The Annual General Pediatric Review & Self Assessment

Nicklaus Children's Hospital

GENERAL PEDIATRICS

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Disclosure of Relevant Relationship

Dr. Milla has not had (in the past 24 months) any relevant conflicts of interest or relevant financial relationship with the manufacturers of products or services that will be discussed in this CME activity or in his presentation.

Dr. Milla will support this presentation and clinical recommendations with the “best available evidence” from medical literature.

Dr. Milla does not intend to discuss an unapproved/investigative use of a commercial product/device in this presentation.

Overview

- Normal Growth and Physical Development
- Anticipatory Guidance/Health Supervision
- Common Screening Tests
- Immunizations
- Child Abuse
- Common Problems in General Pediatrics
- Ethics for Primary Care

Growth and Physical Development

- Weight
  - Maximum weight loss in first 2 weeks: **10%**
  - Birth Weight regained within 10-14 days (2 weeks)
  - Doubles in 4 months
  - Triples at 12 months
  - Quadruples at 24 months
- On average, infants gain 110 to 200 gm (4-6 oz) per week in the first 4-6 months and 85 to140 gm (3-5 oz) per week from ages 6-18 months

Growth and Physical Development

- Weight at each visit
- Plot growth on appropriate curve
- Use the WHO growth charts to monitor growth from 0 to 2 years in the US
- Use the CDC growth charts to monitor growth for children age 2 years and older in the US
- Transition to BMI by age 2; weight for length under age 2

Growth and Physical Development

- **Length/Height**
- Gain in 1st year: 50%

  From birth to 6 months- grow approximately 2.5 cm (1inch) per month

  From ages 6 to 12 months- grow approximately 1.25 cm (1/2 inch) per month
- Doubles at 4 years
- Triples by 13 years
- All patients should have a length/height measurement

  Length- measure in the recumbent position until age 2

  Standing Height- after age 2
- Plot on growth curve

Mid-Parental Height

Formulae for Calculating Mid-Parental Height

Gender	Formula
Girls	[Paternal height (cm) – 13 cm + Maternal height (cm)] ÷ 2 or [Paternal height (in) – 5 in + Maternal height (in)] ÷ 2
Boys	[Paternal height (cm) + 13 cm + Maternal height (cm)] ÷ 2 or [Paternal height (in) + 5 in + Maternal height (in)] ÷ 2

Growth and Physical Development

- **Head Circumference (HC)**
  - Measure through age 3 (period of maximal brain growth)
    - Technique- use a measuring tape that cannot be stretched
    - Securely wrap the tape around the widest possible circumference of the head
    - Record the greatest of 3 measurements of occipital-frontal circumference

Growth and Physical Development

- **Head Circumference**
  - **Microcephaly**- head circumference <2 standard deviations (3rd percentile) below the mean, based on age and sex
    - Associated conditions- Trisomies, Miller Dieker syndrome, Cornelia de Lange, Seckel syndrome, Rubenstein Taybi syndrome
  - **Macrocephaly-** head circumference >2 standard deviations (97th percentile) above the mean, based on age and sex
    - Associated conditions- Autism, Fragile X, metabolic conditions

Growth and Development

- **Failure to Thrive**
  - Decelerated or arrested physical growth (height and weight below 5th percentile or downward change in growth across two major growth percentiles).
  - Associated with abnormal growth and development
  - **Inadequate nutrition is the cause of failure to thrive**
  - The causes and effects of malnutrition are usually intertwined
  - **Organic FTT-** has a medical disorder known to interfere with growth, including malabsorptive diseases, genetic syndromes, endocrine disorders, and neurologic dysfunction
  - **Nonorganic FTT-** a diagnosis of exclusion to describe the child who has grown poorly and has no identified medical condition
  - May be an expression of parental neglect/inadequacy

Growth and Development

- Dietary associations with poor growth in young children
  - Breastfeeding difficulties
  - Improper formula mixing
  - Poor transition to food (6 to 12 months of age)
  - Excessive juice consumption
  - Avoidance of high-calorie foods

Question 1

How soon does an infant regain birth weight?

A. 10 to 14 days
B. 4 to 7 days
C. 3 to 4 days
D. An infant should not lose weight after birth

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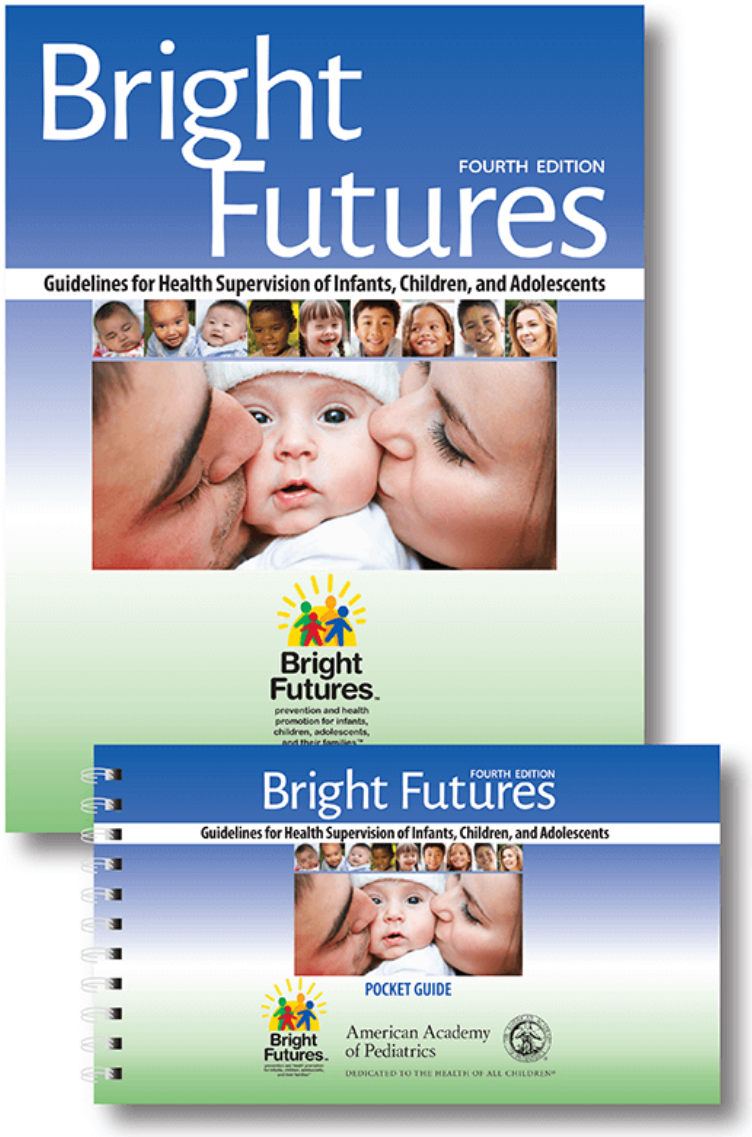
Anticipatory Guidance/Health Supervision


Bright Futures
FOURTH EDITION
Guidelines for Health Supervision of Infants, Children, and Adolescents
Bright Futures
prevention and health promotion for infants, children, adolescents, and their families
Bright Futures
FOURTH EDITION
Guidelines for Health Supervision of Infants, Children, and Adolescents
POCKET GUIDE
Bright Futures
American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN

Periodicity Schedule

American Academy of Pediatrics

Recommendations for Preventive Pediatric Health Care

Bright Futures/American Academy of Pediatrics

Bright Futures

Each child and family is unique; therefore, these Recommendations for Preventive Pediatric Health Care are designed for the care of children who are receiving competent parenting, have no manifestations of any important health problems, and are growing and developing in satisfactory fashion. Additional visits may become necessary if circumstances suggest variations from normal.

Developmental, psychosocial, and chronic disease issues for children and adolescents may require frequent counseling and treatment visits separate from preventive care visits.

These guidelines represent a consensus by the American Academy of Pediatrics (AAP) and Bright Futures. The AAP continues to emphasize the great importance of continuity of care in comprehensive health supervision and the need to avoid fragmentation of care.

Refer to the specific guidance by age as listed in *Bright Futures* guidelines (Hagan JF, Shaw JS, Duncan PM, eds. *Bright Futures Guidelines for Health Supervision of Infants, Children and Adolescents*. 3rd ed. Elk Grove Village, IL: American Academy of Pediatrics; 2008).

