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MEDICAL CENTER

EMS System

Pediatric Pre-hospital Care Manual

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Draft 1.0 – April 2022 – Dr. Michael Daley, Medical Director

OSF HEALTHCARE

Pediatric Assessment and Management

ALL PEDIATRIC EMERGENCIES SHOULD BE INTERCEPTED BY AN ALS UNIT (if available)

A patient **the age of fifteen (15) and under** is considered to be a pediatric patient. Utilization of pediatric treatment guidelines and the extent of care rendered is based on the general impression of the pediatric patient's condition, physical examination findings and the history of the event. *Patients 16 years or older will treated with adult protocols*.

The goal of the pediatric patient assessment process is similar to that of the adult patient. However, children are **not** "little adults". The causes of catastrophic events, such as cardiac arrest, are most often related to respiratory failure, shock or central nervous system injuries. Early recognition and treatment of the pediatric patient's injuries or illness is important to ensure the best outcome.

Special attention and awareness must be given to the pediatric patient's exceptional ability to compensate for respiratory failure and shock. Vital signs are valuable in the assessment of the pediatric patient but do have significant limitations and can be dangerously misleading. For example, hypotension is a late and often sudden sign of cardiovascular decompensation. Tachycardia (which varies by age group) will persist until cardiac reserve is depleted. Bradycardia is an ominous sign of impending cardiac arrest.

Infants and children are able to maintain their blood pressure by increasing peripheral vascular resistance (shunting) and heart rate. **The pediatric patient can be in compensated shock and exhibit a normal blood pressure and skin condition**. This increases the importance of the EMS provider's understanding of pediatric vital signs and behavior patterns.

The EMS provider must establish a general impression of the pediatric patient. This impression, which is critical, should be done from the doorway of the room. Therefore, the pediatric patient will not be disturbed by a "hands-on" assessment. A simple question to ask yourself is, "How sick is this child?"

Three (3) key areas of importance of a general impression are:

1. **Appearance**
2. **Work of breathing**
3. **Circulation to skin**

The three components are known as the ***Pediatric Assessment Triangle (PAT)*** established by the American Academy of Pediatrics (2000).

Pediatric Assessment Triangle (PAT)

Appearance

The appearance of the pediatric patient should be assessed from the doorway. This is the most important aspect to consider when determining how sick or injured the child is. *Appearance* will give the EMS provider insight on oxygenation, neurological status and ventilation. Remember, the sick child may be alert on the conventional AVPU scale, but still have an abnormal appearance. Children need a more subtle assessment tool so that life-threatening injuries can be identified earlier. A good mnemonic to remember when assessing appearance is "tickles" (TICLS):

Characteristic	*Features to look for:*
Tone	Is he/she moving or resisting examination vigorously? Does he/she have good muscle tone? Or, is he/she limp, listless or flaccid?
Interactiveness	How alert is the child? How readily does a person, object, or sound distract him/her of draw his/her attention? Will he/she reach for, grasp and play with a toy or exam instrument such as a penlight or tongue blade? Or, is he/she uninterested in playing or interacting with the caregiver or prehospital professional?
Consolability	Can he/she be consoled or comforted by the caregiver or by the prehospital professional? Or, is his/her crying or agitation unrelieved by gentle assurance?
Look/Gaze	Does he/she fix his/her gaze on a face? Or, is there a "nobody home," glassy-eyed stare?
Speech/Cry	Is his/her cry strong and spontaneous, or weak or high-pitched? Is the content of speech age-appropriate, or confused or garbled?

The *TICLS* Mnemonic (PEPP/AAP 2nd Edition 2006)

Pediatric Assessment Triangle (PAT)

Work of Breathing

Assessing work of breathing must go beyond the rate and quality of respirations that is used for adult patients. Work of breathing is an accurate indicator of the oxygenation and ventilation status of the pediatric patient. This is another "hands off" evaluation method in order to avoid disturbing the pediatric patient and causing anymore-respiratory distress (other than what is already present).

Characteristic	*Features to look for:*
Abnormal Airway Sounds	Snoring, muffled or hoarse speech; stridor; grunting; wheezing
Abnormal Positioning	Sniffing position, tripoding, refusing to lie down
Retractions	Supraclavicular, intercostal, or substernal retractions of the chest wall; "head bobbing" in infants
Flaring	Flaring of the nares on inspiration

Characteristics of Work of Breathing (PEPP/AAP 2nd Edition 2006)

Pediatric Assessment Triangle (PAT)

Circulation to Skin

A rapid circulatory assessment is needed to determine the perfusion status of the pediatric patient. The key is to assess the core perfusion status of the child. Assessing the skin and mucous membranes can do this. Circulation to the skin reflects the overall status of core circulation.

Characteristic	*Features to look for:*
Pallor	White or pale skin/mucous membrane coloration from inadequate blood flow
Mottling	Patchy skin discoloration due to vasoconstriction/vasodilation
Cyanosis	Bluish discoloration of skin and mucous membranes

Characteristics of Circulation to Skin (PEPP/AAP 2nd Edition 2006)

Pediatric Assessment Triangle (PAT)

Putting it all Together

The goal of pediatric patient care is to identify patients in shock or at risk of shock, initiating care that will directly assist maintaining the patient's perfusion and safely transporting the patient to an emergency department or trauma center in a timely manner. The benefit of remaining on scene to establish specific treatments versus prompt transport to a definitive care facility should be a consideration of each patient contact. Requesting advanced assistance is another important resource that BLS & ILS providers should consider.

Notes on Pediatric Shock:

Mechanism	*Medical*	*Traumatic*
Hypovolemia	Blood Loss – Internal Bleeding Fluid Loss – Dehydration	Blood Loss – Trauma Fluid Loss – Burns
Cardiogenic (Pump Failure)	Respiratory Failure Airway Obstruction Dysrhythmia	Chest Trauma Pneumothorax Pericardial Tamponade
Vessel Failure	Sepsis Anaphylaxis Chemical/Poisoning Endocrine Dysfunction	Spinal Cord Injury (Neurogenic)

****** ILS/ALS Units should defer to the Handtevy system guide for Medication dosages as they are aligned with system Protocols.**

Pediatric Age Definitions & Assessment Considerations

Neonate (0-1 Month):

- Utilization of APGAR Scoring is helpful in assessing the neonate patient.

Infant (1-12 Months):

- Approach the infant slowly and calmly. Fast motion and loud noises may startle or agitate the infant.
- Use warm hands and assessment tools.
- Avoid doing anything potentially painful or distressing until after the assessment is completed.
- Have the caregiver assist in care – this is less threatening to the infant.
- Children over six (6) months of age are usually best examined in the arms of a parent. "Stranger anxiety" may be present and could eliminate other assessment options.
- If needed, calm the infant with a pacifier, blanket or favorite toy.

Pediatric Age Definitions & Assessment Considerations

Toddler (1-3 Years):

- Approach the toddler slowly. Keep physical contact at a minimum until he/she feels familiar with you.
- Perform the assessment at the level of the toddler by sitting or squatting next to them and **allow the toddler to remain in the caregiver's lap** whenever possible.
- Assessment should be **toe to head**. This is less threatening to the toddler.
- Give limited choices such as "Do you want me to listen to your chest or feel your wrist first?"

Pediatric Age Definitions & Assessment Considerations

Toddler (1-3 Years) {Continued}:

- Use simple, concrete terms and continually reassure the toddler.
- Do not expect the toddler to sit still and cooperate – be flexible.

Preschooler (3-5 Years):

- A preschool aged child is a "magical thinker." Concrete concepts must be described in short, simple terms.
- A preschooler is often very cooperative during the assessment process and may be able to provide a history.
- Questions should be simple and direct.
- Allow the child to handle equipment.
- Use distractions.
- **Do not lie to the child. If the procedure is going to hurt, tell them.**
- Set limits on behavior (*e.g.* "You can cry or scream, but don't bite or kick.").
- Focus on one thing at a time.

- Play games with immobilized preschoolers to distract him/her and prevent them from squirming.

Pediatric Age Definitions & Assessment Considerations

School Age (5-13 Years):

- The school aged child is usually cooperative and can be the primary sources for the patient history.
- Explain all procedures simply and completely and respect the patient's modesty.
- Substance abuse issues may be present in this age group and should be considered during the care of altered level of consciousness cases.
- Children at this age are afraid of losing control, so let him/her be involved in the care. However, do not negotiate patient care unless the child really has a choice.
- Reassure the child that being ill or injured is not a punishment and praise them for cooperating.

Adolescent (13-16 Years):

- **The adolescent is more of an adult than a child and should be treated as such.** Depending on the nature of the problem, an accurate history may not be possible with parents observing. It may be necessary to separate the parent and child during the assessment.
- Regardless of who is present, respect the patient's modesty. Avoid exposing the adolescent unnecessarily.
- Explain what you are doing and *why* you are doing it!
- Show respect – speak to the adolescent directly. Do not turn to the caregiver for the initial information.

Assessment of the Pediatric Patient

1. **Scene Size-Up**
   - Identify possible hazards and initiate appropriate proper BSI
   - Note anything suspicious at the scene (*e.g.* medications, household chemicals, other ill family members, etc.).

- Assess for any discrepancies between the history and the patient presentation (*e.g.* infant fell on hard floor but there is carpet throughout the house).

