Pediatric Assessment

High Stress Situation

- **Child**
  - **In pain**
  - **Frightened**
  - **Guilty**

High Stress Situation

- **Parent**
  - **Frightened**
  - **Guilty**
  - **Exhausted**

High Stress Situation

- **Paramedic**
  - **Frightened**
  - **May over-empathize**

High Stress Situation

Who has to control situation?

Basic Points

- Oxygenation, ventilation adequate to preserve life, CNS function?
- Cardiac output sufficient to sustain life, CNS function?
- Oxygenation, ventilation, cardiac output likely to deteriorate before reaching hospital?
- C-spine protected?
- Major fractures immobilized?

Basic Points

- If invasive procedure considered, do benefits outweigh risks?
- If parent is not accompanying child, is history adequate?
- Transport expeditiously
- Reassess, Reassess, Reassess

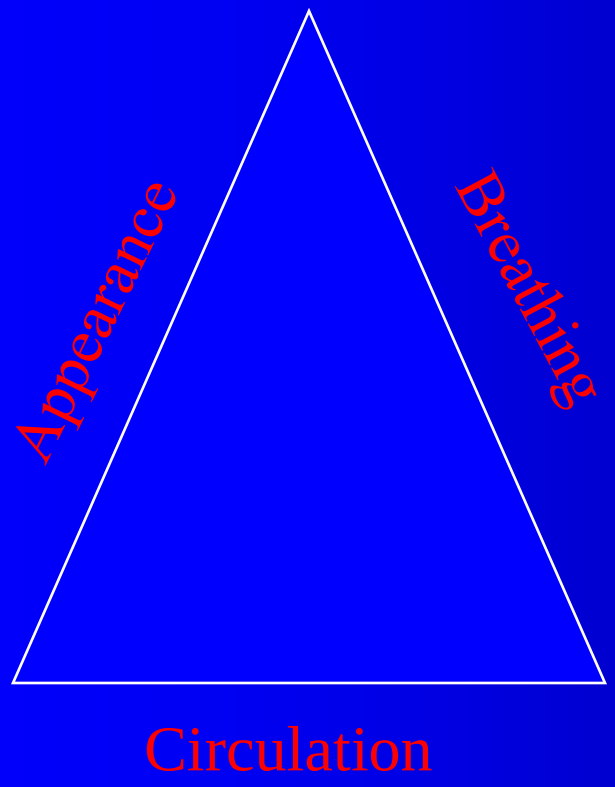
Patient Assessment

- **Priorities are similar to adult**
- **Greater emphasis on airway, breathing**

Patient Assessment

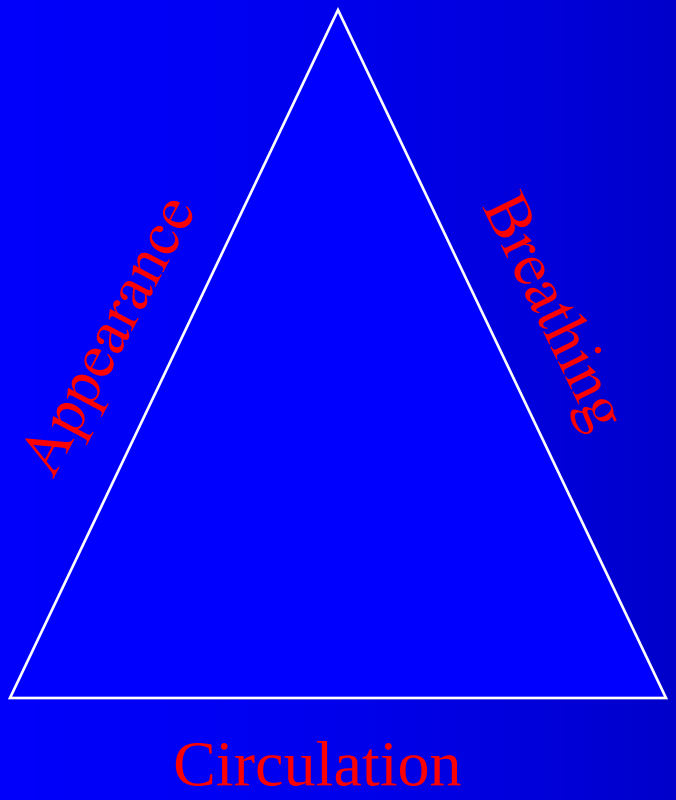
- Limit to essentials
- Look before you touch