The recommendations in this statement do not indicate an exclusive course of treatment or standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

	INFANCY							EARLY CHILDHOOD							MIDDLE CHILDHOOD						ADOLESCENCE									
AGE[1]	Prenatal[2]	Newborn[3]	3-5 d[4]	By 1 mo	2 mo	4 mo	6 mo	9 mo	12 mo	15 mo	18 mo	24 mo	30 mo	3 y	4 y	5 y	6 y	7 y	8 y	9 y	10 y	11 y	12 y	13 y	14 y	15 y	16 y	17 y	18 y	19 y	20 y	21 y
HISTORY Initial/Interval	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
MEASUREMENTS																																
Length/Height and Weight		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Head Circumference		●	●	●	●	●	●	●	●	●	●	●																				
Weight for Length		●	●	●	●	●	●	●	●	●	●																					
Body Mass Index[5]												●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Blood Pressure[6]		★	●	★	●	★	●	●	★	★	★	★	★	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SENSORY SCREENING																																
Vision[7]		●	●	●	●	★	●	●	●	●	●	●	●	●	●	●	●	★	●	●	●	●	●	★	●	●	●	●	●	●	★	★
Hearing		●[8]	●	●	●	★	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	★	●	●	●	●	●	●	★	●
DEVELOPMENTAL/BEHAVIORAL ASSESSMENT																																
Developmental Screening[9]								●			●		●																			
Autism Screening[10]											●	●																				
Developmental Surveillance		●	●	●	●	●	●		●	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Psychosocial/Behavioral Assessment		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Alcohol and Drug Use Assessment[11]																															★	★
Depression Screening[12]																															●	●
PHYSICAL EXAMINATION[13]		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
PROCEDURES[14]																																
Newborn Blood Screening[15]	◄	●	►																													
Critical Congenital Heart Defect Screening[16]		●																														
Immunization[17]		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hematocrit or Hemoglobin[18]						★			●		★		★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
Lead Screening[19]							●	●	● or ■[20]		●	● or ■[20]		●	★	★	●															
Tuberculosis Testing[21]				★			★		★			★		★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
Dyslipidemia Screening[22]												★			★		●		●	◄	●	●	►	●	◄	►	●	◄	►	●	►
STI/HIV Screening[23]																						★	★	★	★	★	◄	●	►	★	★	★
Cervical Dysplasia Screening[24]																																●
ORAL HEALTH[25]							●	●	● or ★		● or ★	● or ★	● or ★	●			●															
Fluoride Varnish[26]							◄	◄	●		●	►																				
ANTICIPATORY GUIDANCE	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

1. If a child comes under care for the first time at any point on the schedule, or if any items are not accomplished at the suggested age, the schedule should be brought up to date at the earliest possible time.
2. A prenatal visit is recommended for parents who are at high risk, for first-time parents, and for those who request a conference. The prenatal visit should include anticipatory guidance, pertinent medical history, and a discussion of benefits of breastfeeding and planned method of feeding, per the 2009 AAP statement "The Prenatal Visit" (http://pediatrics.aappublications.org/content/124/6/1227.full).
3. Every infant should have a newborn evaluation after birth, and breastfeeding should be encouraged (and instruction and support should be offered).
4. Every infant should have an evaluation within 3 to 5 days of birth and within 48 to 72 hours after discharge from the hospital to include evaluation for feeding and jaundice. Breastfeeding infants should receive formal breastfeeding evaluation, and their mothers should receive encouragement and instruction, as recommended in the 2012 AAP statement "Breastfeeding and the Use of Human Milk" (http://pediatrics.aappublications.org/content/129/3/e827.full). Newborn infants discharged less than 48 hours after delivery must be examined within 48 hours of discharge, per the 2010 AAP statement "Hospital Stay for Healthy Term Newborns" (http://pediatrics.aappublications.org/content/125/2/405.full).
5. Screen, per the 2007 AAP statement "Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report" (http://pediatrics.aappublications.org/content/120/Supplement_4/S164.full).
6. Blood pressure measurement in infants and children with specific risk conditions should be performed at visits before age 3 years.
7. A visual acuity screen is recommended at ages 4 and 5 years, as well as in cooperative 3 year olds. Instrument based screening may be used to assess risk at ages 12 and 24 months, in addition to the well visits at 3 through 5 years of age. See 2016 AAP statement, "Visual System Assessment in Infants, Children, and Young Adults by Pediatricians" (http://pediatrics.aappublications.org/content/137/1/1.61) and "Procedures for Evaluation of the Visual System by Pediatricians" (http://pediatrics.aappublications.org/content/137/1/1.full).
8. All newborns should be screened, per the AAP statement "Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs" (http://pediatrics.aappublications.org/content/120/4/898.full).
9. See 2006 AAP statement "Identifying Infants and Young Children With Developmental Disorders in the Medical Home: An Algorithm for Developmental Surveillance and Screening" (http://pediatrics.aappublications.org/content/118/1/405.full).
10. Screening should occur per the 2007 AAP statement "Identification and Evaluation of Children with Autism Spectrum Disorders" (http://pediatrics.aappublications.org/content/120/5/1183.full).
11. A recommended screening tool is available at http://www.ceasar-boston.org/CRAFFT/index.php.
12. Recommended screening using the Patient Health Questionnaire (PHQ)-2 or other tools available in the GLAD-PC toolkit and at http://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Mental-Health/Documents/MH_ScreeningChart.pdf.
13. At each visit, age-appropriate physical examination is essential, with infant totally unclothed and older children undressed and suitably draped. See 2011 AAP statement "Use of Chaperones During the Physical Examination of the Pediatric Patient" (http://pediatrics.aappublications.org/content/127/5/991.full).
14. These may be modified, depending on entry point into schedule and individual need.
15. The Recommended Uniform Newborn Screening Panel (http://www.hrsa.gov/advisorycommittees/mchbadvisory/heritabledisorders/recommendedpaneluniformscreeningpanel.pdf), as determined by The Secretary's Advisory Committee on Heritable Disorders in Newborns and Children, and state newborn screening laws/regulations (http://genes-r-us.uthscsa.edu/sites/genes-r-us/files/nbsdisorders.pdf), establish the criteria for and coverage of newborn screening procedures and programs. Follow-up must be provided, as appropriate, by the pediatrician.
16. Screening for critical congenital heart disease using pulse oximetry should be performed in newborns, after 24 hours of age, before discharge from the hospital, per the 2011 AAP statement "Endorsement of Health and Human Services Recommendation for Pulse Oximetry Screening for Critical Congenital Heart Disease" (http://pediatrics.aappublications.org/content/127/5/905.full).
17. Schedules, per the AAP Committee on Infectious Diseases, are available at http://redbook.aappublications.org/site/resources/schedules.xhtml. Every visit should be an opportunity to update and complete a child's immunizations.
18. See 2010 AAP statement "Diagnosis and Prevention of Iron Deficiency and Iron Deficiency Anemia in Infants and Young Children (0-3 Years of Age)" (http://pediatrics.aappublications.org/content/126/5/1040.full).
19. For children at risk of lead exposure, see the 2012 CDC Advisory Committee on Childhood Lead Poisoning Prevention statement "Low Level Lead Exposure Harms Children: A Renewed Call for Primary Prevention" (http://www.cdc.gov/nceh/lead/ACCLPP/Final_Document_030712.pdf).
20. Perform risk assessments or screenings as appropriate, based on universal screening requirements for patients with Medicaid or in high prevalence areas.
21. Tuberculosis testing per recommendations of the Committee on Infectious Diseases, published in the current edition of *AAP Red Book: Report of the Committee on Infectious Diseases*. Testing should be performed on recognition of high-risk factors.
22. See AAP-endorsed 2011 guidelines from the National Heart Blood and Lung Institute, "Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents" (http://www.nhlbi.nih.gov/guidelines/cvd_ped/index.htm).
23. Adolescents should be screened for sexually transmitted infections (STIs) per recommendations in the current edition of the *AAP Red Book: Report of the Committee on Infectious Diseases*. Additionally, all adolescents should be screened for HIV according to the AAP statement (http://pediatrics.aappublications.org/content/128/5/1021.full) once between the ages of 16 and 18, making every effort to preserve confidentiality of the adolescent. Those at increased risk of HIV infection, including those who are sexually active, participate in injection drug use, or are being tested for other STIs, should be tested for HIV and reassessed annually.
24. See USPSTF recommendations (http://www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm). Indications for pelvic examinations prior to age 21 are noted in the 2010 AAP statement "Gynecologic Examination for Adolescents in the Pediatric Office Setting" (http://pediatrics.aappublications.org/content/126/3/583.full).
25. Assess if the child has a dental home. If no dental home is identified, perform a risk assessment (http://www2.aap.org/oralhealth/docs/RiskAssessmentTool.pdf) and refer to a dental home. If primary water source is deficient in fluoride, consider oral fluoride supplementation. Recommend brushing with fluoride toothpaste in the proper dosage for age. See 2009 AAP statement "Oral Health Risk Assessment Timing and Establishment of the Dental Home" (http://pediatrics.aappublications.org/content/111/5/1113.full), 2014 clinical report "Fluoride Use in Caries Prevention in the Primary Care Setting" (http://pediatrics.aappublications.org/content/134/3/608), and 2014 AAP statement "Maintaining and Improving the Oral Health of Young Children" (http://pediatrics.aappublications.org/content/134/6/1224.full).
26. See USPSTF recommendations (http://www.uspreventiveservicestaskforce.org/uspstf/uspsdnch.htm). Once teeth are present, fluoride varnish may be applied to all children every 3-6 months in the primary care or dental office. Indications for fluoride use are noted in the 2014 AAP clinical report "Fluoride Use in Caries Prevention in the Primary Care Setting" (http://pediatrics.aappublications.org/content/134/3/608).

