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?
  - \((\text{Age[yrs]} \times 2) + 8\)
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°C (98.6°F)
Do not delay transport to obtain
Temperature

Measurement: Axillary
Hold in skin fold 2 to 3 minutes
Normal = 97.6°F
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
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

Other common problems
- 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