

Pediatric Care

(Section P)

The Pediatric patient will be defined as a patient less than 12 or 12-16 not over 40kgs. If no one is available to confirm look for signs of maturation such as pubic hair or breast formation for females.

NORMAL VITAL SIGNS AND APGAR CHART

Normal Vital Signs

AGE	ESTIMATED WEIGHT	HEART RATE	RESPIRATORY RATE	SYSTOLIC B/P
PREMATURE	Less than 3 kg	160	Greater than 40	60
NEWBORN	3.5 kg	130	40	70
3 mo.	6 kg	130	30	90
6 mo.	8 kg	130	30	90
1 yr.	10 kg	120	26	90
2 yrs.	12 kg	115	26	90
3 yrs.	15 kg	110	24	90
4 yrs.	17 kg	100	24	90
6 yrs.	20 kg	100	20	95
8 yrs.	25 kg	90	20	95
10 yrs.	35 kg	85	20	100
12 yrs.	40 kg	85	20	100
14 yrs.	50 kg	80	18	110
ADULT	Greater than 50 kg	80	18	120

APGAR Chart

SIGN	0	1	2
MUSCLE TONE (ACTIVITY)	LIMP	SOME FLEXION	ACTIVE, GOOD FLEXION
PULSE	ABSENT	LESS THAN 100/MIN	GREATER THAN 100/MIN
REFLEX IRRITABILITY* (GRIMACE)	NO RESPONSE	SOME GRIMACE OR AVOIDANCE	COUGH, CRY OR SNEEZE
COLOR (APPEARANCE)	BLUE, PALE	PINK BODY, BLUE HANDS/FEET	PINK
RESPIRATIONS	ABSENT	SLOW/IRREGULAR, INEFFECTIVE	CRYING, RHYTHMIC EFFECTIVE

*Nasal or Oral Suction Catheter Stimulus

(P-1) Pediatric Airway Obstruction

- 1) ABC confirm obstructed airway
- 2) Attempt to clear with following methods
 - a) Less than one year Back blows and Chest thrusts
 - b) Over one year Abdominal thrust
- 3) Is patient breathing? If yes then supportative care
- 4) If patient is not breathing attempt to visualize and if seen remove obstruction
 - a) attempt to ventilate with BVM and continue sequence until able to ventilate
- 5) May be able to intubate and force obstruction into right main stem as last resort

(P-2) Allergic Reaction/Anaphylaxis

- 1) Medical assessment
- 2) Scene safety and remove patient from agent that is causing the reaction
- 3) O2, IV and cardiac monitor
- 4) Consider cold compress for effected area
- 5) Consider **Epinephrine 1:1000 0.01mg/kg**, (max single dose 0.3mg Sub Q)
- 6) Consider **Diphenhydramine 1mg/kg** slow IV push over 2 minutes or IM if no IV access available (max single dose 50mg)
- 7) **Albuterol** for wheezing @ **2.5-5mg** HHN may repeat in 5 minutes
- 8) Consider volume replacement as warranted **10-20ml/kg of NS** to maintain a pressure above the lower limit

(P-3) Apparent Life Threatening Event

Look for following signs and symptoms; apnea, color change, marked change in muscle tone and choking or gagging. Usually less than 12 months old. Manage as follows:

- 1) Medical assessment to include OPQRST/SAMPLE history
 - a) Onset, provocation, quality, radiation, severity, time
 - b) Signs/symptoms, allergies, medicines, pertinent history, last meal, events involved
- 2) Support vital status as appropriate
- 3) R/O hypoglycemia etc.

(P-4) Altered Mental Status

- 1) Medical assessment
- 2) R/O diabetes if hypoglycemic refer to diabetic protocol
- 3) R/O hypothermia
- 4) For suspected OD see protocol (P-13)

GLASGOW COMA SCALES

Eye Opening

Spontaneously	4
To Voice	3
To Pain	2
No Response	1

Motor Response

To Verbal Command - Obeys	6
To Painful Stimulus - Localizes Pain	5
Flexion - Withdraw	4
Flexion - Abnormal	3
Extension	2
No Response	1