2. General Approach to the Stable/Conscious Pediatric Patient

- Utilize the *PAT (Pediatric Assessment Triangle)* to gain a general impression of the child.
- Assessments and interventions must be tailored to each child in terms of age, size and development.
- Smile, if appropriate to the situation.
- Keep voice at an even, quiet tone – do not yell.
- Speak slowly. Use simple, age appropriate terms.
- Keep small children with their caregiver(s) whenever possible and complete assessment while the caregiver is holding the child.
- Kneel down to the level of the child if possible.
- Be cautious in the use of touch. In the stable child, make as many observations as possible before touching (and potentially upsetting) the child.
- Adolescents may need to be interviewed without their caregivers present if accurate information is to be obtained regarding drug use, alcohol use, LMP, sexual activity or child abuse.
- ❖ Observe general appearance and determine if behavior is age appropriate.
- ❖ Observe for respiratory distress or extreme pain.
- ❖ Look at the position of the child.
- ❖ What is the level of consciousness?
- ❖ Muscle tone: good vs. limp.
- ❖ Movement: spontaneous, purposeful or symmetrical.
- ❖ Color: pink, pale, flushed, cyanotic or mottled.
- ❖ Obvious injuries: bleeding, bruising, gross deformities, etc.
- ❖ **Determine age (weight)** – ask patient, caregiver(s) or use Handtevy tape or Broslow tape

Assessment of the Pediatric Patient

3. Initial Assessment

- Airway access/maintenance with c-spine control
  - Maintain with assistance: positioning
  - Maintain with adjuncts: oral airway, nasal airway
  - Maintain with endotracheal tube. **Studies have shown that BLS management of pediatric airways may be just as effective as intubation. <u>Do not</u> spend time on scene with intubation procedures.**
  - Listen for any audible airway noises (*e.g.* stridor, snoring, gurgling, wheezing)
  - Patency: suction secretions as necessary

Assessment of the Pediatric Patient

- Breathing
  - Rate & rhythm of respirations – compare to normal rate for age and situation
  - Chest expansion – equal rise and fall
  - Breath sounds – compare both sides and listen for sounds (present, absent, normal, abnormal)
  - Positioning – sniffing position, tripod position
  - Work of breathing – retractions, nasal flaring, accessory muscle use, head bobbing, grunting

- Circulation
  - Heart rate – compare to normal rate for age and situation
  - Central pulses (*e.g.* brachial, carotid, femoral) – strong, weak or absent
  - Distal/Peripheral pulses (*e.g.* radial) – present/absent, thready, weak or strong
  - Color – pink, pale, flushed, cyanotic, mottled
  - Skin temperature – hot, warm, cool, or cold
  - Blood pressure – use appropriately sized cuff and compare to normal for the age of the child
  - Hydration status – observe anterior fontanel in infants, mucous membranes, skin turgor, crying tears, urine output, history to help determine

- Disability – Brief Neurological Examination:
  - Assess responsiveness – APGAR, AVPU or TICLS
  - Assess pupils
  - Assess for transient numbness/tingling

- Expose and Examine:
  - Expose the patient as appropriate based on age and severity of illness.
  - Initiate measures to prevent heat loss and keep the child from becoming hypothermic.

4. Rapid Assessment vs. Focused History & Physical Assessment

- Tailor assessment to the needs and age of the patient.
- Rapidly examine areas specific to the chief complaint.
- *Responsive medical patients*: Perform focused assessment based on chief complaint. A full review of systems may not be necessary. If the chief complaint is vague, examine all systems and proceed to detailed exam.
- *Unresponsive medical patients*: Perform rapid assessment (*i.e.* ABCs & a quick head-to-toe exam). Render emergency care based on signs &

symptoms, initial impression and standard operating procedures. Proceed to detailed exam.

Assessment of the Pediatric Patient

- *Trauma patients with **NO** significant mechanism of injury*: Focused assessment is based on specific injury site.
- *Trauma patients **with significant mechanism of injury***: Perform rapid assessment of all body systems and then proceed to detailed exam.

5. **Detailed Assessment**

- SAMPLE history – acquire/incorporate into physical exam.
- Vitals (pulse, BP, respirations, skin condition, pulse ox, breath sounds)
- Assessment performed (usually en route) to detect non life-threatening conditions and to provide care for those conditions or injuries
- Inspect body for **D**eformities, **C**ontusions, **A**brasions, **P**enetrations, **B**urns, **L**acerations, **S**welling, **T**enderness, **I**nstability, and **C**repitus

Assessment of the Pediatric Patient

6. **Ongoing Assessment**

- To effectively maintain awareness of changes in the patient's condition, repeated assessments are essential and should be performed **at least every 5 minutes on the unstable patient** and **at least every 15 minutes on the stable patient.**

Normal Pediatric Vital Sign Ranges			
	Heart Rate	**Respiratory Rate**	**Blood Pressure**
Infant	100-160 bpm	30-60 rpm	> 60mmHg systolic
Toddler	90-150 bpm	24-40 rpm	> 70mmHg systolic
Preschooler	80-140 bpm	22-34 rpm	> 75mmHg systolic
School Age	70-120 bpm	18-30 rpm	> 80mmHg systolic

Adolescent	60-100 bpm	12-16 rpm	> 90mmHg systolic

Protocol 11

Routine Pediatric Care

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P

BLS Care – CAB
Assessment age appropriate
Pulse ox
Blood Glucose Check
Vitals
Oxygen if needed
Proper positioning
ALS intercept if needed

SICK

Refer to Appropriate PEDIATRIC PROTOCOL ALS intercept if needed

NOT SICK

Monitor CAB's Vitals Comfort patient Transport if indicated

NOTE TO PREHOSPITAL PROVIDERS:

- When determining the extent of care needed to stabilize the pediatric patient, the EMS provider should take into consideration the patient's presentation, chief complaint, risk of shock and proximity to the receiving facility.
- IV access in pediatric patients is difficult and may complicate the situation. Indications and benefits vs. patient disturbance and complications should be considered.
- IV access should not significantly delay initiation of transportation or be attempted on scene with a trauma patient meeting load-and-go criteria.

Protocol 12

PEDIATRIC PAIN CONTROL

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P

Enter from protocol based on **Specific Complaint**

Assess Pain Severity
Use combination of
Pain Scale, Circumstances, MOI,
Injury or Illness severity
BLS/ILS consider ALS Mutual Aid

Mild Pain (Scale 0-6 out of 10)

I | Consider IV | P

Monitor and Reassess

TRANSPORT

Allow for position of maximum comfort unless contraindicated

Moderate to Severe Pain (Scale > 6)

I | Establish IV/IO | P

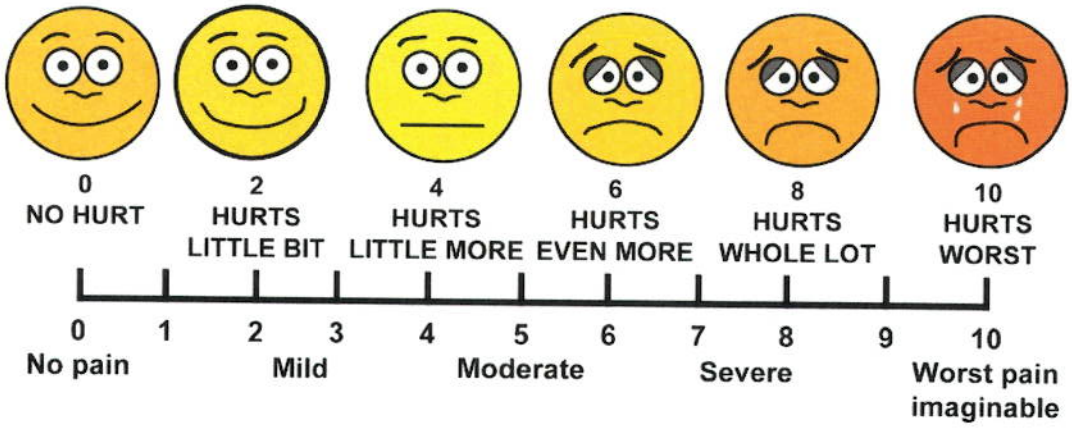
I | Cardiac Monitor | P

P | **FENTANYL per Handtevy Age Dose**
May repeat every 10 minutes as needed until improvement. Max total dose
OR
Ketamine | P

Monitor and Reassess every 5 minutes; following narcotic dose. Hold further doses of opioids if any respiratory depression or AMS

