen, Heart, Lungs, Neuro**
- Severe headache, vision changes, or RUQ pain may indicate preeclampsia.
- In the setting of pregnancy, hypertension is defined as a BP greater than 140 systolic or greater than 90 diastolic, or a relative increase of 30 systolic and 20 diastolic from the patient's normal (pre-pregnancy) blood pressure.
- Maintain patient in a left lateral position to minimize risk of supine hypotensive syndrome.
- Ask patient to quantify bleeding - number of pads used per hour.
- Any pregnant patient involved in a MVC should be seen immediately by a physician for evaluation and fetal monitoring.
- Magnesium may cause hypotension and decreased respiratory drive. Use with caution.

## Protocol 40

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# Pediatric Bradycardia



## History

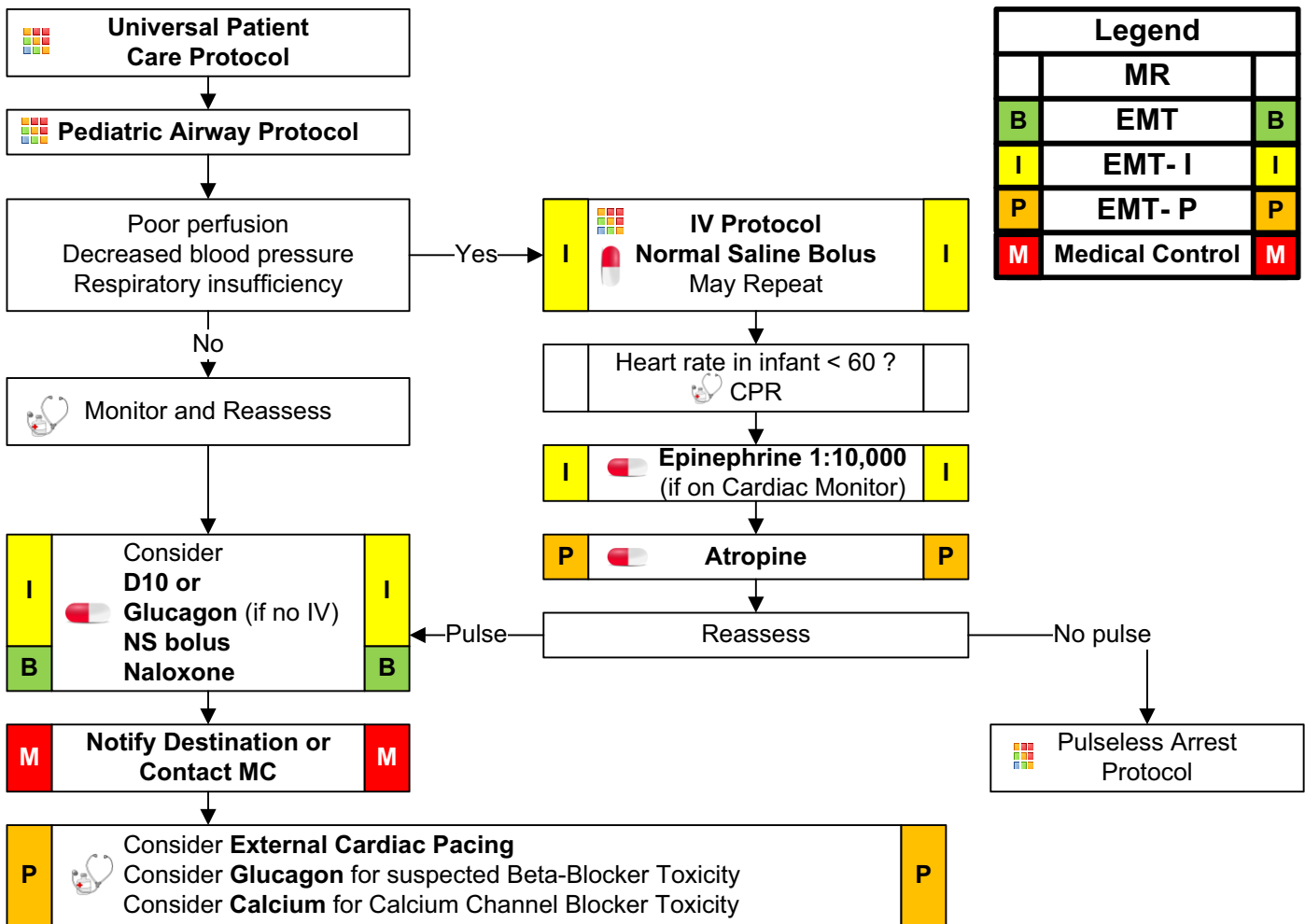
- Past medical history
- Foreign body exposure
- Respiratory distress or arrest
- Apnea
- Possible toxic or poison exposure
- Congenital disease
- Medication (maternal or infant)

## Signs and Symptoms

- Decreased heart rate
- Delayed capillary refill or cyanosis
- Mottled, cool skin
- Hypotension or arrest
- Altered level of consciousness