KEY ● = to be performed ★ = risk assessment to be performed with appropriate action to follow, if positive ◄——● ——► = range during which a service may be provided

Available at:
https://www.aap.org/periodicityschedule

Question 2

- When should the pediatrician provide health supervision or counseling?

Question 2

- When should the pediatrician provide health supervision or counseling?
  - **AT EVERY VISIT**

Anticipatory Guidance

- Car Safety
- Accidents are the leading cause of death through adolescence
- Motor vehicle collisions are the leading cause of death and disability in children in America
- The use of a child restraint system (CRS) reduces fatal injury by 71% in infants and 54% in children ages 1 to 4 years
- Booster seats reduce the risk of injury by 59% in children ages 4 to 7 years
- Preterm infants (<37 weeks gestational age) and infants who have a h/o respiratory issues should be observed and monitored for apnea, bradycardia, or oxygen desaturation when placed in a CRS before discharge
- No straightforward recommendations if an infant fails this “car seat challenge”
- Options have included delaying hospital discharge, modifying the seat and retesting, using “car beds”, or prescribing stimulant medications for babies who have apnea

Types of Car Seats

Age Group	Type of Seat	General Guidelines
Infants & toddlers	• Rear-facing–only • Rear-facing convertible	All infants and toddlers should ride in a rear-facing seat until they reach the highest weight or height allowed by the car seat's manufacturer. Most convertible seats have limits that will permit children to ride rear-facing for 2 years or more.
Toddlers & preschoolers	• Convertible • Forward-facing with harness	Children who have outgrown the rear-facing weight or height limit for their convertible seat should use a **forward-facing seat** with a harness for as long as possible, up to the highest weight or height allowed by their car safety seat manufacturer.
School-aged children	• Booster seats	All children whose weight or height exceeds the forward-facing limit for their car safety seat should use a **belt-positioning booster seat** until the vehicle seat belt fits properly, typically when they have reached 4 feet 9 inches in height and are 8 through 12 years of age. All children younger than 13 should ride in the back seat.
Older children	• Seat belts	When children are old enough and large enough for the vehicle seat belt to fi t them correctly, they should always use **lap and shoulder seat belts** for the best protection. All children younger than 13 years should ride in the back seat.

Question

- During a well child visit, you are counseling the parents of a 9 month old child about the positioning and type of car seat that they should be using. The child weighs 25 lb. You advise the parents to use:
- A. a rear-facing infant car seat
- B. a forward-facing infant car seat
- C. a rear-facing convertible car seat
- D. a forward-facing convertible car seat
- E. both A and C are correct

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Anticipatory Guidance

- **Screen Time**
  - The AAP recommends that children older than 2 limit television and video viewing to no more than 1 hour of quality programming per day
  - Use of TV, computer, tablet, and smartphone is discouraged
  - There is a dose-response relationship between hours of TV viewing and obesity in children
  - Violent media exposure has been associated with increased fear and anxiety in children
  - Ban devices and tvs an hour before bed and in bedrooms overnight. Associated with poor sleep hygiene
  - Designate media-free places and times (such as dinner time) for all family members, including adults
  - Continue to monitor what kids watch and talk to them about online bullying, sexting and other hazards

Anticipatory Guidance

- Injury Prevention Topics
- Head Injury Prevention
- Bicycle Safety
- Water Safety
- Sun exposure
- Firearms
- Smoke detectors
- Hot water heater temp (120 F)
- Animal bites
- Storage of toxic substances
- Choking hazards

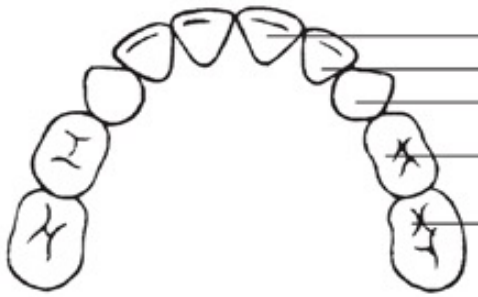
Anticipatory Guidance

- Injury Prevention Topics (continued)
- Sports safety
- Alcohol and drug use
- Suicide prevention
- Homicide prevention
- Drowning prevention

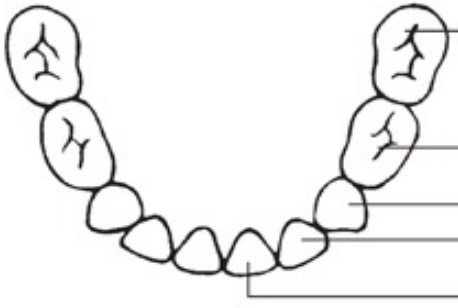
Dental

Primary Teeth

- Development begins between 4 and 15 months of age
- 20 primary teeth (usually by age 3 years)
- Symptoms
  - Drooling
  - Disturbed sleep
  - Irritability
  - Swollen gums



Upper Teeth	Erupt	Shed
Central incisor	8-12 mos.	6-7 yrs.
Lateral incisor	9-13 mos.	7-8 yrs.
Canine (cuspid)	16-22 mos.	10-12 yrs.
First molar	13-19 mos.	9-11 yrs.
Second molar	25-33 mos.	10-12 yrs.



Lower Teeth	Erupt	Shed
Second molar	23-31 mos.	10-12 yrs.
First molar	14-18 mos.	9-11 yrs.
Canine (cuspid)	17-23 mos.	9-12 yrs.
Lateral incisor	10-16 mos.	7-8 yrs.
Central incisor	6-10 mos.	6-7 yrs.

Dental Issues

- Delayed Tooth Eruption
  - Impacted teeth
  - Radiation therapy
  - Craniofacial anomalies
  - Congenital hypopituitarism
  - Congenital hypothyroidism
  - Genetic disorders
    - Trisomy 21
  - If no teeth within 6 months of target- see Dentist

Dental Guidance

- Early childhood caries is the number one chronic infectious disease of early childhood
- Good oral health starts early
- Children should receive preventive oral healthcare from a dentist or pediatrician by 1 year of age or 6 months (if high risk)
- Children should be exposed to adequate levels of fluoride
  - Water
  - Toothpaste
  - Other sources

Dental Guidance

- Children at high risk should receive fluoride varnish from their dentist or pediatrician if dentist is not available
  - Moderate risk- every 6 months
  - High risk every 3-4 months
- No bottles to bed
- Introduce a cup as soon as an infant can sit unsupported (6 months). Eliminate the bottle by 1 year of age
- Feed children healthy foods that are low in sugar
- Bacteria can be transmitted from a Mother to a child by sharing utensils, cleaning pacifiers with the mouth, and pre-chewing food

Children at High Risk for Early Tooth Decay
• Children on Medicaid
• Children whose mother or primary caregiver has cavities
• Children with siblings who have cavities
• Premature or low birth weight children
• Children with special health care needs
• Children who use a bottle after 15 months of age or have sweets and starchy snacks more than 3 times a day