TRANSPORT

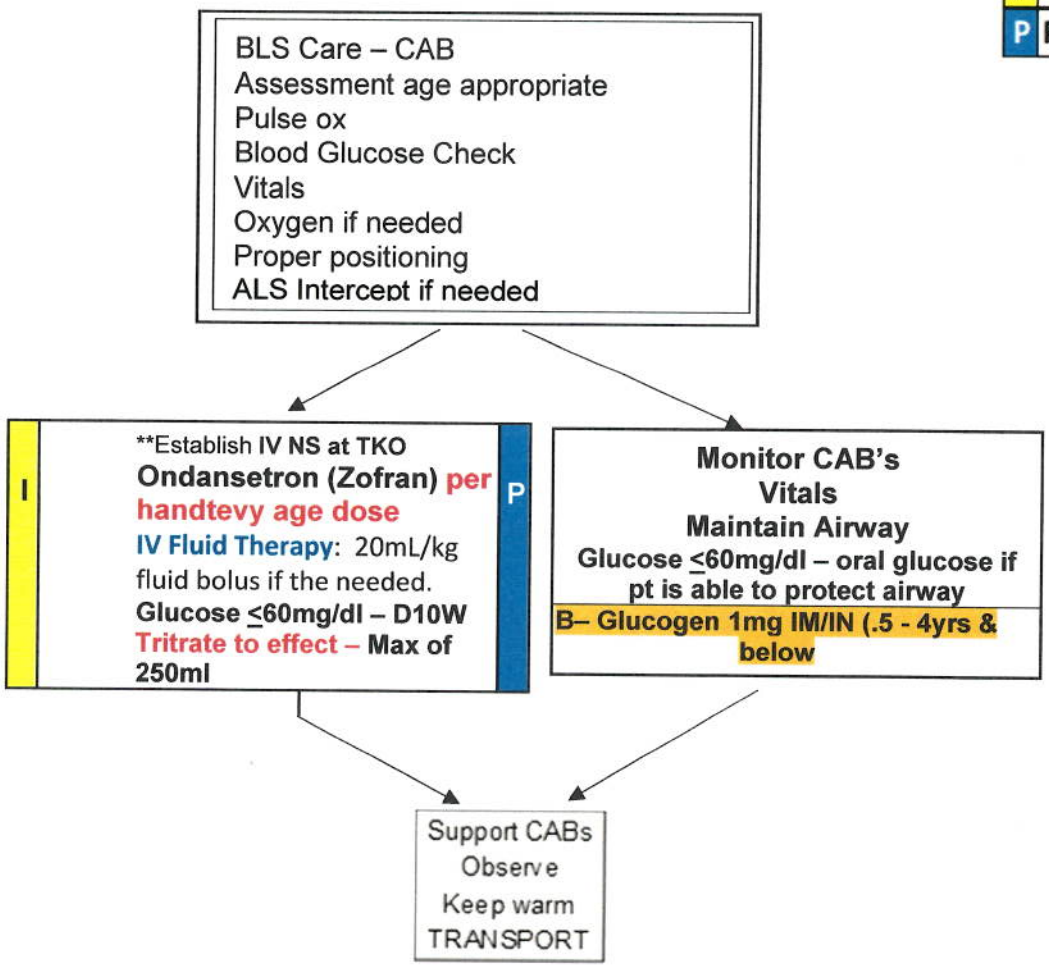
PAIN MEASUREMENT SCALE



Protocol 13

Pediatric Care Nausea/Vomiting

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P



NOTE TO PREHOSPITAL PROVIDERS:

- Place the patient in an upright or lateral recumbent position as tolerated.
- Monitor airway status in vomiting patients as aspiration may occur. Reposition the patient as necessary to maintain a patent airway.
- **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. ***Note:*** Oxygen by mask may trap secretions and compromise the airway if the patient is actively vomiting.

Protocol 14

RESUSCITATION AND CARE OF THE NEWBORN

Infant Care

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P

Begin Infant Prehospital Care Report

Document time of delivery

Is meconium present?

- NO → Quickly dry baby & continue airway support. Spontaneous respirations should begin within 15 seconds after stimulating reflexes. If not, begin ventilations at 40-60 breaths per minute. If no brachial pulse or pulse <60, begin CPR at 3 to 1 and accelerated transport. Refer to **PEDIATRIC CARDIAC ARREST PROTOCOL**
- YES → Is infant limp?
  - NO → Obtain one minute **APGAR SCORE**
  - YES → Clear airway with bulb syringe → Able to ventilate?
    - YES → Obtain one minute **APGAR SCORE**
    - NO → Attempt to ventilate with BVM → P: Until able to intubate or Biad P → ACCELERATED TRANSPORT

Obtain one minute **APGAR SCORE**

- Wait for cord pulsations to stop.
- Clamp cord 6-8 inches from infant's body.
- Cut between clamps with sterile knife or scissors.

- Dry baby, wrap in chux or blanket to maintain body heat.
- Utilize an infant hat, (if available).
- If in cold environment, wrap aluminum foil or silver swaddler around blanket to insulate.
- If placenta has delivered, it may be used as a heat source.
- Place placenta in plastic bag and wrap infant and placenta in blanket insulated with foil.

- Place infant on side, preferably head lower than trunk, suction as needed.
- IF INFANT IS CYANOTIC, BUT BREATHING SPONTANEOUSLY, place Infant NRB next to infant's face & administer **OXYGEN at 15L/minute.**

Obtain five minute **APGAR SCORE** and document on report form.

Place ID tags on mother and infant.

TRANSPORT

Apgar Score (evaluate at 1 AND 5 minutes postpartum)			
SIGN	**0**	**1**	**2**
Appearance (Skin Color)	**Blue, pale**	**Body pink extremities blue**	**Completely Pink**
Pulse rate (HR)	**Absent**	**Below 100**	**Above 100**
Grimace	**No Response**	**Grimaces**	**Cries**
Activity	**Limp**	**Some flexion of extremities**	**Active Motion**
Respiratory (Effort)	**Absent**	**Slow and Irregular**	**Strong Cry**

Protocol 15

PEDIATRIC CARDIAC ARREST

- Establish unresponsiveness
- Position airway
- Determine breathlessness
- Ventilate with BVM 100% **OXYGEN**
- Determine pulselessness
- Initiate compressions, and continue as indicated
- Maintain airway
- **(BLS) AED (if available)**, (ALS) Quick look/cardiac monitor

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P

Ventricular Fibrillation or Pulseless Ventricular Tachycardia

I **Defibrillate at 2 J/kg** P

Resume CPR immediately

Give 5 cycles of CPR (15:2)- 2 Rescuer

During CPR Secure airway and confirm placement

I Establish **IV/IO LR at TKO and Airway- ET or Biad** P

Continue CPR

I **Defibrillate at 4 J/kg**
Resume CPR immediately
EPINEPHRINE per Handtevy age dose
Repeat every 3-5 minutes P

I **Defibrillate at 4 J/kg** P

Resume CPR immediately
Give 5 cycles of CPR (15:2)

I **Amiodarone** per Handtevy age dose
Repeat every 3-5 minutes. Max total dose 5mg/kg P

Pulseless Electrical Activity (PEA) or Asystole

Resume CPR immediately

During CPR Secure airway and confirm placement

I Establish **IV/IO LR at TKO** P

I **EPINEPHRINE** per Handtevy age dose
Repeat every 3-5 minutes
Secure Airway ET or BIAD P

Identify and treat possible causes:

Hypovolemia	**Refer PALS IV fluid bolus**
Hypoxia	Ventilate w/100% **OXYGEN** (Check tube placement)
Acidosis/Hypoxemia	Ventilate w/100% **OXYGEN** (Check tube placement)
Hypothermia	Follow appropriate protocol
Hypoglycemia	Follow appropriate protocol
Hypo/Hyperkalemia	**PALS IV fluid bolus**
Toxins	**PALS IV fluid bolus**
Tamponade,cardiac	**PALS IV fluid bolus**
Tension Pneumo	Pleural Decompression
Thrombosis/PE	Rapid TRANSPORT w/100% **OXYGEN**
Trauma	Follow appropriate protocol

I **Fluid bolus Refer PALS**, may repeat as indicated. Max 60ml/kg
****D10W IV/IO Titrate to effect**
NARCAN per Handtevy Age dose. Max single dose 2mg P

Support ABCs
Complete initial assessment
Observe
Keep warm
RAPID TRANSPORT

P **NOTE TO PREHOSPITAL PROVIDERS**:

1. Acidosis in children is primarily a problem of ventilation and oxygenation.
2. **BICARBONATE** administration should be reserved for unobserved arrests or prolonged resuscitations ≥10 minutes
   * To make **BICARBONATE 4.2%** dilute **BICARBONATE 8.4%** 1:1 with sterile water or normal saline

P

Protocol 16

PEDIATRIC BRADYCARDIA

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

- Assess CABs
- Administer 100% **OXYGEN**
- Complete initial assessment. Assess for:
  - Respiratory difficulty
  - Cyanosis despite **OXYGEN** administration
  - Truncal cyanosis and coolness
  - Hypotension
  - No palpable blood pressure
  - Weak thready, absent peripheral pulses
  - Decreasing consciousness

I Cardiac Monitor P

No cardiorespiratory compromise

Support ABCs
Observe
Keep warm
RAPID TRANSPORT

Severe cardiorespiratory compromise

- Secure airway as appropriate
- Support ventilation with BVM as indicated
- Pulse oximetry

Perform chest compressions if despite oxygen and ventilation, heart rate <60/min with hypoperfusion. Continue compressions as indicated.

I Establish **IV/IO LR at TKO** P

P **EPINEPHRINE** See Handtevy age dose May repeat every 3-5 minutes P

P **ATROPINE** See Handtevy age dose Max single dose 0.5mg May be repeated once in 5 minutes P

Improved cardiac status

Continued severe cardiac compromise

NOTE TO PREHOSPITAL PROVIDERS:

1. Hypoglycemia has been known to cause bradycardia in infants.
2. Refer to **PEDIATRIC ALTERED LEVEL OF CONSCIOUSNESS PROTOCOL**
3. Special conditions may apply in the presence of severe hypothermia.
4. Refer to **PEDIATRIC COLD EMERGENCIES PROTOCOL** as needed.

*Limited pediatric data on efficacy of external pacing.

P Per **Medical Control**, consider **external pacing*** P

Refer to **PEDIATRIC CARDIAC ARREST PROTOCOL**

Protocol 17

PEDIATRIC TACHYCARDIA WITH POOR PERFUSION

- Assess ABCs
- Administer 100% **OXYGEN**
- Assess for severe cardiorespiratory compromise:
  - Respiratory distress
  - Truncal cyanosis and coolness
  - Weak thready, or absent peripheral pulses
  - Hypotension/no palpable blood pressure
  - Decreasing consciousness

I Cardiac Monitor P

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

Pulse present?