## Differential

- Respiratory failure
- Foreign body
- Secretions
- Infection (croup, epiglottitis)
- Hypovolemia (dehydration)
- Congenital heart disease
- Trauma
- Tension pneumothorax
- Hypothermia
- Toxin or medication
- Hypoglycemia
- Acidosis



Pediatric and OB Protocols

## Pearls

- **Recommended Exam: Mental Status, HEENT, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro**
- **Use Broselow-Luten Tape for Drug Dosages.**
- Infant = < 1 year of age
- The majority of pediatric arrests are due to airway problems.
- Most maternal medications pass through breast milk to the infant.
- Hypoglycemia, severe dehydration and narcotic effects may produce bradycardia.
- Pediatric patients requiring external transcutaneous pacing require the use of pads appropriate for pediatric patients per the manufacturers guidelines.
- Minimum Atropine dose is 0.1 mg IV.



# Pediatric Head Trauma



## History

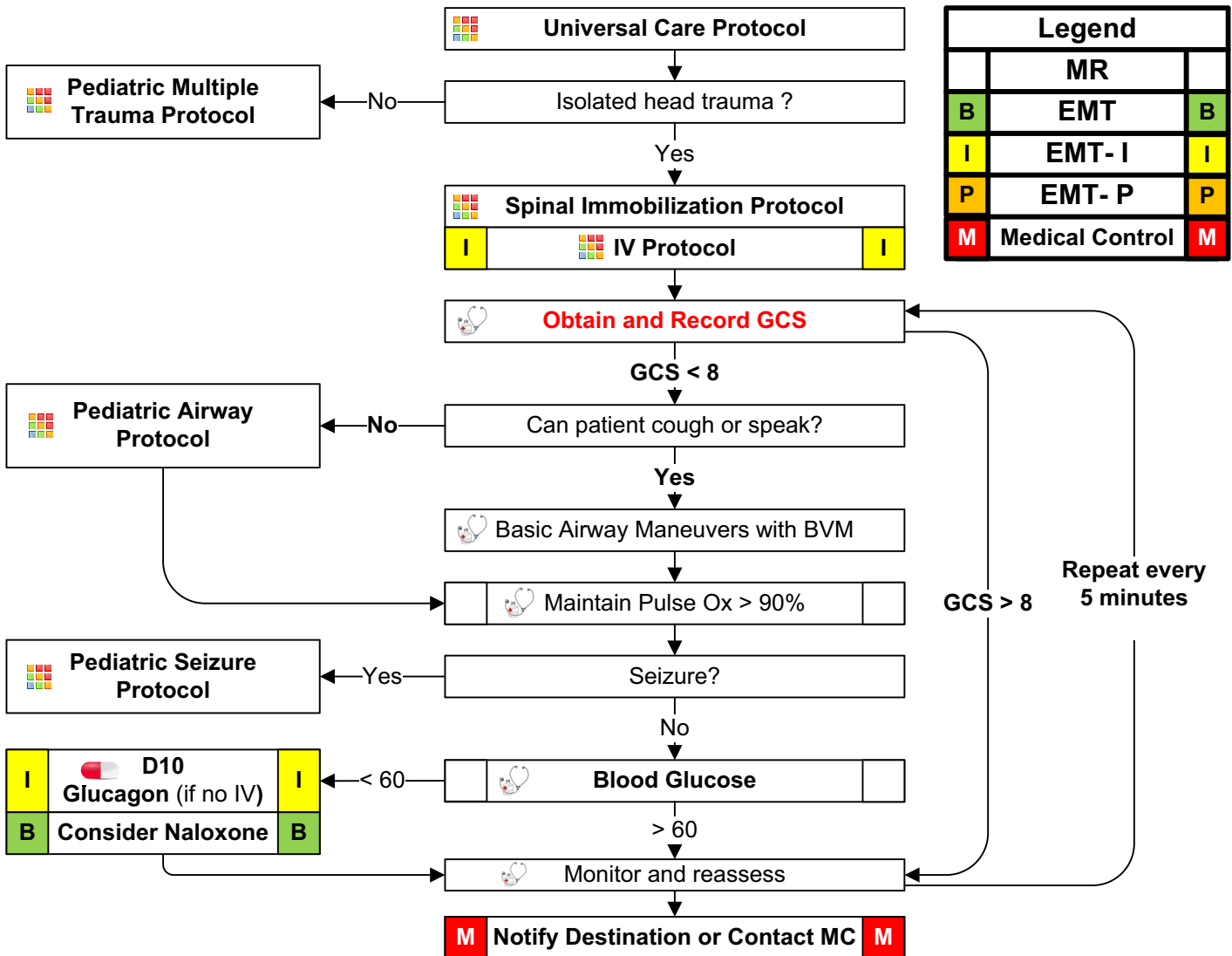
- Time of injury
- Mechanism (blunt vs. penetrating)
- Loss of consciousness
- Bleeding
- Past medical history
- Medications
- Evidence for multi-trauma

## Signs and Symptoms

- Pain, swelling, bleeding
- Altered mental status
- Unconscious
- Respiratory distress / failure
- Vomiting
- Major traumatic mechanism of injury
- Seizure