Verbal Response

Less than 2 years old

5 SMILES/COOS/CRIS
4 CRIS
3 INAPPROPRIATE CRIS/SCREAMS
2 GRUNTS
1 NO RESPONSE

2-5 years old

APPROPRIATE WORDS
INAPPROPRIATE WORDS
CRIS/SCREAMS
GRUNTS
NO RESPONSE

Greater than 5 years old

ORIENTED AND CONVERSES	5
DISORIENTED AND CONVERSES	4
INAPPROPRIATE WORDS	3
INCOMPREHENSIBLE SOUNDS	2
NO RESPONSE	1

Glasgow Coma Score

Total (3-15)

(P-5) Diabetic/Glucose Emergencies

(p-5a) Hypoglycemia

- 1) Medical assessment
- 2) O₂, IV and cardiac monitor as appropriate
- 3) Oral glucose may be administered to patients that can protect their own airway 7.5-15 grams
- 4) Dextrose IV can be administered as follows;
 - a) One month or younger D10W 2ml/kg slow IV push
 - i) To mix D10W it is 10ml of saline for every 2ml of D50W
 - b) One month to eight years old D25W 2ml/kg slow IV push
 - i) To mix D25W it is a 4 ml of saline for 2 ml of D50 W

(p-5b) Hyperglycemia

- 1) Medical assessment
- 2) O₂, IV and cardiac monitor
- 3) Patient with BGL of greater than 300mg/dl infuse 20ml/kg of NS rapid IV bolus not to exceed one liter

(P-6) Drowning/Submersion

- 1) Remove from water in appropriate manner to protect patient c-spine
- 2) Assess vital status (assess for hypothermia)
- 3) See SRT tech for water temp and condition
- 4) If hypothermic see appropriate algorithm
- 5) Remove wet clothing and provide a warm environment
- 6) O2, IV, Monitor
- 7) If in arrest refer to appropriate algorithm

(P-7) Heat Related Emergencies

- 1) Perform medical assessment, consider environment
 - a) Try to obtain an accurate body temperature if mental status allows
- 2) Move to a cooler environment and remove clothing

(p-7a) Heat Cramps

- 1) Attempt oral rehydration with isotonic solution or water
- 2) If patient unable to handle oral intake then establish IV access and infuse NS 10-20ml/kg over 30-60 minutes

(p-7b) Heat Exhaustion

- 1) Cool patient with ice packs, cool wet towels, or fans (Apply to carotid, femoral, brachial and groin area)
- 2) Be cautious not to cool patient too fast or to extreme. Remove cooling agents once patient temperature is @ 100f or shivering begins
- 3) O2, IV, monitor
- 4) Fluid infusion of 10-20ml/kg over 30-60 minutes

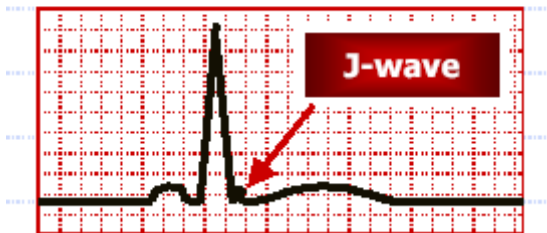
(p-7c) Heat Stroke

- 1) Same as above
- 2) Cautious with fluid resuscitation, 10/20ml/kg if Hypovolemia with hemodynamic compromise is suspected

(P-8) Hypothermia

- 1) Medical assessment
 - a) If hypothermia is suspected then try to obtain body temperature
 - b) Remember to assess longer for a pulse 30-60 seconds
 - c) Assess for hypoglycemia treat if below 50mg/dl refer to diabetic protocol
- 2) If patient in cardiac arrest then refer to the hypothermic arrest algorithm
- 3) Avoid further heat loss (remove wet clothing etc)
 - a) Remember the surface area is greater for pediatric patient protect aggressively from further heat loss
- 4) Layer patient with several blankets
 - a) Make sure to turn heat on in back of unit en route to call
 - b) O2, IV, cardiac monitor and position supine if possible
 - c) If intubation is warranted be cautious as it may precipitate V-fib
 - d)

The "J" wave or "Osborne" wave is an extra "blip" after the R-wave. It is usually seen in Lead-I, and is common in the Hypothermic patient. The etiology of this electrical event is unknown.



(P-9) Non-Traumatic Bleeding/Dehydration

- 1) Medical assessment
- 2) Include BGL to R/O hypoglycemia (if BGL less than 50 refer to diabetic) protocol
- 3) O2, IV, and cardiac monitor
- 4) Fluid resuscitation 10-20ml/kg over 10-20 minutes

(P-10) Pediatric Pain Management

Morphine is not contraindicated based on age. **Contact medical control** on a situational basis. Request 0.05-0.2mg/kg of Morphine up to maximum single dose of 5mg. You may also consider N2O2 (Nitronox) however patient must be old enough to self administer.