NO → Initiate CPR and Refer to **APPROPRIATE PEDIATRIC PROTOCOL** ◆ → BLS consider ILS/ALS mutual aid

YES →

- F Narrow Complex Tachycardia (QRS duration ≤ 0.08 sec) P
- BLS: IMC & TRANSPORT
- P Wide Complex Tachycardia (QRS duration > 0.08 sec) P

Evaluate Rhythm

Probable Sinus Tachycardia P
- P waves present and normal
- Infant rate usually <220 bpm
- Child rate usually <180 bpm

Identify and treat possible causes:

Hypovolemia	**Refer to PALS IV fluid bolus**
Hypoxia	Ventilate w/100% **OXYGEN** (Check tube placement)
Acidosis/Hypoxemia	Ventilate w/100% **OXYGEN** (Check tube placement)
Hypothermia	Follow appropriate protocol
Hypoglycemia	Follow appropriate protocol
Hypo/Hyperkalemia	**PALS IV fluid bolus**
Toxins	**PALS IV fluid bolus**
Tamponade,cardiac	**PALS IV fluid bolus**
Tension Pneumo	Pleural Decompression
Thrombosis/PE	Rapid TX 100% **OXYGEN**
Trauma	Follow appropriate protocol

Support ABCs
Observe
Keep warm
TRANSPORT

Probable Supraventricular Tachycardia P
- P waves absent or abnormal
- Abrupt rate change to and from normal
- Infant rate usually >220 bpm
- Child rate usually >180 bpm

I IV/IO established or RAPIDLY available? P

YES → **ADENOSINE at 0.1mg/kg IV/IO** P
followed by RAPID flush with 2-5ml NS
May double **ADENOSINE** dose and repeat once if needed. Max initial dose 6mg
Max subsequent dose 12mg

- I Perfusion normal P
- I Rhythm converted but continued hypoperfusion P → **Refer to PED Shock Protocol**
- I Rhythm NOT converted P → TRANSPORT P

NO → **Synchronized Cardioversion 1st Dose at 0.5 J/kg** P
Repeat immediately as necessary at 1J/kg
followed by 2 J/kg if no response

Treat as presumptive Ventricular Tachycardia P

I IV/IO established or RAPIDLY available? P

NO → TRANSPORT P

YES → If conscious, consider sedation with **MIDAZOLAM HYDROCHLORIDE (Versed)** See **Handtevy age dose** DO NOT DELAY CARDIOVERSION P

NOTE TO PREHOSPITAL PROVIDERS: Vagal maneuvers may precipitate asystole and therefore should be employed with caution and only when authorized by **Medical Control** in a cardiac monitored child with IV access

Protocol 18

PEDIATRIC TACHYCARDIA WITH ADEQUATE PERFUSION

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

- Assess ABCs
- Administer 100% **OXYGEN**
- Assess for signs of adequate perfusion:
  - NO Respiratory distress
  - Extremities warm and pink
  - Strong peripheral pulses
  - Conscious and alert

BLS – **ALS Intercept**

I Cardiac Monitor P

P Narrow Complex Tachycardia (QRS duration ≤ 0.08 sec) P

BLS: Contact MEDControl TRANSPORT

P Wide Complex Tachycardia (QRS duration > 0.08 sec) P

Evaluate Rhythm

P **Probable Sinus Tachycardia**
- P waves present and normal
- Infant rate usually <220 bpm
- Child rate usually <180 bpm

P

Identify and treat possible causes:

Hypovolemia	**Refer to PALS fluid bolus**
Hypoxia	Ventilate w/100% **OXYGEN** (Check tube placement)
Acidosis/Hypoxemia	Ventilate w/100% **OXYGEN** (Check tube placement)
Hypothermia	Follow appropriate protocol
Hypoglycemia	Follow appropriate protocol
Hypo/Hyperkalemia	**PALS IV fluid bolus**
Toxins	**PALS IV fluid bolus**
Tamponade,cardiac	**PALS IV fluid bolus**
Tension Pneumo	Pleural Decompression
Thrombosis/PE	Rapid TX 100% **OXYGEN**
Trauma	Follow appropriate protocol

P **Probable Supraventricular Tachycardia**
- P waves absent or abnormal
- Abrupt rate change to and from normal
- Infant rate usually >220 bpm
- Child rate usually >180 bpm

P

I Establish IV/IO P

P **ADENOSINE** See Handtevy age dose followed by RAPID flush with 2-5ml NS May double **ADENOSINE** dose and repeat once if needed P

I Rhythm converted P

I Rhythm NOT converted P

P **Treat as presumptive Ventricular Tachycardia** P

If Stable –Amiodarone: 5mg/kg IV/IO

Support ABCs
Observe
Keep warm
TRANSPORT

Support ABCs
Observe
Keep warm
TRANSPORT

NOTE TO PREHOSPITAL PROVIDERS:

- Vagal maneuvers may precipitate asystole and therefore should be employed with caution and only when authorized by **Medical Control** in a cardiac monitored child with IV access

Protocol 19

PEDIATRIC RESPIRATORY DISTRESS

Assess ABCs
Administer 100% **OXYGEN**
Complete initial assessment
Assess for:

Reactive Airway Disease
- wheezing
- grunting
- retractions
- tachypnea
- diminished respirations
- decreased breath sounds
- tachycardia/bradycardia
- decreasing consciousness

Partial Airway Obstruction
- suspected foreign body, obstruction or epiglottitis
- stridor
- choking
- drooling
- hoarseness
- retractions
- tripod position

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

Reactive (Lower) Airway Disease

- Position of comfort
  Nebulized **Duo-Neb** 0.5mg/2.5ml
- Pulse oximetry
- Capnography

I | Cardiac Monitor | P

Partial (Upper) Airway Obstruction

- Avoid any agitation
- Position of comfort
- Assess tolerance of **OXYGEN** administration

I | Do not attempt intubation, glottic visualization, or IV access
Per **Medical Control**, consider nebulized **Racemic Epi Neb** See Handtevy age dose
Cardiac monitor | P

Obstruction Relieved

Support ABCs
Observe
Keep warm
TRANSPORT

Obstruction Unrelieved

Refer to **PEDIATRIC RESPIRATORY ARREST PROTOCOL** as indicated

Protocol 20

PEDIATRIC RESPIRATORY ARREST

Assess Airway

- Perform airway maneuver, maintaining in-line C-spine stabilization.
  - jaw thrust or chin lift/head tilt
  - suction
  - oropharyngeal airway
- C-spine immobilization as indicated

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

Breathing resumed

- Administer 100% **OXYGEN**
- Support ventilation with BVM as indicated
- Secure airway as appropriate
- E/B: consider blood glucose testand administration of: **ORAL GLUCOSE PO** (if patient can protect airway)

B – **Glucogen 1mg IM/IN (.5 4yrs and below)**

- AND **NALOXONE (Narcan) at 0.1mg/kg IN** for suspected narcotic exposure.

I

- Establish **IV/IO LR at TKO**
- Consider **NALOXONE (Narcan)** see Handtevy age dose if respiratory rate <12, Max single dose 2mg
- Consider blood glucose test and administration of:
  - **D10W titrate to effect Max of 150ml**

P

Hypo-perfusion**

Refer to **PEDIATRIC SHOCK PROTOCOL** or **PEDIATRIC CARDIAC ARREST PROTOCOL**

Normal Perfusion**

Support ABCs
Complete initial assessment

I Cardiac Monitor P

Pulse oximetry
Observe
Keep warm
TRANSPORT

Not Breathing

- Administer 100% **OXYGEN**
- Support ventilation with BVM
- Age appropriate rate

Chest Rise Adequate

Chest Rise Inadequate

Relieve Upper Airway Obstruction

- Reposition airway
- Consider back slaps, chest/abdominal thrusts (age dependent)
- Direct laryngoscopy, foreign body removal with Magill forceps if indicated
- Secure airway as appropriate

P Consider **Advanced Airway if indicated** P

NOTE TO PREHOSPITAL PROVIDERS:

Respiratory arrest may be a presenting sign of a toxic ingestion or metabolic disorder.

Refer to **PEDIATRIC ASSESSMENT AND TRAUMA SCORE PROTOCOL

Protocol 21

Pediatric Tracheostomy Protocol

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P

BLS Care – CAB
Assessment age appropriate
Pulse ox
Blood Glucose Check
Vitals
Oxygen if needed
Proper positioning
ALS intercept

NO OBSTRUCTION

Re-assess
Vitals
Closely monitor airway and work of breathing
Transport

OBSTRUCTION

Suction with French cath
(Appropriate size)
Remove inner cannula and suction
Have caregiver replace trach tube
USE BVM 100% O2 and suction (Do NOT USE **EXCESSIVE FORCE.**

VENTILATING ADEQUATE

Assess Vitals
SAO2
Continue O2
If Resp distress, USE Protocol #

NOT VENTILATING ADEQUATE

If the tracheostomy tube is still not patent, ventilate **mask to mouth** while covering the stoma.