## Differential

- **Skull fracture**
- **Brain injury (Concussion, Contusion, Hemorrhage or Laceration)**
- **Epidural hematoma**
- **Subdural hematoma**
- **Subarachnoid hemorrhage**
- **Spinal injury**
- **Abuse**



Pediatric and OB Protocols

## Pearls

- **Recommended Exam: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Back, Neuro**
- If GCS < 12 consider air / rapid transport and if GCS < 8 intubation should be anticipated.
- Hyperventilate the patient only if evidence of herniation (blown pupil, decorticate / decerebrate posturing, bradycardia, decreasing GCS). If hyperventilation is needed (35/minute for infants <1 year and 25/minute for children >1 year)
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- Hypotension usually indicates injury or shock unrelated to the head injury.
- The most important item to monitor and document is a change in the level of consciousness.
- Concussions are periods of confusion or LOC associated with trauma which may have resolved by the time EMS arrives. Any prolonged confusion or mental status abnormality which does not return to normal within 15 minutes or any documented loss of consciousness should be evaluated by a physician ASAP.

## Protocol 42

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# Pediatric Hypotension



## History

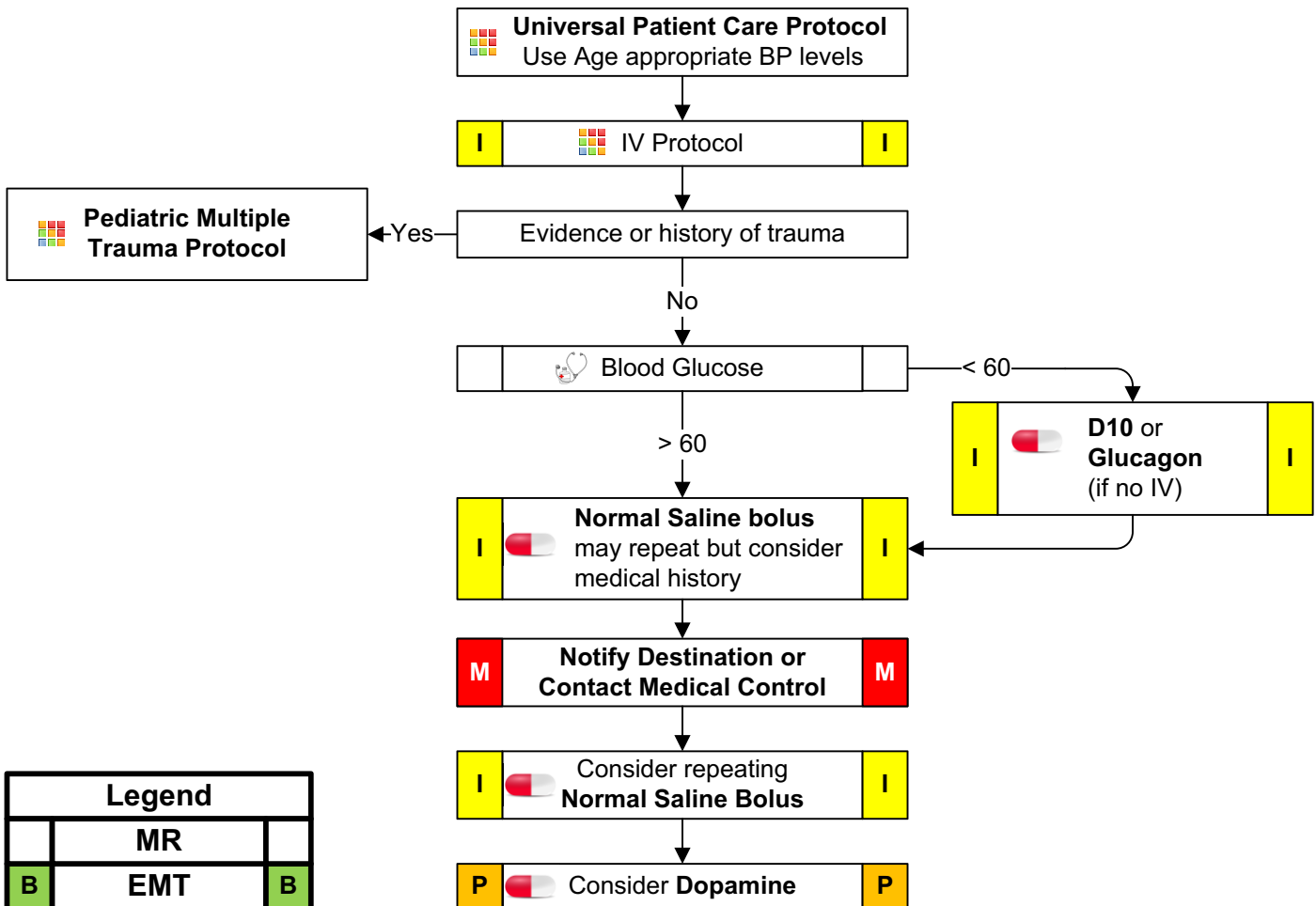
- Blood loss
- Fluid loss
  - Vomiting
  - Diarrhea
  - Fever
- Infection

