

Infants and Children

Topics

- Dealing with Children
- Medical problems common to infants and children
- Trauma in infants and Children
- Taking care of yourself

Family Response

- Strive for calm, supportive interaction with family (will result in improved ability to deal with the child)
- Parents may respond to EMT with anger and hysteria
- Parents are experts on what is normal and abnormal for their children.

Newborns and infants (Birth to 1 year of age)

Developmental concerns

- Minimal stranger anxiety
- Do not like being separated from parents
- Do not want to be suffocated by an oxygen mask
- Need to be kept warm
- Breathing rate is best observed from a distance
- Examine heart and lungs first

Toddlers – 1 year to 3 years

- Do not like to be touched
- Do not like being separated from parents
- Do not like having clothes removed
- Do not want to be suffocated by oxygen mask
- Assure the child that he was not bad
- Afraid of needles
- Fear of pain
- Should be examined trunk-to-head approach

Preschool – 3 to 6 years

- Do not like to be touched
- Do not like to be separated from parents
- Do not like having clothing removed
- Do not like being suffocated by oxygen mask
- Assure the child that he was not bad
- Afraid of blood
- Fear of pain
- Fear of permanent injury
- Modest

School age – 6 to 12 years

- Afraid of blood
- Fear of pain
- Fear of permanent injury
- Modest
- Fear of disfigurement

Adolescent – 12 to 18 years

- Fear of permanent injury
- Modest
- Fear of disfigurement
- Treat them as adults
- These patients may desire to be assessed privately, away from parents

Anatomical Differences

Newborns

- Trachea only 4 to 5 mm, about one-third the diameter of a dime

Infants

- Proportionally larger tongues than adults
- Younger than 9 months typically cannot fully support their own heads
- “Soft spot” on head from incomplete closure of skeletal plates

Children

- Skin surface is large compared to body mass
- Heads are proportionally larger than adults
- Ribs are much more pliable than adults
- Abdominal musculature is less well-developed than adults

Infants & Children

- Faster metabolic rate than adult, thus use oxygen from blood stream faster than adults
- Circulating blood volume smaller than adults

Airway and Breathing

Compensated Respiratory Distress

- Increased in respiratory rate above normal
- Nasal flaring
- Intercostal retractions on inspiration
- Supraclavicular and subcostal retractions on inspiration
- Audible breathing noises: Stridor, wheezing, grunting
- See-saw respirations

Decompensated Respiratory Distress

- Respiratory rate over 60/ minute
- Cyanosis
- Decreased muscle tone
- Severe use of accessory muscles to aid respirations
- Poor peripheral perfusion
- Altered mental status
- Grunting, head bobbling

Respiratory Arrest

- Respiratory rate less than 10/min or absent breathing
- Irregular respirations
- Limp muscle tone
- Unresponsiveness
- Slower than normal or absent heart rate
- Weak or absent peripheral pulses
- Hypotension in patients over 3 years old

Partial Airway Obstruction

- May be alert, pink, and with peripheral perfusion
- Normal or slightly pale skin with peripheral perfusion
- Stridor, crowing, noisy respirations
- Retractions of intercostals, supraclavicular, and cubcostal tissues
- Possible crying: Forceful coughing

Complete Airway Obstruction

- No crying or talking
- Ineffective or absent cough
- Altered mental status, including possible loss of respirations
- Possible cyanosis

Assessment and Care

Initial Assessment

- Visually assess patient from across the room before approaching
- Form general impression based on overall appearance
- Be acutely aware of alterations in respiratory status
- Assess circulation
- Assess for signs of inadequate perfusion

Focused HX / Physical Exam

- Begin at scene
- Gather history first and perform examination
- Complete SAMPLE history using OPQRST mnemonic
- If trauma is suspected, perform a complete rapid trauma assessment
- Assess baseline vital signs

- Look for signs or respiratory distress

Emergency Medical Care

- Establish and maintain airway
- Suction any secretions, vomitus, or blood
- If you need to assist ventilations, maintain a patent airway with adjunct
- Init positive pressure ventilation if infant or child is in decompensated respiratory failure
- Maintain oxygen therapy, if patient will not tolerate mask try “blow-by”
- Position the patient
- Transport

Airway Opening

- Head-tilt, chin-lift
- Do not hyperextend
- Jaw thrust with spinal immobilization



