

Pediatric Physical Assessment

Dr. Gary Mumaugh – Physical Assessment

Health Assessment

- Collecting Data
 - By observation
 - Interviewing the parent
 - Interviewing the child
 - Physical examination

Bio-graphic Demographic

- Name, age, health care provider
- Parents name age /siblings age
- Ethnicity / cultural practices
- Religion / religious practices
- Parent occupation
- Child occupation: adolescent

Past Medical History

- Allergies
- Childhood illness
- Trauma / hospitalizations
- Birth history
- Did baby go home with mom / special care nursery
- Genetics: anything in the family

Current Health Status

- Immunizations
- Any underlying illness / genetic condition
- What concerns do you have today?

Review of Systems

- Ask questions about each system
- Measuring data: growth chart, head circumference, BMI
- Nutrition: breast fed, formula, eating habits
- Growth and development: How does parent think child is doing? Six questions

Vital Signs Throughout Development

- Height & weight – every visit
 - Calculate BMI at every visit
- Head circumference – birth to 36 months
- Blood pressure – start measuring at 2
- Pulse – higher in infancy, slows down with aging
- Temperature
 - < 2 months – rectal
 - >2 months - tympanic

Physical Assessment

- General appearance & behavior
 - Facial expression
 - Posture / movement
 - Hygiene
 - Behavior
 - Development: grossly fits guidelines for age
- Skin, hair nails
- Head, neck, lymph nodes: fontanelles
- Eyes, nose, throat...look at palate and teeth
- Chest: auscultate for breath sounds and adventitious sounds
- Breasts: tanner scale
- Heart: PMI, murmurs
- Abdomen
- Genitalia: tanner scale, discharge, testicles
- Anus: inspect for cracks or fissures
- Musculoskeletal: Ortaloni maneuver / Barlows
- Feet / legs / back / gait

Neurological

- Glasgow coma scale
- Observe their natural state: Play games with them, especially children under 5 year
- CNS grossly intact: II – XII

Newborn Reflexes

- Rooting: disappears at 3-4 months
- Sucking: disappears at 10 to 12 months
- Palmar grasp: disappears at 3 to 4 months
- Plantar grasp: disappears at 8 to 10 months
- Tonic neck: disappears by 4 to 6 months
- Moro (startle): disappears by 3 months
- Babinski: disappears by 2 years
- Stepping reflex: disappears by 2 months

Infant Exam

- Examine on parent lap
- Leave diaper on
- Comfort measures such as pacifier or bottle.
- Talk softly
- Start with heart and lung sounds
- Ear and throat exam last

Toddler Exam

- Examine on parent lap if uncooperative
- Use play therapy
- Distract with stories
- Let toddler play with equipment / BP
- Call by name
- Praise frequently
- Quickly do exam

Preschool Exam

- Allow parent to be within eye contact
- Explain what you are doing
- Let them feel the equipment

School-age Child

- Allow the older child the choice of whether to have a parent present
- Teaching about nutrition and safety
- Ask if the child has any concerns or questions
- How are they doing in school?
- Do they have a group of friends they hang out with?
- What do they like to do in their free time?

School-age Exam

- Allow choice of having parent present
- Privacy and modesty.
- Explain procedures and equipment.
- Interact with child during exam.
- Be matter of fact about examining genital area.

Adolescent

- Ask about parent in the room
- Should have some private interview time: time to ask the difficult questions
- HEADSS: home life, education, alcohol, drugs, sexual activity / suicide
- Privacy issues

Vital Signs

- Choose your words carefully when explaining vital sign measurements to a young child. Avoid saying, for example, "I'm going to take your pulse now." The child may think that are going to actually remove something from his or her body. A better phrase would be "I'm going to count how fast your heart beats."

Temperature

- Temperature
- Use of tympanic membrane is controversial.
- Oral temperature for children over 5 to 6 years.
- Rectal temperatures are contraindicated if the child has had anal surgery, diarrhea, or rectal irritation.