## Signs and Symptoms

- Restlessness, confusion, weakness
- Dizziness
- Increased HR, rapid pulse
- Decreased BP
- Pale, cool, clammy skin
- Delayed capillary refill

## Differential

- Trauma
- Infection
- Dehydration
  - Vomiting
  - Diarrhea
  - Fever
- Congenital heart disease
- Medication or Toxin
- Allergic reaction



Legend		
	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P
M	Medical Control	M

## Pearls

- **Recommended Exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro**
- Consider all possible causes of shock and treat per appropriate protocol.
- Decreasing heart rate and hypotension occur late in children and are signs of imminent cardiac arrest.
- Most maternal medications pass through breast milk to the infant. Examples: Narcotics, Benzodiazepines.
- Consider possible allergic reaction or early anaphylaxis
- If patients has a history cardiac disease, (prematurity) chronic lung disease, or renal disease limit Normal Saline bolus to 10 ml/kg



# Pediatric Multiple Trauma



## History

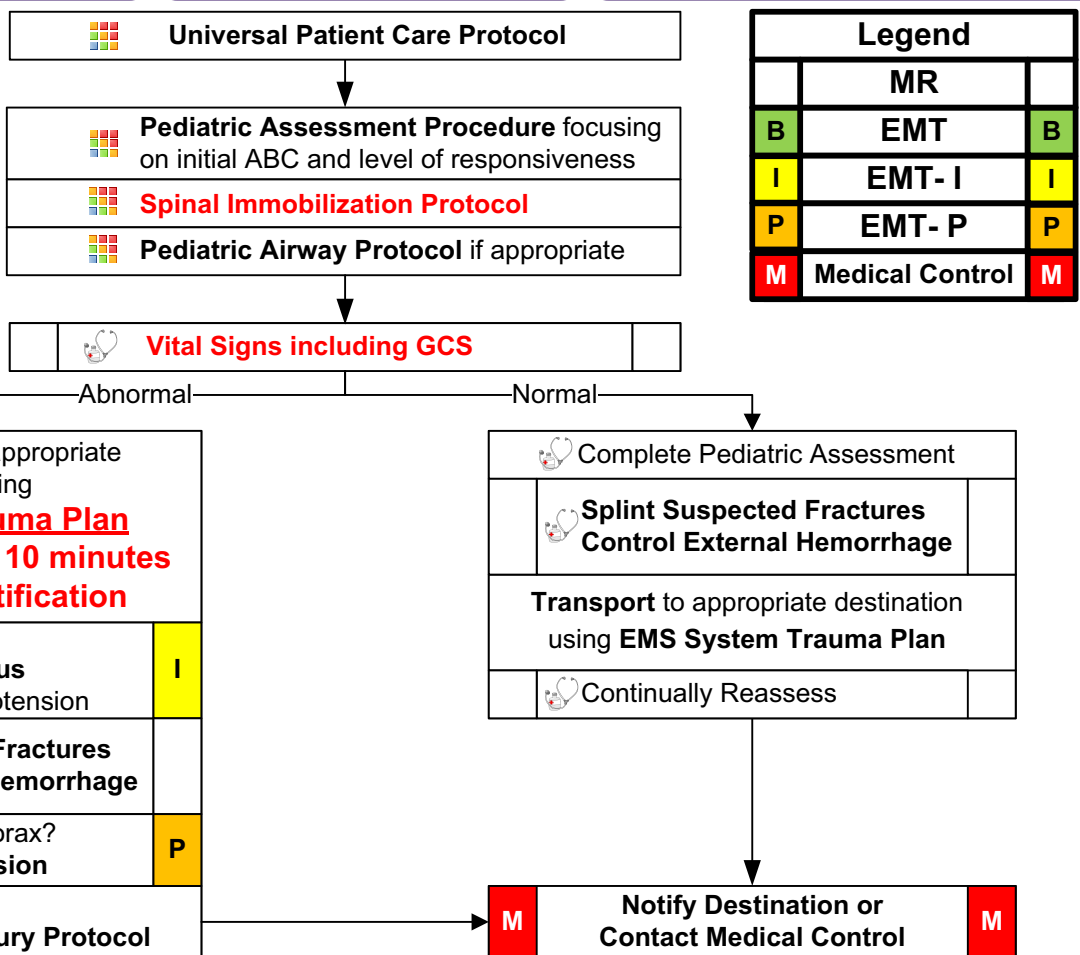
- Time and mechanism of injury
- Height of any fall
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVC
- Restraints / Protective equipment
  - Carseat
  - Helmet
  - Pads
- Ejection
- Past medical history
- Medications

## Signs and Symptoms

- Pain, swelling
- Deformity, lesions, bleeding
- Altered mental status
- Unconscious
- Hypotension or shock
- Arrest