- 1) Contact **medical control** for orders to give **Fentanyl 1-2mcg/kg** slow IV push
- 2) N2O2 (Nitronox) can be self-administered on standing order.
 - a) Pt has to hold the mask to administer and can continue to receive N2O2 as long as they can hold it
- 3) **Morphine is contraindicated in undiagnosed abdominal pain.**
- 4) Contact **medical control** for orders to give **Morphine**, it may be given in **0.05-0.2 mg/kg** as directed by medical control

(P-11) Pediatric Reactive Airway

- 1) Medical assessment
- 2) O2, IV and cardiac monitor as tolerated by patient
- 3) If patient is wheezing administer **Albuterol 5mg** via HHN
- 4) If partial response repeat **Albuterol 5mg** HHN in 5 minutes
- 5) If no response consider the following;
 - a) Administer **Racemic Epi 2.25% 0.25-0.5ml/kg** diluted in 3ml of sterile water
 - i) <20kg 0.25ml
 - ii) 20-40kg 0.5ml
 - iii) >40kg 0.75ml
 - b) If patient is less than 8 years old administer Epinephrine as follows;
 - i) less than 10kg **0.1mg** of **Epi 1:1000 SQ**
 - ii) 11-20kg **Epi 1:1000 0.2mg SQ**
 - iii) 21-30kg **Epi 1:1000 0.3mg SQ**

(P-12) Pediatric Seizure/Status Epilepticus

- 1) Medical assessment
- 2) O2, IV and cardiac monitor
- 3) If patient's actively seizing consider the following:
 - a) **Diazepam 0.1-0.3mg/kg** IV push at 2mg/min
 - b) May repeat initial dose total cumulative dose is 5mg for 5 years or younger 10mg for children older than 5.
 - c) Can consider **Lorazepam 0.1mg/kg** IV over 2 minutes (2mg/min)
 - d) Can repeat the initial dose up to 4mg cumulative dose
- 4) If unable to establish IV access then consider **Lorazepam 0.1mg/kg** IM
- 5) May consider **rectal** administration of **Diazepam 0.5mg/kg** in patient where IV's cannot be established
 - a) Repeat doses of rectal Valium @ 0.25mg/kg q15 minutes
 - b) Cumulative rectal dose 20mg or less.

(P-13) Pediatric Toxicological Emergencies/Poisoning

- 1) Scene safety
 - a) Appropriately attired and trained personnel to remove and decontaminate as necessary
 - b) If necessary flush patient with appropriate solution
 - c) Try to obtain MSDS information on substance if indicated
- 2) Administer appropriate reversal agents
 - a) **Naloxone 0.1mg/kg** IV, IM, SubQ up to one time dose of 2 mg
 - i) Titrate to ventilation and be cautious of dysrhythmias and withdrawals
 - ii) May administer up to 10 mg cumulative dose.
 - iii) Remember that half life of Narcan may be less than the amount of narcotics the patient has in their system
- 3) **Diphenhydramine 1mg/kg** IV or IM for dystonic reaction related to phenothiazine ingestion Maximum dose is 50mg
- 4) Tricyclic Antidepressant overdose consider **Sodium Bicarbonate 1Meq/kg** IV bolus over 2 minutes
 - a) Look for sustained tachycardia > 120 and/or QRS complex greater than 0.10 sec and/or hypotension not responsive to fluid therapy
- 5) Calcium Channel Blocker overdose consider **Atropine 1mg** IV push for symptomatic bradycardia. **Calcium Gluconate 10% 20mg/kg** over 10 minutes
 - a) Look for the following signs and symptoms
 - i) Bradycardia
 - ii) Conduction delays
 - iii) Hypotension
 - iv) Slurred speech
 - v) Nausea and vomiting
- 6) Organophosphate Poisoning consider **Atropine 2mg** IV bolus repeated and double the dose at 5-10 minute intervals up to total of 6mg. Look for decrease in SLUDGE
 - a) SLUDGE
 - i) Salivation
 - ii) Lacrimation
 - iii) Urination
 - iv) Diarrhea
 - v) GI cramping
 - vi) Emesis