Pediatric Assessment Triangle: First Impression



- **Appearance** - mental status, body position, tone
- **Breathing** - visible movement, effort
- **Circulation** - color

Pediatric Assessment Triangle
Initial Assessment



- **Appearance** - **AVPU**
- **Breathing** - **airway open, effort, sounds, rate, central color**
- **Circulation** - **pulse rate/strength, skin color/temp, cap refill, BP (⬇ use at early ages)**

Initial Assessment

- **Categorize as:**
  - **Stable**
  - **Potential Respiratory Failure or Shock**
  - **Definite Respiratory Failure or Shock**
  - **Cardiopulmonary Failure**

Initial Assessment

- Identify, correct life threats
- If not correctable,
  - Support oxygenation, ventilation, perfusion
  - Transport

Vital Signs

- **Essential elements**
  - **Proper equipment**
  - **Knowledge of norms**
- **Carry chart of norms for reference**

Weight

- Why is weight a pedi vital sign?
- (Age[yrs] x 2) + 8

Heart Rate

- Apical auscultation
- Peripheral palpation
- Tachycardia may result from:
  - Fear
  - Pain
  - Fever

Heart Rate

- **Tachycardia + Quiet, non-febrile patient = Decrease in cardiac output**
  - **Heart rate rises long before BP falls!**
- **Bradycardia + Sick child = Premorbid state**
  - **Child < 60**
  - **Infant <80**

Blood Pressure

- **Proper cuff size**
  - **Width = 2/3 length of upper arm**
  - **Bladder encircles arm without overlap**

Blood Pressure

- **Children >1 year old**
  - **Systolic BP = (Age x 2) + 80**

Blood Pressure

- **Hypotension = Late sign of shock**
- **Evaluate perfusion using:**
  - **Level of consciousness**
  - **Pulse rate**
  - **Skin color, temperature**
  - **Capillary refill**
- **Do not delay transport to get BP**

Respirations

- Before touching
- For one full minute
- Approximate upper limit of normal = (40 - Age[yrs])

Respirations

- > 60/min = Danger!!
- Slow = Danger, impending arrest
- Rapid, unlabored
  - Metabolic acidosis
  - Shock

Capillary Refill

- Check base of thumb, heel
- Normal ≤ 2 seconds
- Increase suggests poor perfusion
- Increases long before BP begins to fall
- Cold exposure may falsely elevate

Temperature

- **Cold = Pediatric Patient's Enemy!!!**
  - **Large surface:volume ratio**
  - **Rapid heat loss**
- **Normal = 37^{0}C (98.6^{0}F)**
- **Do <u>not</u> delay transport to obtain**

Temperature

- **Measurement: Axillary**
  - **Hold in skin fold 2 to 3 minutes**
  - **Normal = 97.6^0F**
  - **Depends on peripheral vasoconstriction/dilation**

Temperature

- **Measurement: Oral**
  - **Glass thermometers not advised**
  - **May be attempted with school-aged children**

Temperature

- **Measurement: Rectal**
  - **Lubricated thermometer**
  - **4cm in rectum, 1 - 2 minutes**
  - **Do not attempt if child**
    - **Is < 2 months old**
    - **Is struggling**

Physical Exam

- Do not delay transport for full secondary survey
- Children under school age: go toe to head
- Examine areas of greatest interest first

Physical Exam

After exposing during primary survey, cover child to avoid hypothermia!

Physical Exam: Special Points

- **Head**
  - **Anterior fontanel**
    - **Remains open until 12 to 18 months**
    - **Sinks in volume depletion**
    - **Bulges with increased ICP**

Physical Exam: Special Points

- **Chest**
  - **Transmitted breath sounds**
  - **Listen over mid-axillary lines**

Physical Exam: Special Points

- **Neurologic**
  - **Eye contact**
  - **Recognition of parents**
  - **Silence is NOT golden!**

History

- Best source depends on child's age
- Do not underestimate child's ability as historian
  - Imagination may interfere with facts
  - Parents may have to fill gaps, correct time frames

History

- **Brief, relevant**
  - **Allergies**
  - **Medications**
  - **Past medical history**
  - **Last oral intake**
  - **Events leading to call**
  - **Specifics of present illness**

History

- On scene observations important
- Do not judge/accuse parent
- Do not delay transport

General Assessment Concepts

- Children not little adults
- Do not forget parents
- Do not forget to talk to child
- Avoid separating children, parents unless parent out of control