## Differential (Life Threatening)

- **Chest**
  - Tension pneumothorax
  - Flail chest
  - Pericardial tamponade
  - Open chest wound
  - Hemothorax
- Intra-abdominal bleeding
- Pelvis / Femur fracture
- Spine fracture / Cord injury
- Head injury (see Head Trauma)
- Extremity fracture / dislocation
- HEENT (Airway obstruction)
- Hypothermia



<b>Legend</b>		
	<b>MR</b>	
<b>B</b>	<b>EMT</b>	<b>B</b>
<b>I</b>	<b>EMT- I</b>	<b>I</b>
<b>P</b>	<b>EMT- P</b>	<b>P</b>
<b>M</b>	<b>Medical Control</b>	<b>M</b>

Pediatric and OB Protocols

## Pearls

- **Recommended Exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro**
- **Items in Red Text are key performance measures used in the EMS Acute Trauma Care Toolkit**
- **Transport Destination is chosen based on the EMS System Trauma Plan with EMS pre-arrival notification.**
- Mechanism is the most reliable indicator of serious injury. Examine all restraints / protective equipment for damage.
- In prolonged extrications or serious trauma consider air transportation for transport times and the ability to give blood.
- Do not overlook the possibility for child abuse.
- Scene times should not be delayed for procedures. These should be performed en route when possible.
- Bag valve mask is an acceptable method of managing the airway if pulse oximetry can be maintained above 90%.





# Pediatric Pulseless Arrest



## History

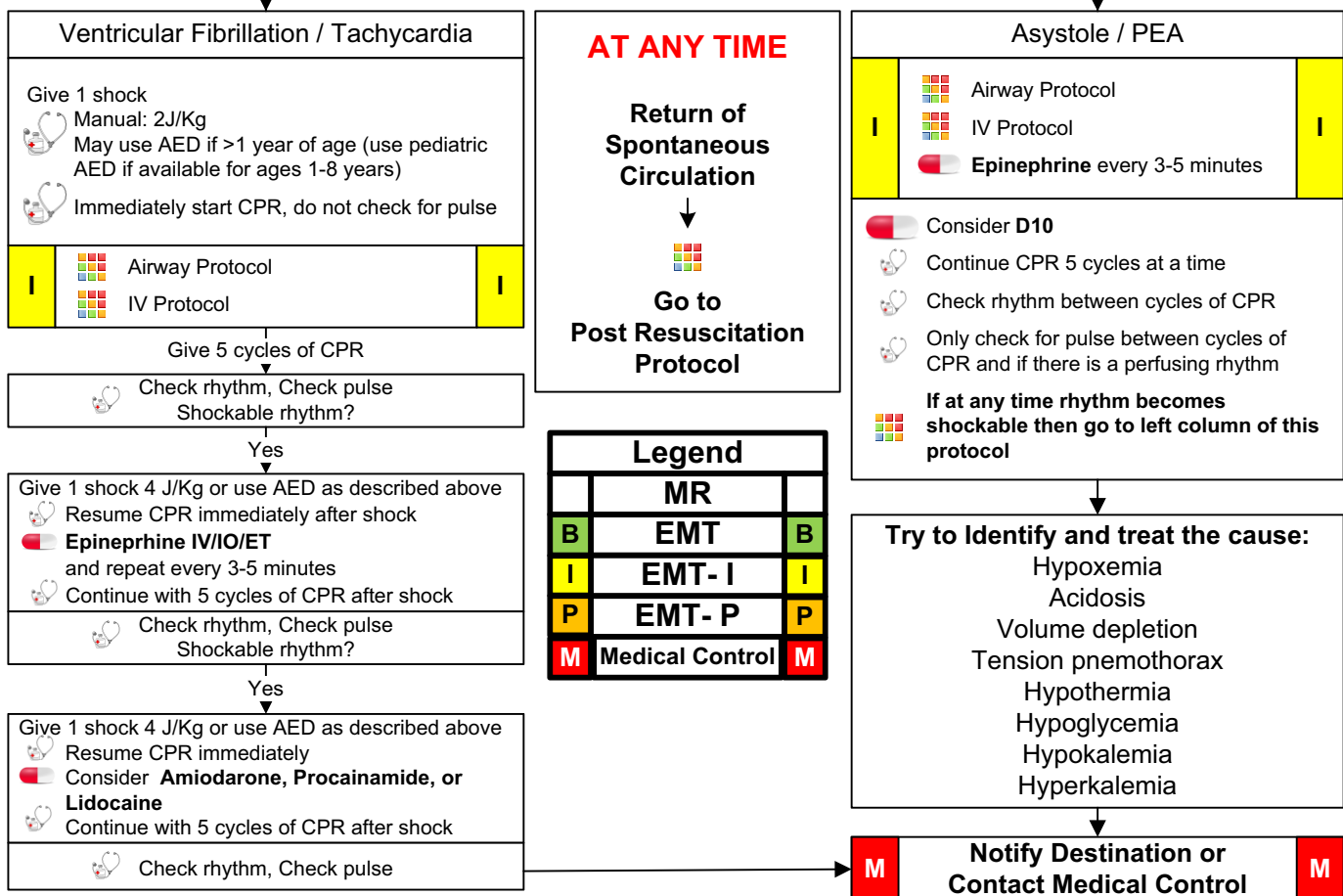
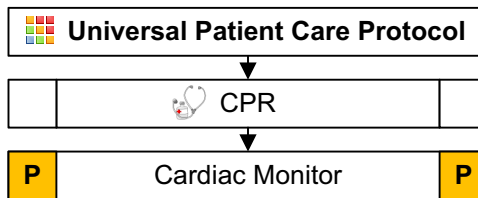
- Time of arrest
- Medical history
- Medications
- Possibility of foreign body
- Hypothermia