Common Screening Tests

Screenings

- Vision
- Hearing
- Iron Deficiency
- Lead
- Blood Pressure
- Hypercholesterolemia
- Autism
- Newborn Metabolic Screen
- BMI

Screening

- Vision
- Visual Assessments/Eye Exam

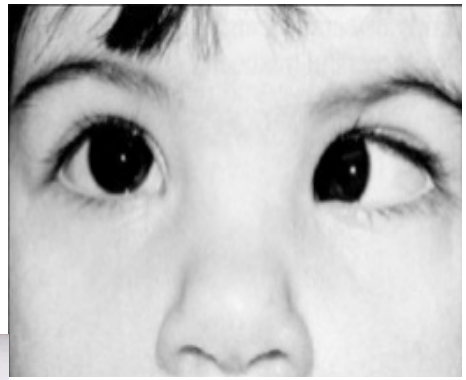
  Birth

  All Well Child Visits
- Visual Acuity (Snellen Chart)

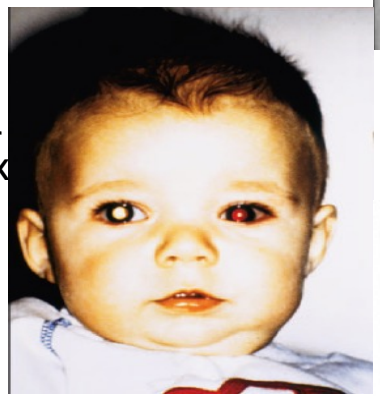
  Visual Acuity in healthy newborns is ~ 20/400

  Earliest possible age to test is 3 years old
- Cover/Uncover Test to look for misalignment (strabismus)

Strabismus



Abnormal red reflex



Pseudostrabismus

Opacified lens

Screening

- Hearing Screening
- Hearing loss is divided into conductive, sensorineural, mixed, and central types
- Conductive hearing loss (CHL)- **more common** in children

  Results from interference with the mechanical transmission of sound through the external and middle ear

  Most common cause of CHL- Otitis Media with Effusion
- Sensorineural hearing loss (SNHL)

  Results from failure to transduce vibrations to neural impulses effectively within the cochlea or transmit these impulses down the vestibular nerve
- Mixed hearing loss

  Involves a combination of these two types, usually due to damage throughout the middle ear and the inner ear
- Central hearing loss- results from defects in the brainstem or higher processing centers of the brain
- Both CHL and SNHL may be caused by a wide variety of congenital and acquired factors

Conductive Hearing Loss	Sensorineural Hearing Loss
Congenital	
Microtia/atresia	Genetic disorders (syndromic, connexin 26, mitochondrial)
Tympanic membrane abnormalities	In utero infections (cytomegalovirus, measles, mumps, rubella, varicella, syphilis)
Ossicular malformations	Anatomic abnormalities of the cochlea or temporal bone
	Exposure to ototoxic drugs during pregnancy (alcohol, isotretinoin, cisplatinum)
	Hyperbilirubinemia
Acquired	
Infection (acute otitis media, otitis externa, ossicular erosion)	Infections (bacterial meningitis, measles, mumps, rubella, Lyme disease)
Otitis media with effusion	Trauma (physical or acoustic)
Foreign body (including cerumen)	Radiation therapy for head and neck tumors
Cholesteatoma	Neurodegenerative or demyelinating disorders (Alport, Cogan syndromes)
Trauma (ossicular disruption, tympanic membrane perforation)	

Screenings

- Hearing Screening
- AAP recommends Universal Newborn Hearing Screen (UNHS) for all newborns before 1 month of age. Abnormal UNHS should be confirmed by 3 months of age
- Goal: 100% screened by age 3 months
- 1-3/1000 children are born deaf
- Otoacoustic Emmisions (OAE) measures sound waves produced in the inner ear via a probe placed in the ear canal
- Brainstem evoked response audiometry involves electroencephalographic response to auditory stimulus
- Early hearing loss detections and intervention can lead to better vocabulary and intellectual development

Screenings

- Iron Deficiency
- Screen all infants (routine hemoglobin test) by 12 months of age
- High Risk

  Prematurity

  Low birth weight

  Cow's milk before 1 year of age

  Menstruating females
- Ages 3-10 years- Screen if child is high risk
- Adolescence-targeted screening based on history. Menstruating females at high risk

Screenings

- Lead
- CDC recommends screening between 6 months- 6 years
- Minimum at 1 and again at 2 years of age
- Peak occurs at 2 years
- Venous is preferred over capillary (fingerstick)
- Threshold for intervention continues to drop (any lead level can be harmful)
- Currently the threshold for intervention is 3.5 mcg/dl

Screenings

- Blood Pressure (BP)
- Annually after 3 years of age
- Before age 3 years, BP should be obtained if risk is present (renal or cardiovascular condition)
- Hypertension (HTN) is defined as 3 separate readings over a period of at least several days
- High normal BP (90-95% based on height percentile and age)
- HTN is a blood pressure over 95%

AAP 2017 for Children 1-13 y		AAP 2017 for Children ≥13 y	
Classification	SBP/DBP Percentile	Classification	Absolute Threshold
Normal	<90th	Normal	<120/<80mmHg
Elevated BP	≥90th to <95th Or 120/80 mm Hg to <95th (whichever is lower)	Elevated BP	120/<80 to 129/<80 mm Hg
Stage 1 hypertension	≥95th to <95th Plus 12 mm Hg or 130/80-139/89 mm Hg (whichever is lower)	Stage 1 hypertension	130/80 to 139/89 mm Hg
Stage 2 hypertension	≥95th Plus 12 mm Hg or ≥140/90 mm Hg (whichever is lower)	Stage 2 hypertension	≥140/≥90mmHg

Screenings

- Newborn Metabolic Screen
  - State-dependent
  - Timing- not before 24 hours of life (not enough metabolite built up in order for test to pick it up)

Screenings

- Autism Screening
  - Ages 18 and 24 months
  - Early recognition is important
  - Areas of concern
    - Social interaction (poor eye contact, resists physical contact, prefers to play alone)
    - Language (not talking, loses previous skill)
    - Behavior (repetitive movements, rituals, sensitivity to sound)

Cholesterol and Lipid Screening

- AAP recommends nonfasting screening for dyslipidemia between 9 and 11 years of age and again between 17 and 21 years of age.
- Routine lipid screening is not recommended in children 2-8 and between 12 and 16 years of age.
- Overweight/obese children are treated primarily with weight management.
- Pharmacotherapy is generally not recommended in children <10 unless the following are present:
  - A high-risk CVD condition exists
  - LDL-C levels >400mg/dL (familial hypercholesterolemia)
  - TG>500mg/dL (familial hypertriglyceridemia)

BMI Screening

- Most practical method to track overweight and obesity
- BMI assessment recommended yearly beginning at age two
  - BMI<5th percentile: underweight
  - BMI 5th to 84th percentile: healthy weight
  - BMI 85th to 95th percentile: overweight
  - BMI>95th percentile: obese

Immunizations

Immunizations

- Recommendations made by the Advisory Committee on Immunization Practices (ACIP)
- Latest schedule on CDC website- http:cdc.gov/vaccines/recs/acip/
- Pearl- If not given when recommended, give at first subsequent visit