General Assessment Concepts

- Children understand more than they express
- Watch non-verbal messages
- Get down on child's level
- Develop, maintain eye contact
- Tell child your name
- Show respect
- Be honest

General Assessment Concepts

- **Kids do not like:**
  - **Noise**
  - **Cold places**
  - **Strange equipment**

General Assessment Concepts

- In emergency do not waste time in interest of rapport
- Do not underestimate child's ability to hurt you

Developmental Stages

Neonates

- Gestational age affects early development
- Normal reflexive behavior present
  - Sucking
  - Grasp
  - Startle response

Neonates

- Mother, father can usually quiet
- Knows parents, but others OK
- Keep warm
- Use pacifier, finger
- Have child lie on mother’s lap

Neonates

- **Common Problems**
  - **Respiratory distress**
  - **Vomiting, diarrhea**
  - **Volume depletion**
  - **Jaundice**
  - **Become hypothermic easily**

Young Infants (1 - 6 months)

- Follows movement of others
- Recognizes faces, smiles
- Muscular control develops:
  - Head to tail
  - Center to periphery
- Examine toe to head

Young Infants (1 - 6 months)

- Parents important
- Usually will accept strangers
- Have lie on mom's lap
- Keep warm
- Use pacifier or bottle

Young Infants (1 - 6 months)

- **Common problems**
  - **Vomiting, diarrhea**
  - **Volume depletion**
  - **Meningitis**
  - **SIDS**
  - **Child abuse**

Older Infants (6 - 12 months)

- **May stand, walk with help**
- **Active, alert**
- **Explores world with mouth**

Older Infants (6 - 12 months)

- Intense stranger anxiety
- Fear of lying on back
- Assure parent's presence
- Examine in parent's arms if possible
- Examine toe to head

Older Infants (6 - 12 months)

- **Common problems**
  - **Febrile seizures**
  - **Vomiting, diarrhea**
  - **Volume depletion**
  - **Croup**
  - **Bronchiolitis**
  - **Meningitis**
  - **Foreign bodies**
  - **Ingestions**
  - **Child abuse**

Toddlers (1 - 3 years)

- Excellent gross motor development
- Up, on, under everything
- Runs, walks, always moving
- Actively explores environment
- Receptive language

Toddlers (1 - 3 years)

- Dislike strange people, situations
- Strong assertiveness
- Temper tantrums

Toddlers (1 - 3 years)

- Examine on parent's lap, if possible
- Talk to, "examine" parent first
- Examine toe to head
- Logic will not work
- Set rules, explain what will happen, restrain, get it done

Toddlers (1 - 3 years)

- **Common problems**
  - **Trauma**
  - **Febrile seizures**
  - **Ingestions**
  - **Foreign bodies**
  - **Meningitis**
  - **Croup**
  - **Child abuse**

Preschoolers (3 - 5 years)

- **Increasing gross, fine motor development**
- **Increasing receptive, expressive language skills**

Preschoolers (3 - 5 years)

- Totally subjective world view
- Do not separate fantasy, reality
- Think “magically”
- Intense fear of pain, disfigurement, blood loss

Preschoolers (3 - 5 years)

- Take history from child first
- Cover wounds quickly
- Assure covered areas are still there
- Let them help
- Be truthful
- Examine toe to head

Preschoolers (3 - 5 years)

- **Common problems**
  - **Trauma**
  - **Drowning**
  - **Asthma**
  - **Croup**
  - **Meningitis**
  - **Febrile seizures**
  - **Ingestions**
  - **Foreign bodies**
  - **Child abuse**

School Age (6 - 12 years)

- Able to use concepts, abstractions
- Master environment through information
- Able to make compromises, think objectively

School Age (6 - 12 years)

- Give child responsibility for history
- Explain what is happening
- Be honest

School Age (6 - 12 years)

- **Common problems**
  - **Trauma**
  - **Drowning**
  - **Child abuse**
  - **Asthma**

Adolescents

- Wide variation in development
- Seeking self-determination
- Peer group acceptance can be critical
- Very acute body image
- Fragile self-esteem

Adolescents

- Reassure, but talk to them like adult
- Respect need for modesty
- Focus on patient, not parent
- Tell truth
- Honor commitments

Adolescents

- **Common problems**
  - **Trauma**
  - **Asthma**
  - **Drugs/alcohol**
  - **Suicidal gestures**
  - **Sexual abuse**
  - **Pregnancy**