## Signs and Symptoms

- Unresponsive
- Cardiac arrest

## Differential

- **Respiratory failure**  
Foreign body, Secretions, Infection (croup, epiglottitis)
- **Hypovolemia (dehydration)**
- **Congenital heart disease**
- **Trauma**
- **Tension pneumothorax, cardiac tamponade, pulmonary embolism**
- **Hypothermia**
- **Toxin or medication**
- **Electrolyte abnormalities (Glucose, K)**
- **Acidosis**



Pediatric and OB Protocols

## Pearls

- **Recommended Exam: Mental Status**
- Monophasic and Biphasic waveform defibrillators should use the same energy levels noted above.
- In order to be successful in pediatric arrests, a cause must be identified and corrected.
- Airway is the most important intervention. This should be accomplished immediately. Patient survival is often dependent on airway management success.





# Pediatric Respiratory Distress



## History

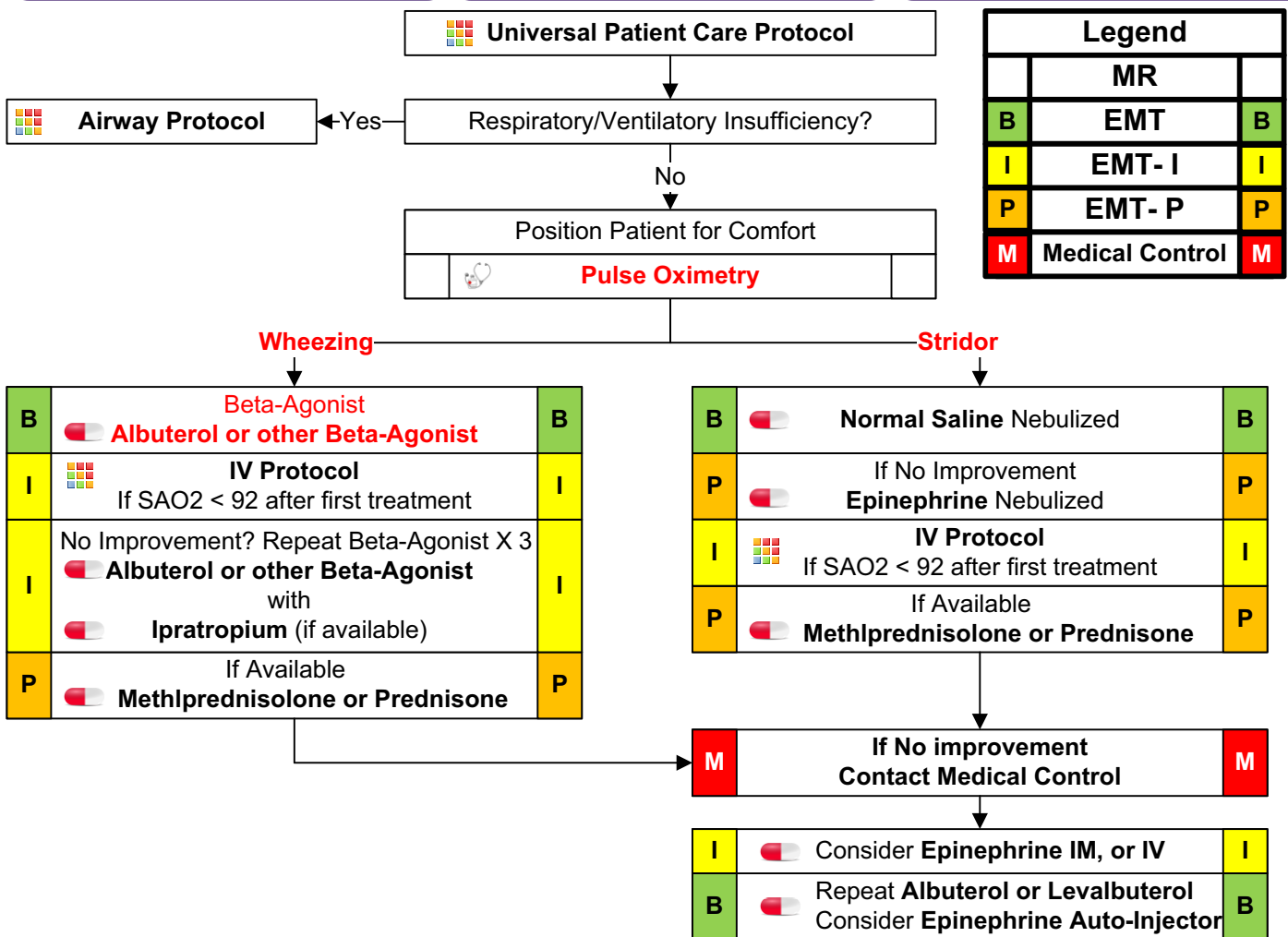
- Time of onset
- Possibility of foreign body
- Medical history
- Medications
- Fever or respiratory infection
- Other sick siblings
- History of trauma