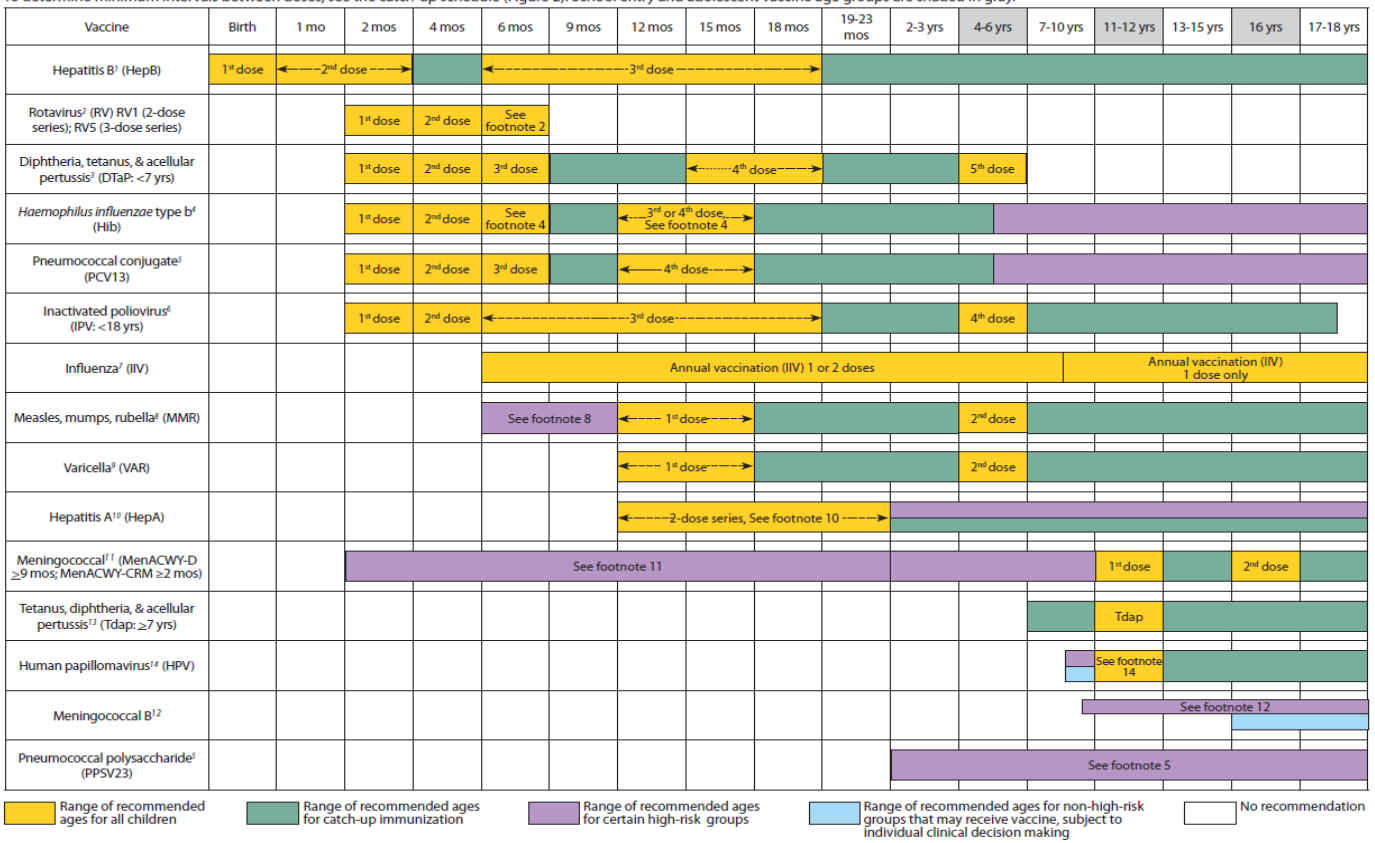
Immunizations

- Focus on:
- Immunization schedule
- Rationale for schedule
- Catch-up immunizations
- Immunization side effects
- Contraindications to immunization
- Types of vaccines (live vs inactivated)
- Timing when using other products (immunoglobulin, PPD, etc)

Figure 1. Recommended Immunization Schedule for Children and Adolescents Aged 18 Years or Younger—United States, 2018.

(FOR THOSE WHO FALL BEHIND OR START LATE, SEE THE CATCH-UP SCHEDULE [FIGURE 2]).

These recommendations must be read with the footnotes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars in Figure 1. To determine minimum intervals between doses, see the catch-up schedule (Figure 2). School entry and adolescent vaccine age groups are shaded in gray.



NOTE: The above recommendations must be read along with the footnotes of this schedule.

The figure below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. Always use this table in conjunction with Figure 1 and the footnotes that follow.

Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to dose 2	Dose 2 to dose 3	Dose 3 to dose 4	Dose 4 to dose 5
Persons aged 4 months through 6 years					
Hepatitis B[1]	Birth	4 weeks	8 weeks and at least 16 weeks after first dose; minimum age for the final dose is 24 weeks		
Rotavirus[2]	6 weeks	4 weeks	4 weeks		
Diphtheria, tetanus, & acellular pertussis[3]	6 weeks	4 weeks	4 weeks	6 months	6 months[3]
Haemophilus influenzae type b[5]	6 weeks	4 weeks if first dose administered at younger than age 12 months 8 weeks (as final dose) if first dose administered at age 12 through 14 months No further doses needed if first dose administered at age 15 months or older	4 weeks[5] if current age is younger than 12 months and first dose administered at < 7 months old 8 weeks and age 12 months through 59 months (as final dose)[5] if current age is younger than 12 months and first dose administered between 7 through 11 months (regardless of Hib vaccine [PRP-T or PRP-OMP] used for first dose); OR if current age is 12 through 59 months and first dose administered at younger than age 12 months; OR first 2 doses were PRP-OMP and administered at younger than 12 months. No further doses needed if previous dose administered at age 15 months or older	8 weeks (as final dose) This dose only necessary for children aged 12 through 59 months who received 3 (PRP-T) doses before age 12 months and started the primary series before age 7 months	
Pneumococcal[6]	6 weeks	4 weeks if first dose administered at younger than age 12 months 8 weeks (as final dose for healthy children) if first dose administered at age 12 months or older No further doses needed for healthy children if first dose administered at age 24 months or older	4 weeks if current age is younger than 12 months 8 weeks (as final dose for healthy children) if current age is 12 months or older No further doses needed for healthy children if previous dose administered at age 24 months or older	8 weeks (as final dose) This dose only necessary for children aged 12 through 59 months who received 3 doses before age 12 months or for children at high risk who received 3 doses at any age	
Inactivated poliovirus[7]	6 weeks	4 weeks[7]	4 weeks[7]	6 months[7] minimum age 4 years for final dose	
Meningococcal[13]	6 weeks	8 weeks[13]	See footnote 13	See footnote 13	
Measles, mumps, rubella[9]	12 months	4 weeks			
Varicella[10]	12 months	3 months			
Hepatitis A[11]	12 months	6 months			
Persons aged 7 through 18 years					
Tetanus, diphtheria; tetanus, diphtheria, & acellular pertussis[4]	7 years[4]	4 weeks	4 weeks if first dose of DTaP/DT administered at younger than age 12 months 6 months if first dose of DTaP/DT administered at age 12 months or older and then no further doses needed for catch-up	6 months if first dose of DTaP/DT administered at younger than age 12 months	
Human papillomavirus[12]	9 years	Routine dosing intervals are recommended[12]			
Hepatitis A[11]	12 months	6 months			
Hepatitis B[1]	Birth	4 weeks	8 weeks (and at least 16 weeks after first dose)		
Inactivated poliovirus[7]	6 weeks	4 weeks	4 weeks[7]	6 months[7]	
Meningococcal[13]	6 weeks	8 weeks[13]			
Measles, mumps, rubella[9]	12 months	4 weeks			
Varicella[10]	12 months	3 months if person is younger than age 13 years 4 weeks if person is aged 13 years or older			

NOTE: The above recommendations must be read along with the footnotes of this schedule.

Question

Which of the following vaccines are live?

A. HBV
B. IPV
C. DTaP
D. Hib
E. PCV
F. Rota

Question

Which of the following vaccines are live?