P If the airway is still obstructed:
Insert appropriately sized ETT in *stoma*.
Reassess patency of the airway. P

PROVIDER NOTES

1. Use Capnography if possible
2. Cardiac monitoring should be used
3. Do not delay transport

Protocol 22

PEDIATRIC SHOCK

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

- Assess ABCs
- Secure airway as appropriate
- Administer 100% **OXYGEN**
- Complete initial assessment
- Supine position

I — Cardiac Monitor — P

DETERMINE ETIOLOGY OF SHOCK

CARDIOGENIC SHOCK *
(History congenital heart disease / cardiac surgery / rhythm disturbance / post-cardiac arrest)

I
- Establish **IV/IO LR at TKO**
- Identify any cardiac rhythm disturbance andrefer to appropriate **Cardiac PROTOCOL**

P

DISTRIBUTIVE SHOCK
(Suspected sepsis/anaphylaxis)

I
- Establish **IV/IO LR at TKO**
- Administer **fluid bolus Refer to PALS**
- If suspected allergic reaction, refer to **PEDIATRIC ALLERGIC REACTION / ANAPHYLAXIS PROTOCOL**
- If no response to initial fluid bolus and history of fever/ infection, repeat fluid boluses of 20ml/kg as indicated to a max of 60ml/kg.

P

HYPOVOLEMIC SHOCK
(Suspected dehydration/volume loss/ hemorrhagic shock)

I
- Establish **IV/IO LR at TKO**
- Administer **fluid bolus Refer to PALS**
- If no response to initial fluid bolus, repeat Refer PALSas indicated to max of 60ml/kg.

P

Support ABCs
Pulse oximetry
Observe
Keep warm
TRANSPORT

Pediatric Shock Vital Signs:

0 – 5 mos of age:	Sys BP < 60 mmHg
6 mos – 5 yrs:	Sys BP < 70 mmHg, HR < 70
≥ 6yrs:	Sys BP < 80 mmHg, HR < 60

M — **AT DISCRETION OF PHYSICIAN/ECRN:**
***CAUTION** - Fluids may need to be restricted in Cardiogenic Shock.
For prolonged geographical transport consider **additional fluid boluses or Levophed Drip with pump**

Protocol 23

PEDIATRIC ALLERGIC REACTION ANAPHYLAXIS

- Assess ABCs
- Secure airway as indicated
- Support ventilation with BVM as indicated
- Administer 100% **OXYGEN**
- Complete initial assessment

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

Local Reaction

*Apply ice/cold pack to site

Mild Respiratory Distress

EPI-PEN JUNIOR (if available)
EMR Assist
B- Epi vial 0.15 IM

I **EPINEPHRINE** see Handtevy age dose
Do not exceed 0.3mg (or 0.3ml) P

I **Establish IV LR at TKO
DIPHENHYDRAMINE (Benadryl) at see Handtevy age dose slowly over 2-3 minutes Max total dose 50mg P

Nebulized
Duo-Neb see Handtevy age dose

I Cardiac Monitor P
Pulse oximetry
Reassess

Support ABCs
Observe
Keep warm
TRANSPORT

Severe Cardiorespiratory Compromise

EPI-PEN JUNIOR (if available)EMR Assist
B- Epi vial 0.15 IM

I **EPINEPHRINE** see Handtevy age dose
Do not exceed 0.3mg (or 0.3ml) P

I **Establish IV LR at TKO
DIPHENHYDRAMINE (Benadryl) see Handtevy age dose slowly over 2-3 minutes Max total dose 50mg P

Administer **fluid bolus Refer PALS**
Repeat as indicated
to a max of 60ml/kg

I Cardiac Monitor P
Pulse oximetry
Reassess

Administer continuous nebulized
Duo-neb see Handtevy age dose for

NOTE TO PREHOSPITAL PROVIDERS:

*Simple hives do not require any additional field treatment.

**Avoid IV initiation or medication administration into same extremity as bite or allergen site.

P For prolonged geographical transport, consider **METHYLPREDNISOLONE (Solu-Medrol)** see Handtevy age dose P

Protocol 24

PEDIATRIC SEIZURES

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

- Assess ABCs
- Administer 100% **OXYGEN**
- Complete initial assessment

I — Attempt **IV/IO LR at TKO** Cardiac Monitor — P

- Test blood glucose
- Pulse oximetry
- Protect from injury
- Vomiting and aspiration precautions

Seizure Activity

NO

YES

P — **MIDAZOLAM HYDROCHLORIDE (Versed)** See Handtevy age dose — P

Glucose >60

Glucose ≤60 or unknown

Support ABCs
Observe
Keep warm
TRANSPORT

Consider **ORAL GLUCOSE** if able to maintain own airway

Basic – Glucogen 1mg IM/IN (.5 - 4yrs and below)

I — **D10W titrate to effect MAX 150ML OR GLUCAGON** See Handtevy age dose Max total dose 1mg — P

M — **AT DISCRETION OF PHYSICIAN/ECRN:**
For prolonged transport, may consider additional doses of **MIDAZOLAM HYDROCHLORIDE (Versed)**

Protocol 25

PEDIATRIC ALTERED LEVEL OF CONSCIOUSNESS

- Assess ABCs
- Immobilize spine as indicated
- Administer 100% **OXYGEN**
- Support ventilation with BVM as indicated
- Complete initial assessment
- Test blood glucose
- Consider other causes of altered mentation and refer to indicated protocol(s).
- Pulse Oximetry
- Seizure Precautions
- **ALS Intercept**

I — Cardiac Monitor — P

Glucose >60 mg/dl

Glucose ≤60mg/dl or unknown

Consider **ORAL GLUCOSE** if able to support airway

Basic – Glucogen 1mg IM/IN (.5 - 4yrs & below

I — Establish **IV/IO D10W at** **Titrate to effect** **OR** **GLUCAGON** **see handtevy age dose** Max total dose 1mg — P

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P

Altered level of consciousness

Improved level of consciousness

Reassess Respiratory Effort

Inadequate Respiratory Effort

Adequate Respiratory Effort

Secure airway as appropriate
****NALOXONE** see handtevy age dose if respiratory rate <12 Max single dose 2mg** — P

Support ABCs
Observe
Keep warm
TRANSPORT

NOTE TO PREHOSPITAL PROVIDERS:
****NALOXONE (Narcan)** should be used only for suspected ACUTE narcotic exposure.

Protocol 26

PEDIATRIC TOXIC EXPOSURES / INGESTIONS

Assess scene safety as indicated:
- Appropriate body substance isolation
- Refer to appropriate **HAZMAT PROTOCOL**
- Stop exposure

Assess ABCs
Secure airway as appropriate
Support ventilation with BVM as indicated
Administer 100% **OXYGEN**
Pulse oximetry
Complete initial assessment-**ALS INTERCEPT**

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

I — Cardiac Monitor
Establish **IV/IO LR at TKO** — P
Contact Medical Control ASAP

Initial interventions per **Medical Control** as indicated for identified exposure
Support ABCs

For altered level of consciousness consider:
- **NALOXONE (Narcan) t 0.1mg/kg IN** if respiratory rate <12. Max single dose 2 mg
- If seizures occur, refer to **PEDIATRIC SEIZURES PROTOCOL** as indicated
- **GLUCOSE**

I

EXPOSURE TO OR INGESTION OF NARCOTICS OR UNKNOWN SUBSTANCES

For altered level of consciousness consider:
- **NALOXONE (Narcan)** see handtevy age dose if respiratory rate <12. Max single dose 2 mg
- If seizures occur, refer to **PEDIATRIC SEIZURES PROTOCOL** as indicated
- **GLUCOSE**
- **DO NOT INDUCE VOMITING.**
- **Contact Medical Control for Orders for Sodium Bicarbonate**: (**with Medical Control order only**) if known tricyclic antidepressant (TCA) or Aspirin (ASA) overdose.

P

POTENTIAL EXPOSURES

- Burning overstuffed furniture = Cyanide
- Old burning buildings = Lead fumes and Carbon monoxide
- Pepto-Bismol = Aspirin
- Pesticides = Organophosphates & Carbamates
- Common poisonous plants: Dieffenbachia, Foxglove, Holly leaves and berries, Lilly of the Valley, Nightshade, Philodendron, Rhubarb leaves, and Tobacco
- Smells: Almond = Cyanide
  Fruit = Alcohol
  Garlic = Arsenic, parathion, DMSO
  Mothballs = Camphor
  Natural gas = Carbon monoxide
  Rotten eggs = Hydrogen sulfide
  Silver polish = Cyanide
  Stove gas = Think CO (CO and methane are odorless)
  Wintergreen = Methyl salicylate

Protocol 26

NOTE TO PREHOSPITAL PROVIDERS:

1. Anticipate vomiting, respiratory arrest, seizure, dysrhythmias and refer to indicated protocol(s).
2. **Do not induce vomiting**.