## Signs and Symptoms

- Wheezing or stridor
- Respiratory retractions
- Increased heart rate
- Altered level of consciousness
- Anxious appearance

## Differential

- Allergic Reaction
- Asthma
- Aspiration
- Foreign body
- Infection
  - Pneumonia
  - Croup
  - Epiglottitis
- Congenital heart disease
- Medication or Toxin
- Trauma



Pediatric and OB Protocols

## Pearls

- **Recommended Exam: Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro**
- **Items in Red Text are key performance measures used to evaluate protocol compliance and care**
- **Pulse oximetry** should be monitored continuously if initial saturation is  $\leq 96\%$ , or there is a decline in patient status despite normal pulse oximetry readings.
- Do not force a child into a position. They will protect their airway by their body position.
- The most important component of respiratory distress is airway control.
- Bronchiolitis is a viral infection typically affecting infants which results in wheezing which may not respond to beta-agonists. Consider Epinephrine if patient < 18 months and not responding to initial beta-agonist treatment.
- Croup typically affects children < 2 years of age. It is viral, possible fever, gradual onset, no drooling is noted.
- Epiglottitis typically affects children > 2 years of age. It is bacterial, with fever, rapid onset, possible stridor, patient wants to sit up to keep airway open, drooling is common. Airway manipulation may worsen the condition.

### History

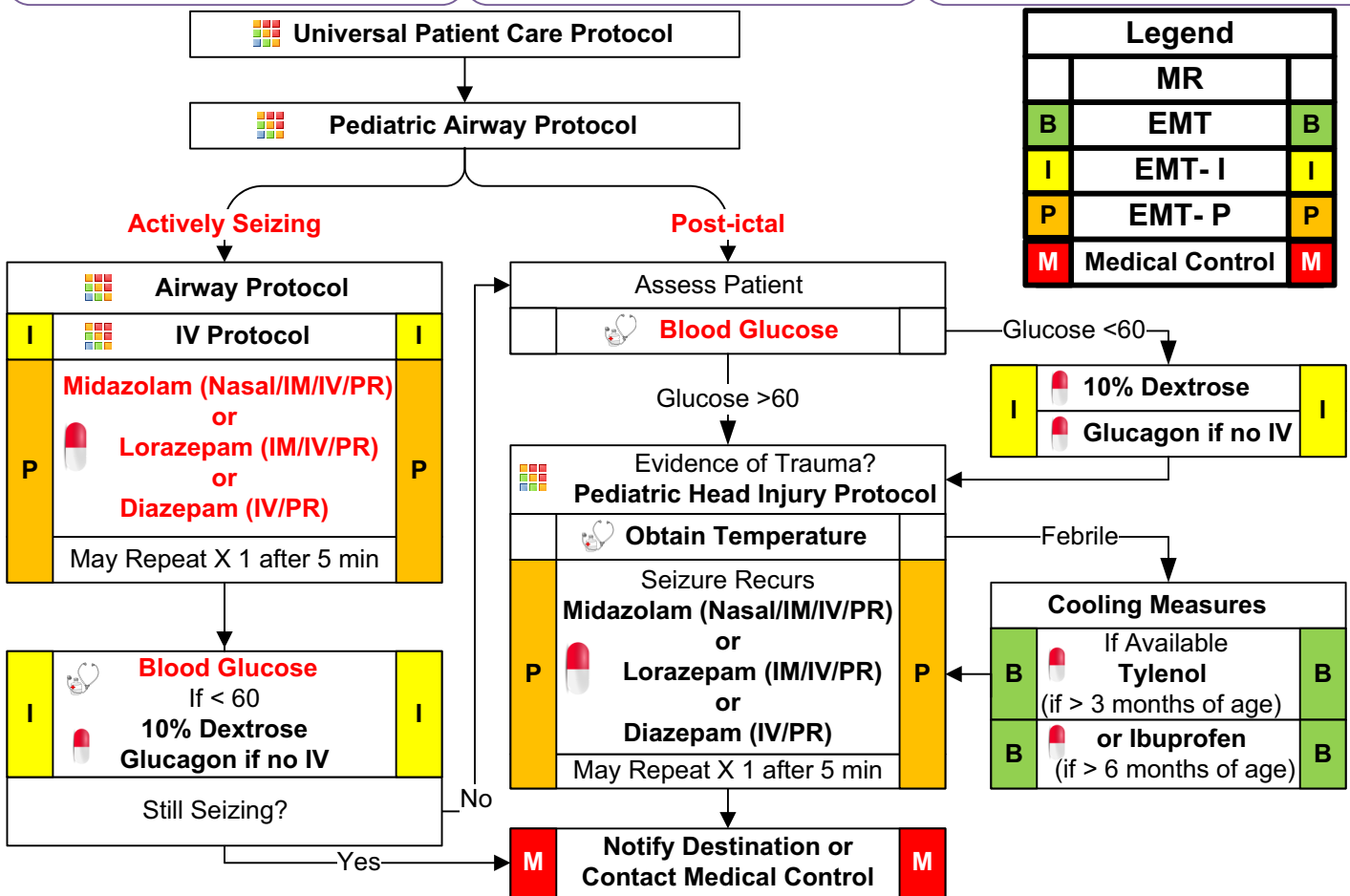
- Fever
- Prior history of seizures
- Seizure medications
- Reported seizure activity
- History of recent head trauma
- Congenital abnormality