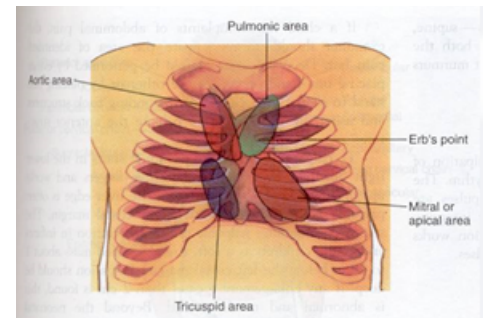
Pulse

- Apical pulse for infants and toddlers under 2 years
- Count for 1 full minute
- Will be increased with: crying, anxiety, fever, and pain
- Pulse rates
 - Neonate: 70 – 190
 - 1-year: 80 – 160
 - 2-year: 80-130
 - 4-year: 80 – 120
 - 6-year: 75-115
 - 10-year: 70-110
 - 14-year: 65 – 105 / males 60 – 100
 - 18-year: 55-95 / males 50 - 90



Respiratory

- Count for one full minute
- May want to do before you wake the infant up
- Rate will be elevated with crying / fever
 - Pre-term: 40 – 60
 - Newborn: 30 – 40
 - Toddler: 25
 - School-age: 20
 - Adolescent: 16
- Panic levels: < 10 or > 60



Clinical Tip

- To accurately assess respirations in an infant or small child wait until the baby is sleeping or resting quietly.
- You might need to do this before you do more invasive exam.
- Count the number of breaths for an entire minute.

Blood Pressure

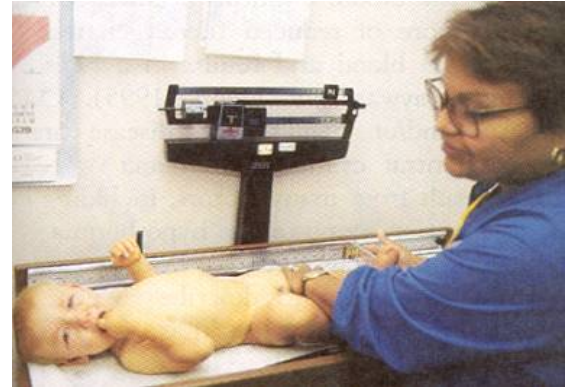
- The width of the rubber bladder should cover two thirds of the circumference of the arm, and the length should encircle 100% of the arm without overlap.
- Crying can cause inaccurate blood pressure reading.
- Consider norms for age.

Height

- Needs to be recorded on a growth chart
- Gain about an inch per month
- Deviation of height on either extreme may be indication for further investigation: endocrine problems

Weight

- Needs to be recorded on a growth chart
- Newborn may lose up to 10% of birth weight in 3-4 days.
- Gains about ½ to 1 oz. per day after that
- Too much or too little weight gain needs to be further investigated.
- Nutritional counseling
- Weight Norms
 - Double birth weight by 5-6 months
 - Triple birth weight by 1 year

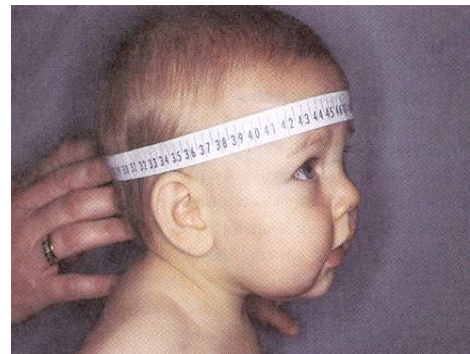


Nutrition

- How much formula?
- How often being breast fed?
- Solid foods: 4 to 6 months of age
- What are they eating?
- Over 1 year: How much milk vs solid foods
- School age: typical diet
- Favorite foods
- Most common nutritional problems:
 - Iron deficiency anemia
 - Obesity
 - Anorexia

Head Circumference

- Head
- Needs to be measured until age 2 years
- Plot on growth curve
- Check fontanelles:
 - Anterior: 12 to 18 months
 - Posterior: closes by 2-5 months
- Shape: flat headed babies due to back-to-back sleep position
- Head circumference is measured by wrapping the paper tape over the eyebrows and the around the occipital prominence.



Mouth

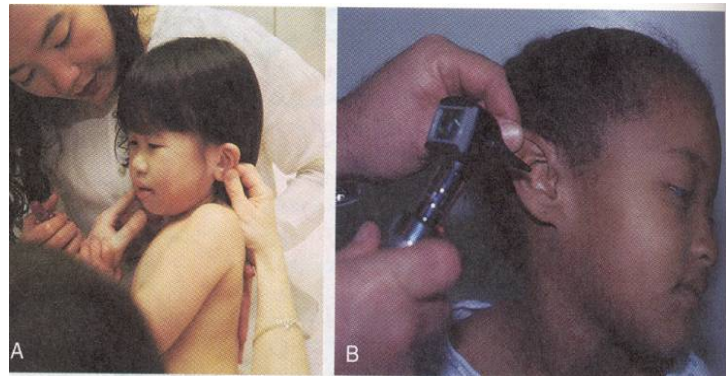
- Palate
- Condition of teeth
- Number of teeth
- No teeth eruption by 12 months think endocrine disorder
- Appliances
- Brushing / visit to dentist