Suctioning

- Sizing
- Depth
- Technique

Ventilations

- Squeeze bag slowly and evenly enough to make chest rise
- Rates for child and infant are 20 breaths per minute
- Provide oxygen 10 100% by using oxygen reservoir



Oral Airway Adjuncts

- Not for initial artificial ventilations
- Should not have a gag reflex
- Use a tongue depressor during insertion

Nasal Airway Adjuncts

- Adjuncts not for initial artificial ventilations
- Should not be used in head trauma

Foreign Body Airway Obstruction

Infants < 1 year

- Back blows / Chest thrusts
- Visual foreign body removal

Children > 1 year old

- Abdominal thrusts
- Visual foreign body removal

Seizures

- Child's level of maturity greatly influences assessment
- If using AVPU or Glasgow Coma Scale, modify for child.
- Shout or pinch an unresponsive patient to elicit response
- Never shake an infant

Care

Assure airway

Position

Provide Oxygen

Transport

Poisonings

- Common reason for infant and child EMS calls
- Identify suspected container through adequate history, bring container to receiving facility if possible

Responsive Patient

- Contact Medical control
- Consider need to administer activated charcoal
- Provide Oxygen
- Transport
- Continue to monitor patient – May become unresponsive

Unresponsive Patient

- Assure patent airway
- Be prepared to artificially ventilate
- Provide oxygen if indicated
- Call medical control
- Transport
- Rule out Trauma

Fever

- Common reason for infant and child EMS calls
- Many causes – rarely life threatening
- Fever with rash is a Potentially serious condition – Meningitis
- Transport

Shock

Common causes

- Diarrhea and dehydration
- Trauma
- Vomiting
- Blood loss
- Infection
- Abdominal injuries

Less common causes

- Allergic reactions
- Poisoning
- Cardiac

Signs and symptoms

- Rapid respiratory rate
- Pale, cool, clammy skin
- Weak or absent peripheral pulses
- Delayed Cap refill
- Decreased urine output
- Mental status changes
- Absence of tears, even when crying

Treatment

- Assure Airway / Oxygen
- Be prepared to ventilate
- Manage bleeding if present
- Elevate legs
- Keep warm
- Rapid transport

SIDS (Sudden Infant Death Syndrome)

- Sudden death of infants if first year of life
- Causes are not clearly understood
- Baby most commonly discovered in early morning

Care

- Try to resuscitate unless rigor mortis is present
- Parents will be in agony from emotional distress
- Avoid any comments that might suggest blame to the parents

Trauma (Number 1 cause of death in infants and children)

- Unrestrained children in cars
- Restrained children cars
- Child struck while riding bike
- Child struck by car
- Diving or falls
- Heat / Fire
- Sports injuries

Considerations

Head

- Most important maneuver is to assure open airway
- Children are likely to sustain head injury along with internal injuries

- Respiratory arrest common secondary to head injury
- Nausea and vomiting common
- Do not use sandbags to stabilize the head

Chest

- Children have very soft pliable ribs
- There may be significant injuries without external signs

Abdomen

- More common site of injury
- Often source of hidden injury
- Always consider abdominal injury in the multiple trauma patient who is deteriorating without external signs
- Air in the stomach can distend abdomen and interfere with artificial ventilation efforts

Extremities

- Extremity injuries are managed in the same manner as adults

Child Abuse and Neglect

- Abuser rarely shows guilt and may show hostility toward the child or other caregiver
- Abused child will usually show fear when asked to describe injury

Signs and symptoms of abuse

- Multiple bruising in various stages of healing
- Injury inconsistent with mechanism described
- Fresh burns
- Parents seem inappropriately concerned
- Conflicting stories
- Fear on the part of the child to discuss how injury occurred.

Signs and symptoms of Neglect

- Lack of supervision
- Malnourished-appearing child
- Unsafe living conditions
- Untreated chronic illnesses, e.g. asthmatic with no medications

Care

- Accusations and confrontation delays transportation
- Bring objective information to the receiving facility

Infants and Children with Special needs

Tracheostomy Tube

- Obstruction
- Bleeding
- Air-Leak
- Dislodged
- Infection

Care

- ✓ Maintain Airway
- ✓ Suction
- ✓ Maintain position of comfort
- ✓ Provide supplemental oxygen
- ✓ Transport

Home Artificial Ventilators

Central Lines - Intravenous lines that are placed near the heart for long-term use.

Gastrostomy Tubes –Tube placed directly into stomach for feeding

Shunts – Device running from brain to abdomen to drain excess cerebral spinal fluid