Protocol 27

INITIAL MANAGEMENT OF THE PEDIATRIC TRAUMA PATIENT

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P

- Assess ABCs
- Administer 100% **OXYGEN**
- Immobilize cervical spine as indicated
- Complete initial assessment, including **Pediatric Trauma Score*
- **Keep warm**

I — Cardiac Monitor — P

Ventilation, respiratory effort adequate

Control hemorrhage

I — Establish **IV/IO LR at TKO**
Fluid bolus Refer PALS until SBP >80
IV is to be attempted enroute after transportation has begun as long as it does not delay transportation to the nearest Trauma Center . — P

Pulse oximetry
Reassess perfusion

I — Repeat **IV fluid bolus** as indicated to a maximum of 60ml/kg or until SBP >80 — P

Normal perfusion

Splint/immobilize fracture(s) as indicated

- Support ABCs
- **Keep warm**
- Observe
- TRANSPORT

Hypoperfusion

Refer to
PEDIATRIC SHOCK PROTOCOL OR
PEDIATRIC CARDIAC ARREST PROTOCOL
as indicated

Inadequate ventilation, respiratory effort

- Jaw thrust
- Relieve upper airway obstruction as indicated
- Assist ventilation with BVM as indicated
- Secure airway as appropriate

NOTE TO PREHOSPITAL PROVIDERS:

* Refer to **PEDIATRIC ASSESSMENT AND TRAUMA SCORE PROTOCOL**

PROTOCOL 28

PEDIATRIC TRAUMA

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P

Routine Trauma Care

1. Circulation
   1. Note variation of normal values

I	2. IV access more difficult - Antecubital fossa ideal - Intraosseous access if patient unconscious and not able to begin peripheral line - Do not delay transport to start IV 3. Shock resuscitation Refer PALS **LR bolus**	P

2. Airway
   - Keep suction available
   - Cervical spine immobilization

3. Breathing
   1. Note changes in ventilation rates by age
   2. 100% **OXYGEN**
   3. Assist ventilations as needed

Treatment of Suspected Battered or Abused Child:
(Refer to SUSPECTED CHILD ABUSE AND NEGLECT PROTOCOL)

1. Treat obvious injuries

2. If parents refuse to let you transport the child after treatment:
   1. Remain at the scene
   2. Call for police assistance
   3. Request that the officer place the child under protective custody
   4. Assist with transport

3. You are required by law to report your suspicions to the Department of Children and Family Services (DCFS). Also, document and report your suspicions to the ED physician and/or charge nurse.

4. Carefully document history, physical findings and environmental surroundings on patient care report.

Protocol 29

PEDIATRIC ASSESSMENT AND TRAUMA SCORE

Indicators of hypoperfusion:

- Respiratory difficulty
- Cyanosis despite oxygen administration
- Truncal pallor/cyanosis and coolness
- Hypotension (ominous sign)
- Bradycardia (late sign)
- Weak, thready, or absent peripheral pulses
- Decreasing consciousness
- No palpable blood pressure

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P

Pediatric vital signs:

	Newborn	1 year	3 years	6 years	10 years	15 years
Pulse	100-160	90 - 120	80 - 120	70 - 110	60 - 90	60 - 90
Respirations	30- 60	20 - 30	20 - 30	18 - 25	15 - 20	15 - 18
Systolic BP	50- 90	80 - 100	80 - 110	80 - 110	90 - 120	100 - 130

Pediatric Trauma Score*:

Component	+2	+1	-1
Weight	>20 kg	10-20 kg	<10 kg
Airway	Normal	Maintainable	Unmaintainable
CNS	Awake	Obtunded	Coma
Systolic BP **or** **Pulse Palpable	>90mmHg *At Wrist*	90-50mm Hg *At Groin*	<50 mmHg or *No Pulse Palpable*
Open Wound	None	Minor	Major
Skeletal Injury	None	Closed Fx	Open/Multiple Fx

***If proper size BP cuff is unavailable, BP may alternatively be assigned by determining pulse palpable point.*

TOTAL POINTS _____

(Total points range from -6 to +12)

Protocol 30
Trauma

PEDIATRIC BURNS: THERMAL, ELECTRICAL, CHEMICAL

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

- Assess scene safety, wear BSI, remove patient to safety
- Assess ABCs
- Administer 100% **OXYGEN**
- Complete initial assessment assessing for:
  - wheezing
  - retractions
  - stridor
  - diminished respirations or apnea
  - tachypnea
  - grunting
  - decreasing consciousness
- Refer to **INITIAL MANAGEMENT OF THE PEDIATRIC TRAUMA PATIENT PROTOCOL**
- Assess percentage/depth of burn
- Remove constricting jewelry and clothes.

ESTIMATING % OF BODY SURFACE AREA

Body Area	*Age in Years*			
	0-1	*1-4*	*4-9*	*10-15*
Head	19%	17%	13%	10%
Neck	2%	2%	2%	2%
Chest or Back (ea	13%	13%	13%	13%
Buttock (each)	2.5%	2.5%	2.5%	2.5%
Genitalia	1%	1%	1%	1%
Upper Arm (each)	4%	4%	4%	4%
Lower Arm (each)	3%	3%	3%	3%
Hand (each)	2.5%	2.5%	2.5%	2.5%
Thigh (each)	5.5%	6.5%	8.5%	8.5%
Lower leg (each)	5%	5%	5%	6%
Foot (each)	3.5%	3.5%	3.5%	3.5%

No Respiratory Compromise

Respiratory Compromise

- Support ventilation with BVM
- Secure airway as appropriate
- Refer to **PEDIATRIC RESPIRATORY DISTRESS PROTOCOL**

Follow correct burn type path

THERMAL BURNS

Superficial (1st degree)
- Cover burn wound with dry sterile dressing.

Partial or Full thickness (2nd or 3rd degree)
- Wear sterile gloves/mask while burn areas areexposed
- Cover burn wound with DRY sterile dressings
- Place patient on clean sheet on stretcher and cover patient with dry clean sheets and blanketto maintain body temperature.

I - Establish **IV/IO LR at TKO** - P

- Refer to **PEDIATRIC SHOCK PROTOCOL** as indicated

ELECTRICAL BURNS
- Immobilize as indicated

I - Assess cardiac monitor for dysrhythmias and treat per appropriate protocol
- Establish **IV/IO LR at TKO** as indicated - P

- Identify and document any entrance and exit wounds
- Assess neurovascular status of the affected part
- Cover wounds with dry sterile dressings

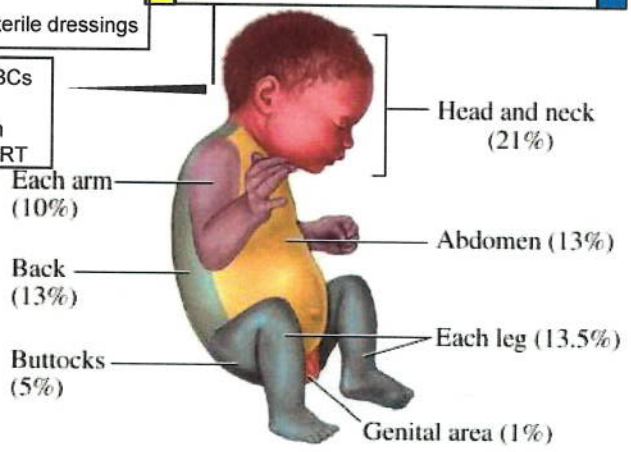
CHEMICAL BURNS
- Refer to **PEDIATRIC TOXIC EXPOSURE/ INGESTIONS PROTOCOL**
- If powdered chemical, brush away excess
- Remove clothing if possible
- Rapid visual acuity
- If eye involvement, irrigate with saline or sterile water continuously.

DO NOT CONTAMINATE THE UNINJURED EYE WITH IRRIGATION
- Irrigate area with copious amounts of sterile water or saline ASAP and during transport

I - Establish **IV/IO LR at TKO** as indicated - P

- Support ABCs
- Observe
- Keep warm
- TRANSPORT

- Consider Pain Medication per **PEDIATRIC PAIN CONTROL PROTOCOL OR** as directed by **Medical Control**. - P



Protocol 31

PEDIATRIC HEAT EMERGENCIES

- Assess ABCs
- Administer 100% **OXYGEN**
- Complete initial assessment. Assess for:
  - Hot, dry, flushed or ashen skin
  - Tachycardia
  - Tachypnea
  - Diaphoresis
  - Decreasing consciousness
  - Profound weakness and fatigue
  - Vomiting, diarrhea
  - Hypo-perfusion
  - Muscle cramps
- Assess scene for environmental risks
  - Place in a cool environment
  - Remove clothing as appropriate

I Cardiac Monitor P

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

Normal Level of Consciousness & Diaphoresis

Decreased Consciousness, Dry Skin

Systolic BP ≥ 100

Hypoperfusion* or Presence of Nausea/Vomiting

Adequate Respiratory Effort

Inadequate Respiratory Effort

I Establish **IV/IO LR at TKO** **Fluid bolus Refer** **PALS**Repeat if no improvementto max of 60ml/kg P

Secure airway as appropriate

Support ventilation with BVM

Give cool liquids PO

P Per **Medical Control**, consider vascular access **IV LR at TKO** P

Support ABCs Observe TRANSPORT

**Initiate cooling

Refer to **PEDIATRIC SEIZURES PROTOCOL** as indicated

NOTE TO PREHOSPITAL PROVIDERS:

****Cooling Techniques**

1. Apply cool pack to head, neck, armpits, groin, behind knees and to lateral chest.
2. Tepid water per sponge/spray
3. Manually fan body to evaporate and cool
4. **Stop cooling if shivering occurs.**

*Refer to **PEDIATRIC ASSESSMENT AND TRAUMA SCORE PROTOCOL**

PEDIATRIC

Protocol 32

PEDS COLD EMERGENCIES

Frostbite

- Move patient to a warm environment as soon as possible
- •Handle skin like a burn
  •Protect with light sterile dressings.
  •Do not let skin rub on skin (between fingers or toes).
- Cover patient and prevent re-exposure.
- TRANSPORT

Systemic Hypothermia

Mild/Moderate
86-93.2 F(30-34 C):
Conscious
OR
altered sensorium with shivering

- **OXYGEN** 12-15 L/mask
- I: **IV LR at TKO** Attempt to warm IV bag and tubing with hot packs P
- Rewarm patient:
  •Place patient in a warm environment.
  •Remove wet clothing.
  •Apply hot packs wrapped in towels to axilla, groin, neck, thorax.
  •Wrap patient in blankets.
- TRANSPORT

Severe Hypothermia

86 F or less (<30 C):
•HANDLE PATIENT VERY GENTLY TO AVOID PRECIPITATING V-FIB.
•Patient may appear uncoordinated with poor muscle control, or stiff simulating rigor mortis.
•There will be NO SHIVERING.
•Level of consciousness may be confused, lethargic and/or withdrawn
•Coma

- **Field Death CANNOT BE CONFIRMED FROM THE FIELD ON THESE PATIENTS**
- TRANSPORT
- **OXYGEN** 100% Do not hyperventilate
- I: **IV LR at TKO** Attempt to warm IV bag and tubing with hot packs P

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

M **AT DISCRETION OF PHYSICIAN/ECRN:**
Refer to **PEDIATRIC PAIN CONTROL PROTOCOL** as necessary for severe pain
FENTANYL See handtevy age dose **Or** **Ketamine** See handtevy age dose

NOTE TO PREHOSPITAL PROVIDERS:
Assess pulse for 30-45 seconds before beginning CPR.