Eyes

- Check for red-reflex
- Can the infant see: by parent report
- Strabismus:
 - Alignment of eye important due to correlation with brain development
 - May need to corrected surgically
- 5-year-old and up can have vision screening
 - Refer to ophthalmologist if there are concerns
- Common eye infections:
- Conjunctivitis:
 - A red-flag in the newborn may be STD from travel down the birth canal
 - Pre-school: number one reason they are sent home: wash with warm water / topical eye gtts
 - Inflammation of eye: history of juvenile arthritis

Ear Exam

- Otitis Media
- Most common reason children come to the pediatrician or emergency room
- Fever or tugging at ear
- Often increases at night when they are sleeping
- History of cold or congestion
- Otitis
 - ROM: right otitis media
 - LOM: left otitis media
 - BOM: bilateral otitis media
 - OME: Otitis media with effusion
- Pinna is pulled down and back to straighten ear canal in children under 3 years.



Why a problem?

- Infection can lead to rupture of ear drum
- Chronic effusion can lead to hearing loss
- OM is often a contributing factor in more serious infections: mastoiditis, cellulitis, meningitis, bacteremia
- Chronic ear effusion in the early years may lead to decreased hearing and speech problems

Management

- Oral antibiotics: re-check in 10 days
- Tylenol for comfort
- Persistent effusion:
 - PET: pressure equalizing tubes
 - Outpatient procedure
 - Need to keep water out of ears
 - Hearing evaluation
 - Speech evaluation

Chest Exam

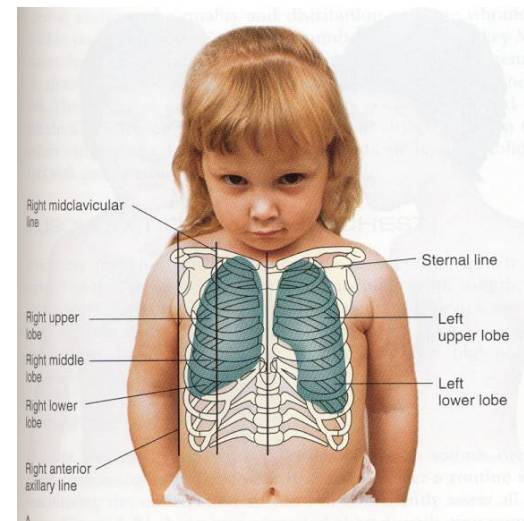
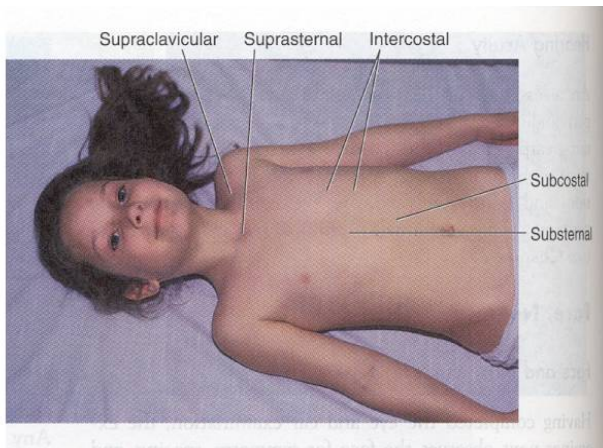
- A high percentage of admissions to hospital are respiratory: croup, bronchitis, pneumonia, and asthma
- In the infant it is hard to separate upper air-way noises from lower air-way noises.
- How does the child look? Color, effort used to breathe
- Possible Sites of Retractions

Chest Assessment

- Retractions
 - Subcostal
 - Intercostal
 - Sub-sternal
 - Supra-clavicular
- Red flags: grunting / nasal flaring

Possible Sites of Retractions

- Observe while infant or child is quiet.



Wheeze or Stridor

- Wheezes occur when air flows rapidly through bronchi that are narrowed nearly to the point of closure.
- Wheezes is lower airway
 - Asthma = expiratory wheezes
- A stridor is upper airway
 - Inflammation of upper airway+

Clinical Tip

- Inspection and auscultation are performed before palpation and percussion because touching the abdomen may change the characteristics of the bowel sounds.

Bowel Sounds

- Normally occur every 10 to 30 seconds.
- Listen in each quadrant long enough to hear at least one bowel sound.
- Absence of bowel sounds may indicate peritonitis or a paralytic ileus.
- Hyperactive bowel sounds may indicate gastroenteritis or a bowel obstruction.

Abdominal Girth

- Abdominal girth should be measured over the umbilicus whenever possible.