A. HBV
B. IPV
C. DTaP
D. Hib
E. PCV
F. **Rota**

Immunization

- 3 live vaccines

  MMR

  Varicella

  Rota
- Other live vaccines only given to travelers

  Oral Typhoid

  Yellow Fever
- Rota is the only live vaccine given before 1 year of age

Rotavirus

Rotavirus

- Most common cause of gastroenteritis in infants and young children
- A lot of morbidity associated with it
- Vaccine: Live, Oral
- RotaTeq: 2, 4, 6 mo
- Rotarix: 2, 4 mo
- Minimum age for first dose: 6 weeks
- Minimum interval: 4 weeks
- Maximum interval: 10 weeks
- Vaccine should be initiated by 15 weeks of life and not after
- Vaccine should not be continued in infants older than 8 months

Influenza

Influenza

- Recommended for all beginning at 6 months of age
- High Risk Groups in particular
  - 6-23 months of age
  - Pulmonary or Cardiovascular disease (asthma)
  - Residents of chronic care facilities

Influenza

- Give annually (beginning at 6 months)
- 2 doses (separated by 4 weeks) given to those receiving the vaccine for the first time (under 9 years old)
- Subsequent season: 1 dose

Influenza

- Contraindications
  - Egg allergy does not impart an increased risk of anaphylaxis
  - Severe reaction to previous vaccine
  - Guillain-Barre (within 6 weeks of getting the flu vaccine)

Measles-Mumps-Rubella (MMR)

MMR

- Measles-Mumps-Rubella (MMR)
- Live attenuated vaccine
- 2 dose series given at 12-15 months and at 4-6 years
- Catch-up: 2 doses at least 4 weeks apart
- If given at <12 months old, needs to be repeated due to lack of immunogenicity
- Can be given as early as 6 months, but must be revaccinated at 12 months of age
- During an outbreak, MMR given within 72 hours of exposure to measles may provide some protection and is preferred to immune globulin

MMR

- Contraindications
  - Pregnant women
  - Previous anaphylactic reaction to measles vaccine
  - Persons with severe immunocompromising conditions
  - Can be given to children with egg allergy (risk of anaphylaxis is low)

Hepatitis B

Hepatitis B

- Recombinant DNA-produced HBsAg Vaccine
- First dose in nursery before discharge
- 3 doses
- 4th dose allowed if using combination vaccines
- If mother HBsAg+
  - HBV and Hep B immune globulin within 12 hours of birth
  - If maternal status is unknown, should receive at birth and HBIG within 7 days if mom then found to be positive

Question

The following are all acceptable regimens for Hepatitis B vaccine **EXCEPT:**

A. Birth, 2 months, 4 months
B. Birth, 1 month, 6 months
C. 2 months, 4 months, 6 months
D. 2 months, 4 months, 1 year
E. 1 year, 2 years, 5 years

Question

The following are all acceptable regimens for Hepatitis B vaccine **EXCEPT:**

A. **Birth, 2 months, 4 months**
B. Birth, 1 month, 6 months
C. 2 months, 4 months, 6 months
D. 2 months, 4 months, 1 year
E. 1 year, 2 years, 5 years

Question

An infant born to a mother whose HBsAg status at birth is unknown should receive:

A. A first dose of Hep B vaccine sometime within the 1st 12 months of life.

B. Hep B vaccine within 12 hrs of birth; the infant should then also be given HBIG within 7 days if mother found to be HBsAg positive.

C. HBIG and first dose of Hep B vaccine between 3 and 6 months of life.

D. Hep B vaccine and HBIG within the 1st 12 hours of life.

Question

- An infant born to a mother whose HBsAg status at birth is unknown should receive:

A. A first dose of Hep B vaccine sometime within the 1st 12 months of life.

B. **Hep B vaccine within 12 hrs of birth; the infant should then also be given HBIG within 7 days if mother found to be HBsAg positive**.

C. HBIG and first dose of Hep B vaccine between 3 and 6 months of life.

D. Hep B vaccine and HBIG within the 1st 12 hours of life.

Pneumococcal Vaccine

Pneumococcal Vaccine

- Pneumococcal Vaccines
  - PCV13- 13-valent conjugate vaccine
    - Developed to prevent invasive pneumococcal disease in children <2 years
    - Prevention of pneumococcal pneumonia and meningitis, less effective in prevention of otitis media
    - Recommended for children **24 to 59 months if high risk**
      - Cochlear implant
      - Cardiac or pulmonary disease
      - Immunocompromised
        - Sickle cell disease, asplenia, HIV, diabetes, cancer
      - Long term use of steroids
  - Schedule
    - 2,4,6 and 12-15 months of age

Pneumococcal Vaccine

- PS23- 23 valent polysaccharide vaccine
  - Not immunogenic in children <2 years
  - Given to high risk children>2 years for broader coverage

High Risk[1]
Age <24 months

Sickle cell disease

Asplenia (congenital or acquired) or splenic dysfunction (including other sickle hemoglobinopathies)

Human immunodeficiency virus infection

Cochlear implants (particularly those who received an implant with a positioner)

Presumed High Risk[2]
Congenital immune deficiency, including some B- (humoral) or T-lymphocyte deficiencies, complement deficiencies (particularly C1, C2, C3, and C4), and phagocytic disorders (with the exception of chronic granulomatous disease)

Chronic cardiac disease (particularly cyanotic congenital heart disease and heart failure)

Chronic pulmonary disease (including asthma treated with high-dose corticosteroid therapy)

Cerebrospinal fluid leaks from a congenital malformation, skull fracture, or neurologic procedure

Chronic renal insufficiency, including nephrotic syndrome

Conditions associated with immunosuppressive therapy or radiation therapy (including malignant neoplasms, leukemias, lymphomas, and Hodgkin disease) and solid organ transplantation

Diabetes mellitus

Moderate Risk[3]
All children 24 to 35 months of age

Children 36 to 59 months of age attending out-of-home child care

Children 36 to 59 months of age who are African American or of American Indian/Alaska Native descent

Haemophilus Influenzae Type B Vaccine

- Vaccine does not cover non-typeable Haemophilus
  - Otitis media
  - URI
- Hib Schedule
  - 2,4,6,12-15 months
  - Minimum age: 6 weeks
- Hib not recommended for those over 5 years except if they are high risk
  - Sickle cell
  - Leukemia
  - HIV
  - Splenectomy

Hepatitis A

Hepatitis A

- All children over age 1 year
- 2 doses at least 6 months apart
- Also recommended for older children who live in areas of increased risk of infection

Meningococcal Vaccine

Meningococcal Vaccine

- Two vaccines
  - Meningococcal conjugate vaccine (MCV)- protects against serogroups A,C,W, and Y
  - Meningococcal Serotype B (MenB)
- For patients not in high-risk group
  - Vaccinate at 11-12 year well visit with MCV
  - Booster of MCV at 16 years of age
  - MenB between 16-18 years old
- For high-risk patients
  - May vaccinate as early as 2 years of age. Revaccinate 3-5 years later if risk remains
  - High risk groups
    - Complement deficiency, anatomic or functional asplenia
    - Travelers to high-risk countries

Varicella

Question

The following are all true about the varicella vaccine **EXCEPT:**

A. It is a live vaccine
B. One dose is required
C. It contains small amounts of neomycin and gelatin
D. The vaccine can be given as early as 12 months
E. 5% of recipients get a mild case of the chicken pox

Question

The following are all true about the varicella vaccine **EXCEPT:**

A. It is a live vaccine
B. **One dose is required**
C. It contains small amounts of neomycin and gelatin
D. The vaccine can be given as early as 12 months
E. 5% of recipients get a mild case of the chicken pox

Varicella

- First dose: 12-15 months
- Second dose: 4-6 years
- 2 doses should be administered to all
  - Minimum interval for children 12 months to 12 years: 3 months
  - Minimum interval for Adolescents and Adults 13 and over: 4 weeks
- Vaccinate older kids if no history of disease
  - May check titers
- Vaccinate
  - Kids on low dose steroids (less than 2 mg/kg/day)
  - Children of pregnant women
- Do Not Vaccinate
  - Children on high-dose steroids
  - Pregnant women

Varicella

- Varicella and MMR need to be given together.
- If not given together, need to wait 1 month.