### Signs and Symptoms

- Observed seizure activity
- Altered mental status
- Hot, dry skin or elevated body temperature

### Differential

- Fever
- Infection
- Head trauma
- Medication or Toxin
- Hypoxia or Respiratory failure
- Hypoglycemia
- Metabolic abnormality / acidosis
- Tumor



Pediatric and OB Protocols

### Pearls

- **Recommended Exam: Mental Status, HEENT, Heart, Lungs, Extremities, Neuro**
- **Items in Red Text are key performance measures used to evaluate protocol compliance and care**
- **Addressing the ABCs and verifying blood glucose is more important than stopping the seizure**
- **Avoiding hypoxemia is extremely important**
- **Status Epilepticus** is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport.
- **Grand mal seizures (generalized)** are associated with loss of consciousness, incontinence, and tongue trauma.
- **Focal seizures (petit mal)** effect only a part of the body and do not usually result in a loss of consciousness.
- **Jacksonian seizures** are seizures which start as a focal seizure and become generalized.
- Be prepared to assist ventilations especially if a benzodiazepine is used.
- If evidence or suspicion of trauma, spine should be immobilized.
- In an infant, a seizure may be the only evidence of a closed head injury.
- **Rectal Diazepam/Fentanyl/Lorazepam:** Draw drug dose up in a 3 ml syringe. Remove needle from syringe and attached syringe to an IV extension tube. Cut of the distal end of the extension tube leaving about 3 or 4 inches of length. Insert tube in rectum and inject drug. Flush extension tube with 3 ml of air and remove.



# Pediatric Supraventricular Tachycardia



## History

- Past medical history
- Medications or Toxic Ingestion (Aminophylline, Diet pills, Thyroid supplements, Decongestants, Digoxin)
- Drugs (nicotine, cocaine)
- Congenital Heart Disease
- Respiratory Distress
- Syncope or Near Syncope

## Signs and Symptoms

- Heart Rate: Child > 180/bpm  
Infant > 220/bpm
- Pale or Cyanosis
- Diaphoresis
- Tachypnea
- Vomiting
- Hypotension
- Altered Level of Consciousness
- Pulmonary Congestion
- Syncope

## Differential

- Heart disease (Congenital)
- Hypo / Hyperthermia
- Hypovolemia or Anemia
- Electrolyte imbalance
- Anxiety / Pain / Emotional stress
- Fever / Infection / Sepsis
- Hypoxia
- Hypoglycemia
- Medication / Toxin / Drugs (see HX)
- Pulmonary embolus
- Trauma
- Tension Pneumothorax

**Universal Patient Care Protocol**

**P** Continuous Cardiac Monitor  
Attempt to Identify Cause  
Narrow QRS duration < 0.08 s **P**

Legend		
	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P
M	Medical Control	M

Stable

Unstable or Pre-arrest  
(No palpable BP, Altered mental status)

**I** IV Protocol **I**

**P** May attempt Valsalva's maneuver and / or Carotid Massage initially and after each drug administration if indicated. **P**

**P** Adenosine  
May Repeat X 1 **P**

**P** Synchronized Cardioversion (0.5 joules/kg) **P**

**I** Consider IV Protocol **I**

**P** For sedation consider Diazepam or Midazolam or Lorazepam **P**

**P** If unsuccessful Repeat Cardioversion (1.0 - 2.0 joules/kg) **P**

If rhythm changes  
Go to Appropriate Protocol

**M** Notify Destination or Contact Medical Control **M**

Pediatric and OB Protocols

## Pearls

- **Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro**
- Carefully evaluate the rhythm to distinguish Sinus Tachycardia, Supraventricular Tachycardia, and Ventricular Tachycardia
- Separating the child from the caregiver may worsen the child's clinical condition.
- Pediatric paddles should be used in children < 10 kg or Broselow-Luten color Purple
- Monitor for respiratory depression and hypotension associated if Diazepam or Midazolam is used.
- Continuous pulse oximetry is required for all SVT Patients if available.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- As a rule of thumb, the maximum sinus tachycardia rate is 220 – the patient's age in years.