P May attempt defibrillation ONE TIME at 2 Joules/kg if V-Fib
Refer to **PEDIATRIC CARDIAC ARREST PROTOCOL** P

Protocol 33

PEDIATRIC DROWNING

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P

- Assess airway, ventilation, and respiratory effort
- Assess for hypothermia:
  Refer to **PEDIATRIC COLD EMERGENCIES PROTOCOL**

Adequate ventilation and respiratory effort

- Administer 100% **OXYGEN**
- Immobilize spine as indicated

- Complete initial assessment
- Remove wet clothing
- Rewarm. Place heat packs to axilla andgroin, taking care to avoid direct skin contact.

Pulse Oximetry

I — Establish **IV/IO LR at TKO** — P
Cardiac Monitor

Refer to
PEDIATRIC SEIZURES PROTOCOL OR APPROPRIATE PEDIATRIC DYSRHYTHMIA PROTOCOLS

Support ABCs
Observe
Keep warm
TRANSPORT

Inadequate ventilation and respiratory effort

- Perform airway maneuver, maintaining in-line Cervical spine stabilization:
  - Jaw thrust
  - Suction
- Relieve upper airway obstruction as indicated
- Support ventilation with BVM and 100% **OXYGEN**
- Spinal immobilization if indicated

Reassess airway patency

patent → (to Complete initial assessment)

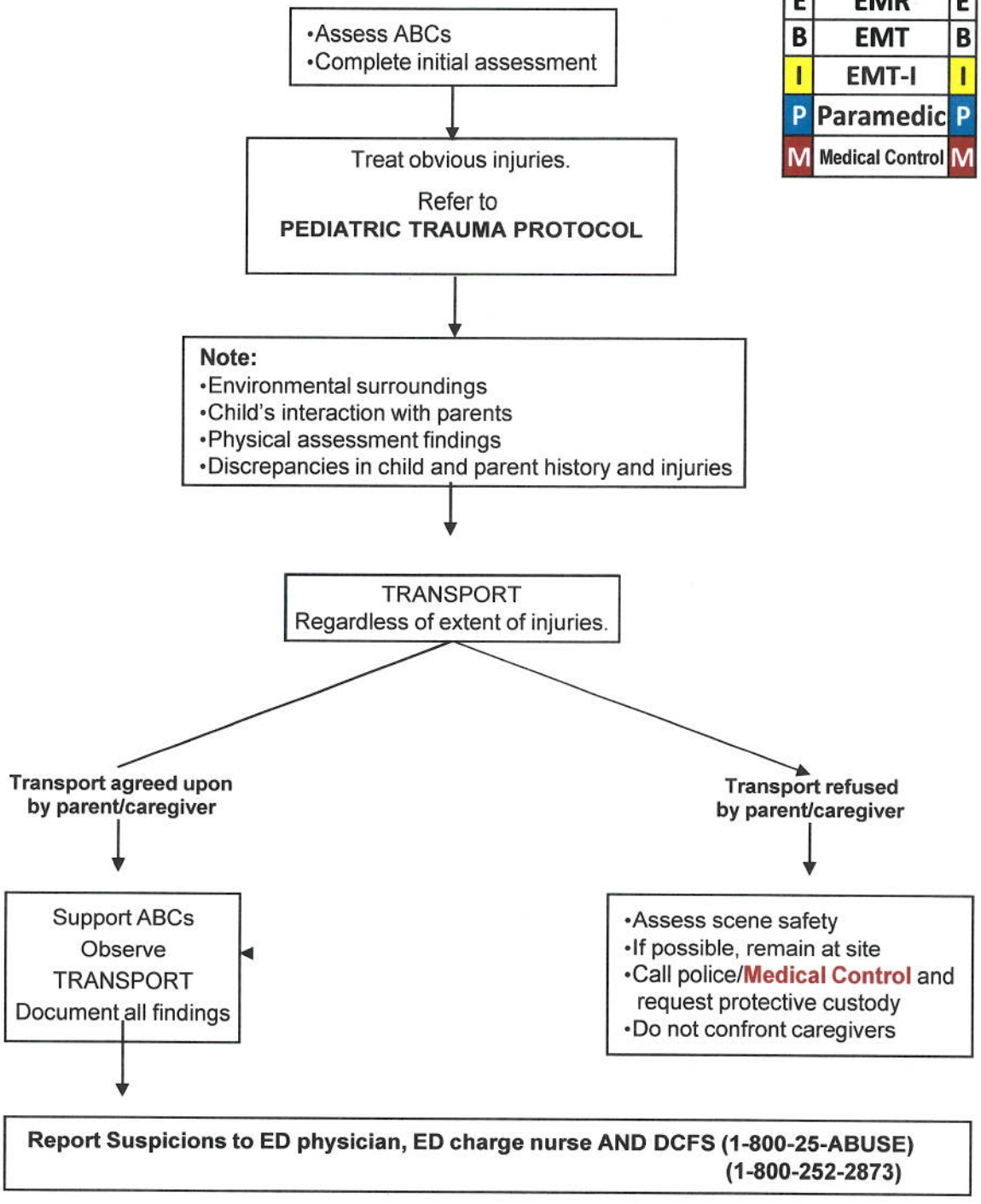
obstructed

Refer to
PEDIATRIC RESPIRATORY ARREST PROTOCOL
OR
PEDIATRIC CARDIAC ARREST PROTOCOL
as indicated

Protocol 34

SUSPECTED CHILD ABUSE AND NEGLECT
PAGE 1 OF 2

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M



Protocol 34

SUSPECTED CHILD ABUSE AND NEGLECT
PAGE 2 OF 2

E	EMR	E
B	EMT	B
I	EMT-I	I
P	Paramedic	P
M	Medical Control	M

NOTE TO PREHOSPITAL PERSONNEL:

1. You are required by law to report your suspicions.

2. Suspect battered or abused child if any of the following is found:
   - A discrepancy exists between history of injury and physical exam.
   - Caregiver provides a changing or inconsistent history.
   - There is a prolonged interval between injury and the seeking of medical help.
   - Child has a history of repeated trauma.
   - Caregiver responds inappropriately or does not comply with medical advice.
   - Suspicious injuries are present, such as:
     - Injuries of soft tissue areas, including the face, neck and abdomen
     - Injuries of body areas that are normally shielded, including the back and chest
     - Fractures of long bones in children under 3 years of age
     - Old scars, or injuries in different stages of healing
     - Bizarre injuries, such as bites, cigarette burns, rope marks, imprint of belt or other object
     - Trauma of genital or perianal areas
     - Sharply demarcated burns in unusual areas
     - Scalds that suggest child was dipped into hot water

3. The following are some common forms of neglect:
   - Environment is dangerous to the child (e.g. weapons within reach, playing near open windows without screen/guards, perilously unsanitary conditions, etc.).
   - Caretaker has not provided, or refuses to permit medical treatment of child's acute or chronic life-threatening illness, or of chronic illness, or fails to seek necessary and timely medical care for child.
   - Abandonment
   - Caretaker appears to be incapacitated (e.g. extreme drug/alcohol intoxication, disabling psychiatric symptoms, prostrating illness) and cannot meet child's care requirements.
   - Child appears inadequately fed (e.g. seriously underweight, emaciated, or dehydrated) inadequately clothed, or inadequately sheltered.
   - Child is found to be intoxicated or under the influence of an illicit substance(s).

Protocol 35

Pediatric SUDDEN INFANT DEATH SYNDROME (SIDS) Protocol

Sudden Infant Death Syndrome (SIDS) and the death of a child are among the most difficult patient care experiences for the prehospital professional. SIDS is the leading cause of infant mortality in the United States and the causes are not known.

The death of a child is a horrible event and creates difficult emotional issues for the caregivers as well as for the prehospital professional. The infant may be in the care of a parent/caregiver or babysitter at the time of death and may not be at home. Absence of one or both parents may complicate field management and interactions at the scene (PEPP 2001).

EMR, BLS Care, ILS Care & ALS

1. Render initial care in accordance with the *Routine Pediatric Care Protocol.*

2. **If obvious signs of biological death are present** (*pulseless, apneic, cold skin, frothy/blood tinged fluid in the mouth, lividity, dark red mottling on the body, rigor mortis*):

   a) Confirm absence of breathing and pulse.
   b) Confirm asystole in two (2) or more leads.
   c) **Contact Medical Control** and follow procedures for death at scene.
   d) Provide for the needs of the family:
   - Have at least one prehospital professional stay with the family until a support network is established.
   - Contact support personnel:
     - Clergy
     - Other family members
     - Friends
     - Professional counselors

3. Consider the possibility of child maltreatment:

   a) Refer to *Suspected Child Maltreatment Protocol.*
   b) Obtain past medical history and the history of events.
   - Refrain from asking judgmental or leading questions.
   - Do not place blame or accusations.