Polio

Polio

- Use Inactivated Polio Vaccine
- Inactivated much less likely to cause disease compared to oral polio vaccine (OPV-no longer used in the US)
- Schedule
  - 2, 4, 6-18 mo and 4-6 years
  - 4th dose **MUST** be given after 4th birthday

Human Papilloma Virus Vaccine (HPV)

HPV

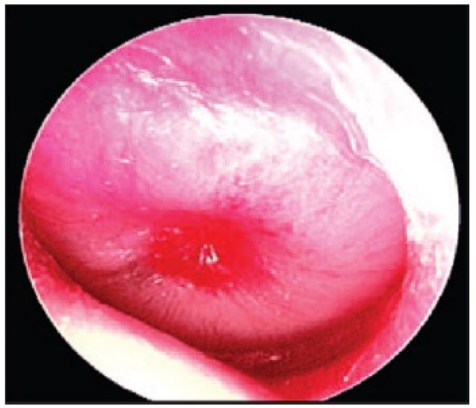
- Human Papilloma Virus is the most common cause of cervical cancer
- Two doses of the HPV vaccine are recommended for all boys and girls starting at age 9.
- If the vaccine is started on or after the age of 15, 3 doses are recommended (over a 6 month period)

Common Pediatric Conditions

- Otitis Media
- Sinusitis
- Orbital/Periorbital Cellulitis
- Conjunctivitis
- Neck Masses
- Enuresis

Otitis Media

- Risk factors for the development of AOM and/or OME
  - Less than 2 years of age
  - Atopy
  - Sinus disease
  - Ciliary dysfunction
  - Cleft palate/craniofacial abnormalities
  - First OM before 6 months of age
  - Immunocompromised



Otitis Media

- Criteria for treatment
  - No bulging or MEE: No AOM
  - Severe symptoms- always treat
  - Mild symptoms
    - Less than 2 years of age
      - Unilateral disease- observe & follow-up in 48-72 hours
      - Bilateral disease-treat
    - Over 2 years of age
      - Observe & follow-up in 48-72 hours

Otitis Media

- Treatment
  - First line
    - High dose Amoxicillin
      - If no Amoxicillin in the past 30 days
    - High dose Amox/Clavulanic Acid
      - If received Amoxicillin in past 30 days
  - Alternatives
    - Cefdinir, Cefuroxime, Cefpodoxime, Ceftriaxone
  - Treatment failure
    - High dose Amoxicillin/Clavulanic Acid, Ceftriaxone
    - Clindamycin +3rd generation Cephalosporin+ ENT and/or ID

Otitis Media

- Chronic Suppurative Otitis Media
  - Pseudomonas, Staph
- Cholesteatoma
  - TM retraction pockets. Presents with hearing loss and otorrhea. Recurrence after resection
- Bullous myringitis
  - Blister in TM associated to AOM
- Mastoiditis
  - Strep Pneumo, S. Pyogenes, Staph aureus, and H.Influenzae. CT for diagnosis. Most common suppurative complication of AOM

Sinusitis

- Anatomy
  - Ethmoids and maxillary sinus are developed in small children, sphenoids 3-5 years, frontal 6-10 years
- Symptoms criteria
  - URI with persistent illness for 10 days without improvement
  - URI worsening after initial improvement
  - Severe onset of symptoms: high fever, purulent nasal discharge > 3 days
- Pathogens
  - Strep pneum, M. catarrhalis, H. Influenzae, Strep pyogenes, Anaerobes

Sinusitis

- Imaging studies
  - Contrast CT: seizures, severe headache, photophobia, eye swelling or pain with EOM, proptosis
- Treatment plan (10-28 days)
- Amoxicillin or Amoxicillin/Clavulanic Acid
- Alternatives: Ceftriaxone
  - Cefdinir, Cefuroxime if PCN allergy
  - Clindamycin, Linezolid, Cefixime for severe disease

Preseptal vs Orbital Cellulitis

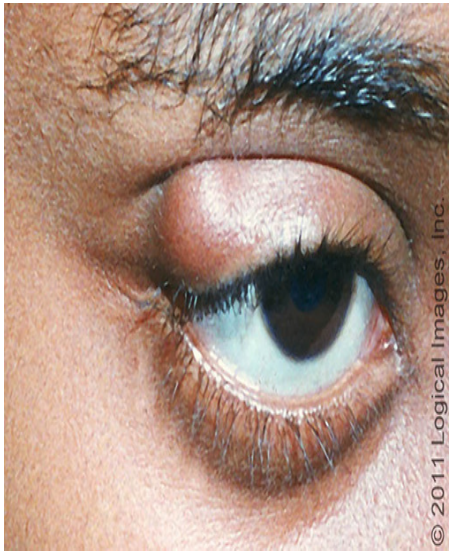
- It is important to distinguish preseptal/periorbital from orbital cellulitis
- Preseptal cellulitis is an infection of the eyelid (not involving the orbit)
- Only orbital cellulitis causes swelling and inflammation of the extraocular muscles leading to pain with eye movements, proptosis and in some cases ophtalmoplegia with diplopia
- Both can have fever and leukocytosis, but more common in orbital cellulitis
- Orbital cellulitis is less common than preseptal cellulitis, but far more consequential and life threatening

Orbital vs Periorbital Cellulitis

Clinical features of preseptal and orbital cellulitis

Clinical feature	Preseptal cellulitis	Orbital cellulitis
Eyelid swelling with or without erythema	Yes	Yes
Eye pain/tenderness	May be present	Yes; may cause deep eye pain
Pain with eye movements	No	Yes
Proptosis	No	Usually, but may be subtle
Ophthalmoplegia +/- diplopia	No	May be present
Vision impairment	No	May be present*
Chemosis	Rarely present	May be present
Fever	May be present	Usually present
Leukocytosis	May be present	May be present