4. Consider CISM for prehospital personnel.

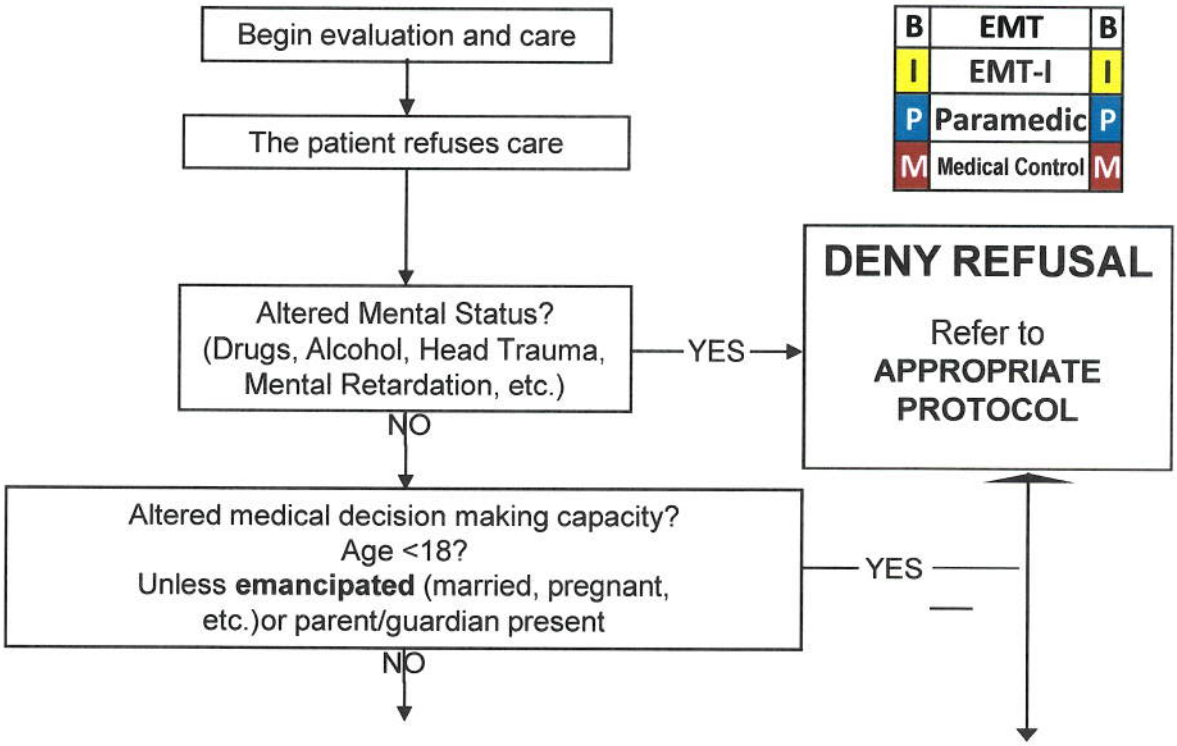
Protocol 35

Critical Thinking Elements

- **The decision of staying on scene or transporting a dead infant to the ED is a difficult one. Consider these factors:**
    a) **Could this be a crime scene?**
    b) **Am I giving false hope to the family?**
- **The prehospital caregiver cannot determine the true cause of death in an infant. Therefore, do not rush to judgment. Treat every caregiver as a grieving parent regardless of the situation.**
- **There are nearly 3000 SIDS cases per year in the United States:**
    a) **90-95% of SIDS cases are < 6 months old.**
    b) **5% of SIDS cases are actually due to child neglect.**
    c) **SIDS cases occur more frequently in males & during the winter months.**

Protocol 36

REFUSALS OF CARE



1. **Document situation in all cases of refusal and contact Medical Control as per Refusal Policy**.
2. Initiate documentation on a refusal form.
3. **If multiple patients**, may use Multiple Release Form.(School bus)
4. The narrative portion of the patient care report for refusals of care must include:
   - Evidence of decision making capacity such as:
     -the legal Guardian is alert, oriented and understands and answers questions appropriately
   - A physical assessment with any specific findings
   - The specific potential consequences told to the Legal Guardian of not receiving medical care/evaluation
   - The alternatives to care (contacting private physician immediately, etc.)
   - Signature of patient, legal guardian or Durable Power of Attorney for Healthcare
5. If a Guardian wishes to refuse treatment and **will not sign the refusal form**, document the situationon the prehospital patient care report.
6. All personnel who witness the event should sign the prehospital patient care report.

Contact Medical Control with any questions.

WEIGHT CONVERSION TABLE: POUNDS TO KILOGRAMS

WEIGHT CONVERSION TABLE: 2.2 lbs = 1 kg

lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	Kg	lbs	kg	lbs	Kg
1	0.5	31	14.1	61	27.7	91	41.4	121	55	151	68.6	181	82.3	211	95.9	241	109.5
2	0.9	32	14.5	62	28.2	92	41.8	122	55.5	152	69.1	182	82.7	212	96.4	242	110
3	1.4	33	15	63	28.6	93	42.3	123	55.9	153	69.5	183	83.2	213	96.8	243	110.5
4	1.8	34	15.5	64	29.1	94	42.7	124	56.4	154	70	184	83.6	214	97.3	244	110.9
5	2.3	35	15.9	65	29.5	95	43.2	125	56.8	155	70.5	185	84.1	215	97.7	245	111.4
6	2.7	36	16.4	66	30	96	43.6	126	57.3	156	70.9	186	84.5	216	98.2	246	111.8
7	3.2	37	16.8	67	30.5	97	44.1	127	57.7	157	71.4	187	85	217	98.6	247	112.3
8	3.6	38	17.3	68	30.9	98	44.5	128	58.2	158	71.8	188	85.5	218	99.1	248	112.7
9	4.1	39	17.7	69	31.4	99	45	129	58.6	159	72.3	189	85.9	219	99.5	249	113.2
10	4.5	40	18.2	70	31.8	100	45.5	130	59.1	160	72.7	190	86.4	220	100	250	113.6
11	5	41	18.6	71	32.3	101	45.9	131	59.5	161	73.2	191	86.8	221	100.5	251	114.1
12	5.4	42	19.1	72	32.7	102	46.4	132	60	162	73.6	192	87.3	222	100.9	252	114.5
13	5.9	43	19.5	73	33.2	103	46.8	133	60.5	163	74.1	193	87.7	223	101.4	253	115
14	6.4	44	20	74	33.6	104	47.3	134	60.9	164	74.5	194	88.2	224	101.8	254	115.5
15	6.8	45	20.5	75	34.1	105	47.7	135	61.4	165	75	195	88.6	225	102.3	255	115.9
16	7.3	46	20.9	76	34.5	106	48.2	136	61.8	166	75.5	196	89.1	226	102.7	256	116.4
17	7.7	47	21.5	77	35	107	48.6	137	62.3	167	75.9	197	89.5	227	103.2	257	116.8
18	8.2	48	21.8	78	35.5	108	49.1	138	62.7	168	76.4	198	90	228	103.6	258	117.3
19	8.6	49	22.3	79	35.9	109	49.5	139	63.2	169	76.8	199	90.5	229	104.1	259	117.7
20	9.1	50	22.7	80	36.4	110	50	140	63.6	170	77.3	200	90.9	230	104.5	260	118.2
21	9.5	51	23.2	81	36.8	111	50.5	141	64.1	171	77.7	201	91.4	231	105	261	118.6
22	10	52	23.6	82	37.3	112	50.9	142	64.5	172	78.2	202	91.8	232	105.5	262	119.1
23	10.5	53	24.1	83	37.7	113	51.4	143	65	173	78.6	203	92.3	233	105.9	263	119.5
24	10.9	54	24.5	84	38.2	114	51.8	144	65.5	174	79.1	204	92.7	234	106.4	264	120
25	11.4	55	25	85	38.6	115	52.3	145	65.9	175	79.5	205	93.2	235	106.8	265	120.5
26	11.8	56	25.5	86	39.1	116	52.7	146	66.4	176	80	206	93.6	236	107.3	266	120.9
27	12.3	57	25.9	87	39.5	117	53.2	147	66.8	177	80.5	207	94.1	237	107.7	267	121.4
28	12.7	58	26.4	88	40	118	53.6	148	67.3	178	80.9	208	94.5	238	108.2	268	121.8
29	13.2	59	26.8	89	40.5	119	54.1	149	67.7	179	81.4	209	95	239	108.6	269	122.3
30	13.6	60	27.3	90	40.9	120	54.5	150	68.2	180	81.8	210	95.5	240	109.1	270	122.7

EXTERNAL JUGULAR VEIN CANNULATION

P Paramedic P

- Position patient in Trendelenburg position.
- Turn the head away from the side to be cannulated.
- Prep the skin with cleansing prep
- Apply traction to the skin just above the clavicle.
- Insert the catheter, "bevel up," at a 30-degree angle, directed toward the shoulder on the same side. The needle should enter midway between the angle of the mandible and the clavicle. There will be a flash of blood as you enter the vein.
- Carefully lower the needle and catheter and advance them about 2mm further into the vein.
- Advance the catheter over the needle into the vein and remove the needle.
- Discard the needle in a sharps container – **do not recap the needle**.
- Attach IV tubing to the hub of the catheter and open the flow regulator to assure fluid flows freely.
- Secure the catheter to the skin.