Preseptal/Orbital Cellulitis



Chalazion

Hordeolum/Stye

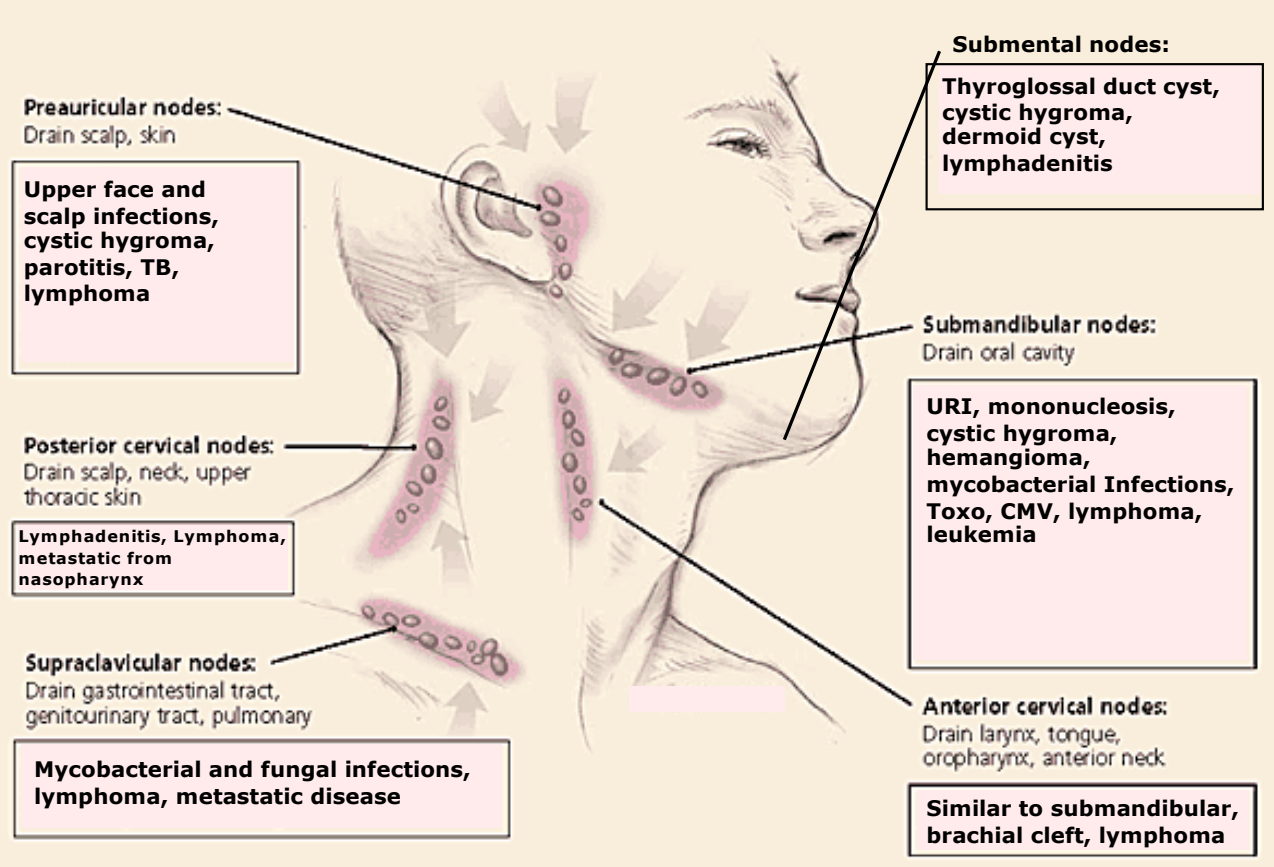
Enuresis

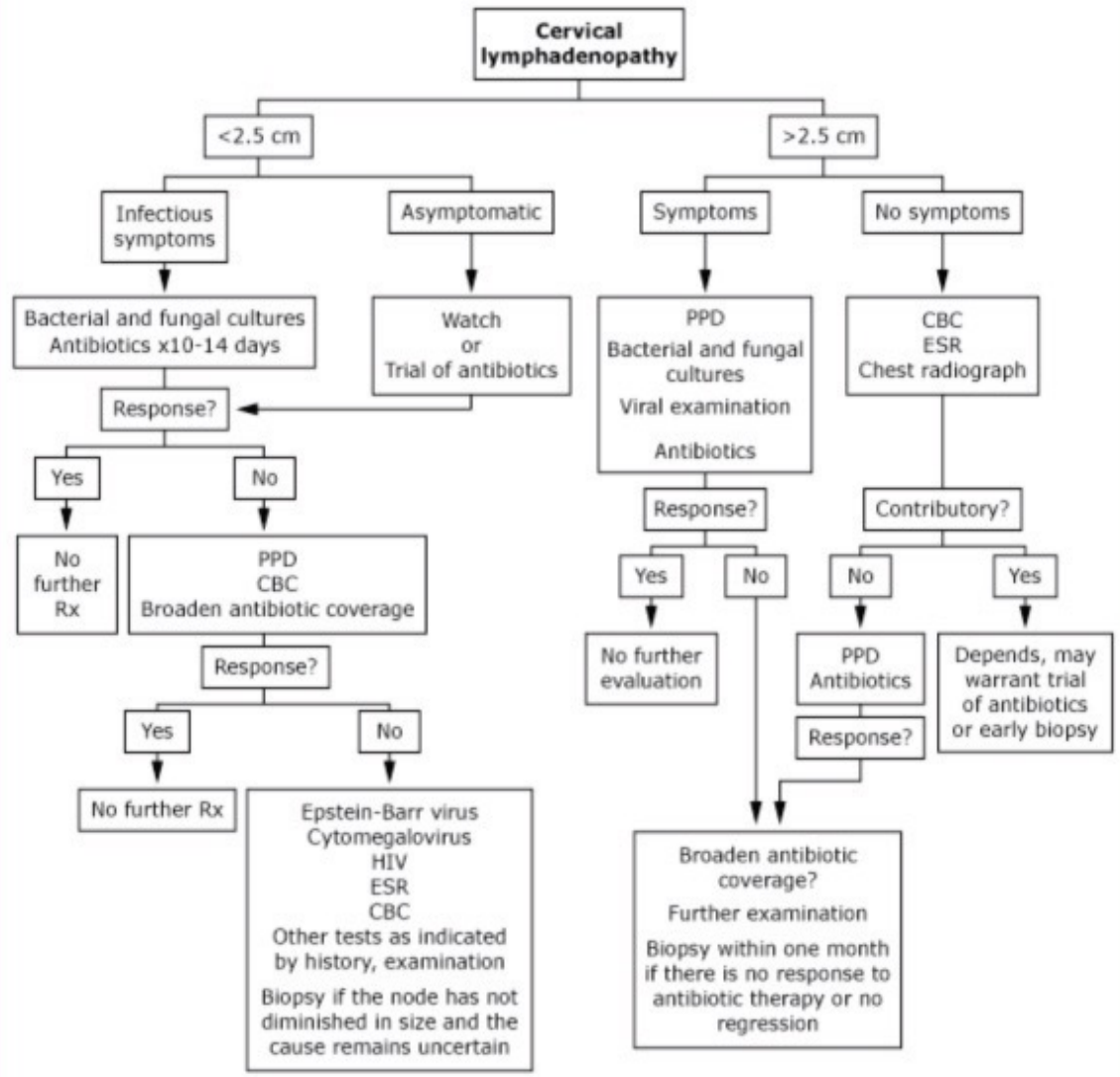
- Primary nocturnal enuresis
  - Nocturnal wetting in a child that has never been dry longer than 6 months
  - Expected to be dry by age 6 years, resolves at a rate of 15%/year
  - Genetics, vasopressin secretion, sleep factors, abnormal bladder dynamics, psychosocial, maturational delay
- Secondary enuresis
  - New onset nighttime wetting after being dry for 6 months

Enuresis

- Screening Urinalysis
- Treatment
  - Behavioral modification- limit fluid intake before bed
  - Alarm therapy- most successful
  - Medication-Desmopressin acetate, anticholinergics, imipramine
  - Acupuncture and hypnosis- little data to support

Neck mass by location




Cervical lymphadenopathy
<2.5 cm
>2.5 cm
Infectious symptoms
Asymptomatic
Symptoms
No symptoms
Bacterial and fungal cultures
Antibiotics x10-14 days
Watch
or
Trial of antibiotics
PPD
Bacterial and fungal cultures
Viral examination
Antibiotics
CBC
ESR
Chest radiograph
Response?
Yes
No
Response?
Contributory?
No further Rx
PPD
CBC
Broaden antibiotic coverage
Yes
No
No
Yes
No further evaluation
PPD
Antibiotics
Depends, may warrant trial of antibiotics or early biopsy
Response?
Response?
Yes
No
No further Rx
Epstein-Barr virus
Cytomegalovirus
HIV
ESR
CBC
Other tests as indicated by history, examination
Biopsy if the node has not diminished in size and the cause remains uncertain
Broaden antibiotic coverage?
Further examination
Biopsy within one month if there is no response to antibiotic therapy or no regression

Conjunctivitis

Diagnosis	Pathogen	Presentation	Treatment
Bacterial conjunctivitis	Staph. aureus, Staph. epi, **Strep. pneumo, Haem. influenzae**, Moraxella catarrhalis, Pseudomonas	**Preschool** children **Bilateral** disease **Mucopurulent** discharge **AOM**	Topical antibiotics (fluoroquinolone or polymyxin B/trimethoprim)
Viral conjunctivitis	**Adenovirus** most common	**Older** than 5y **Unilateral** disease **Redness and watery** discharge **Pharyngitis**	Symptomatic Hand washing, extremely contagious!!
Allergic conjunctivitis	**IgE mediated**, airborne allergens precipitate **mast cell degranulation**, histamine, and **inflammatory mediators** release	**Itching**, conjunctival chemosis, pale edema, eyelid edema and watery or mucoid discharge	Cold compresses, artificial tears, topical antihistamines, mast cell stabilizers, topical nonsteroidal anti-inflammatory agents

Psychosocial Issues

- DEATH AND GRIEF
  - A child's understanding of death and expression of grief are influenced by his developmental level, his experience with death, and the family's cultural and religious beliefs.

Psychosocial Issues

- DEATH AND GRIEF
  - Preschool Children
    - Persistent separation anxiety more than 6 months after a predictable home life has been established
    - Continuing or worsening regressive behavior beyond 6 months from the death

Psychosocial Issues

- DEATH AND GRIEF
  - School Age Children
    - Persistent or worsening school phobia or academic performance 3 months after the death
    - Detachment from peers or development of new social phobias
    - Increasing behavioral concerns (depression, moodiness, anger) 3 to 6 months after the death
    - Physical complaints without organic cause 3 months after the death

Psychosocial Issues

- DEATH AND GRIEF
  - Adolescents
    - Increasing “high risk behaviors” with drugs, alcohol, delinquency, or precocious sexual activity
    - Withdrawal from peer interactions or group activities
    - Persistent somatic complaints for 3 months after the death

Child Abuse/Neglect

- Nearly 90% of the perpetrators of child maltreatment are related caregivers
- Siblings of abused children are at increased risk of abuse
- Abusive parents often have unrealistic expectations for their children's behavior (expecting a newborn not to cry or an 8-month-old infant to be toilet trained).

Child Abuse/Neglect

- Factors that increase risk of abuse
  - Child stresses- disability, hyperactivity
  - Social/situational stresses- poverty, isolation, family discord, multiple births, parent-child conflicts
  - Parent stress- abused as a child, depression, substance abuse

Child Abuse/Neglect

- Common fractures in child abuse
  - Spiral fractures of long bones- humerus, femur
  - Metaphyseal fractures- femur, tibia, humerus
  - Rib fractures- posterior, lateral
  - Vertebral bodies

Ethics

- Concepts to review
  - End-of-life care
  - Withdrawal/Withholding care
  - Medical futility
  - Euthanasia
  - Confidentiality
  - Informed consent/assent/dissent
  - Minors as decision makers

Good Luck!!!