Disclosure Statement

Dr. Weismiller has nothing to disclose.

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Learning Objectives

1. Recognize the key predictors of normal pediatric development
2. Discuss issues and screening in the care of the routine well child
3. Recognize the demographic of the adolescent age group and the unique medical and psychosocial health problems seen in this group
4. Identify the diagnostic and therapeutic approaches that are appropriate for disorders in adolescents
The Well-Child Visit

- History from parents
- Parental guidance: sleeping, feeding, behavior, safety, health, parenting
- Growth and development (milestones)
- Physical exam
- Other health screenings (vision, fluoride, lead)
- Immunizations
1. Mother brings her 9-month-old daughter in for routine care. Which of the following should be addressed at this visit?

A. Starting table food  
B. Sleeping on back  
C. Hearing test  
D. Toilet training
1. Mother brings her 9-month-old daughter in for routine care. Which of the following should be addressed at this visit?

- A. Starting table food [78%]
- B. Sleeping on back [5%]
- C. Hearing test [7%]
- D. Toilet training [10%]
Parental Guidance

• 2-4 wk:
  – Issues: sleep (position), feeding, crying, response, growth
  – Safety: car seats, exposure to smoking, shaking baby

• 2 mo
  – Issues: sleep (position), feeding, growth
  – Safety: burns, sun exposure, smoking, car seats, shaking baby

• 4 mo
  – Issues: introducing food, sleep, talking to baby
  – Safety: falling, car seats

• 6 mo
  – Issues: food
  – Safety: child-proofing house, poisons, walkers, car seats

• 9 mo
  – Issues: table food, using cup, teeth
  – Safety: drowning, burns, car seats
Parental Guidance

• 12 mo
  – Issues: weaning, brushing teeth, lead screening, playing with baby
  – Safety: child-proofing house, choking, car seats

• 15 mo
  – Issues: nutrition, feeding self, development
  – Safety: falls, car seat

• 18 mo
  – Issues: nutrition, TV, toilet-training, language development
  – Safety: guns, lifejackets, traffic, poisons, matches

• 24 mo
  – Issues: talking with child, toilet training, TV, games, language
  – Safety: guns, lifejackets, traffic, poisons, matches

• 36 mo
  – Issues: nutrition, hand-washing, talking, TV, peers, dentist
  – Safety: home safety, car seat, helmets
Sleep

- 6 mo: majority sleep through the night
- Nightmares during the second half of the night
- Sleepwalking, night terrors during the first half
- Benign nocturnal limb pain within hours of falling asleep
  - Ages 4-6 in knees, shins, calves (sometimes thighs)
- Sleeplessness in a child can be a major indication of stressors
- Lack of data for insomnia meds in children
Accident Prevention

• MVA: car seats
  – Backward facing until 2 years and 20 lb
• Burns: curling irons, stoves, hot liquids
• Bikes, roller sports: helmets
• Poisoning: no ipecac
• Drowning: #1 cause of accidental death < 5 yr
• Guns
2. 6-month-old infant is brought to your clinic. Which of the following would be a cause for alarm?

A. Does not sit without support  
B. Cannot form any words  
C. Keeps hands continually clenched  
D. Does not cruise
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A. Does not sit without support  
B. Cannot form any words  
C. Keeps hands continually clenched  
D. Does not cruise

- A: 35%
- B: 2%
- C: 59%
- D: 4%
*Development*

- **1 mo**
  - Looks at face
  - Responds to voice
  - Moves extremities equally
  - Lifts head

- **2 mo**
  - Vocalizes
  - Smiles
  - Follows to midline
  - Responds to sounds

- **4 mo**
  - Holds head at 90°
  - Laughs
  - Follows past midline
  - No persistent fist clenching*

- **6 mo**
  - No head lag
  - Bears weight on legs
  - Rolls over
  - Turns toward voice
  - Transfers hand to hand
*Development*

- **9 mo**
  - Sits without support
  - Stands holding on
  - Cruises
  - Imitates speech
  - Thumb finger grasp
  - Dada, mama
  - Peek a boo

- **1 yr**
  - Stands alone
  - Walks with help
  - Specific dada mama
  - Responds to “no”
  - Pincer grasp
  - Waves bye-bye
  - Bangs 2 blocks together
• 18 mo
  – Walks backward
  – 2 body parts
  – Drinks from cup
  – Imitates household chores
  – Uses 20 words
  – Scribbles
  – Stacks 2 blocks
  – Understands simple commands

• 2 yr
  – Kicks ball
  – Takes off clothes
  – 2 words together
  – Knows 50 words
  – Understands 2-part command
  – Uses own name
  – Stacks 4 blocks
  – 6 body parts
*Development*

**3 yr**
- Washes hands
- Draws vertical line
- Understands “tired, hungry”
- Throws ball
- Pedal tricycle
- Asks “Why?”

**4 yr**
- Dresses self
- Plays games (tag)
- Says what to do when tired, hungry, cold
- First and last name
- Up and down stairs alternating feet
- Balances each foot 2 sec
- Draws a circle
Vision

- The USPSTF recommends vision screening for all children at least once between the ages of 3 and 5 years, to detect the presence of amblyopia or its risk factors. Grade: **B Recommendation**
- Refer for:
  - Visual acuity < 20/40 age 3, < 20/30 age 5
  - Asymmetry at any age
  - Strabismus > 3-6 mo
  - Any abnormal red reflex
  - Amblyopia due to strabismus is the leading cause of monocular vision loss in children
Dental

• Tooth eruption:
  – 12 mo: 4 teeth
    (then one tooth a month until 20 teeth at 28 months)

• Teething: Does not cause fever, diarrhea, or other infections

• Treat with acetaminophen, teething ring

• USPSTF recommends:
  – Primary care clinicians prescribe oral fluoride at currently recommended doses for preschool children older than 6 mo. old whose primary water source is deficient in fluoride (B rec.)

http://www.uspreventiveservicestaskforce.org/3rduspstf/dentalchild/dentchrss.htm
# Dietary Fluoride Supplementation Schedule

**American Academy of Pediatric Dentistry**

<table>
<thead>
<tr>
<th>Age</th>
<th>&lt; 0.3 ppm F</th>
<th>0.3-0.6 ppm F</th>
<th>&gt; 0.6ppm F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth - 6 months</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6 months – 3 years</td>
<td>0.25 mg</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3-6 years</td>
<td>0.50 mg</td>
<td>0.25 mg</td>
<td>0</td>
</tr>
<tr>
<td>6 years up to at least 16 years</td>
<td>1.00 mg</td>
<td>0.50 mg</td>
<td>0</td>
</tr>
</tbody>
</table>
Lead Screening

• Lead levels
  – 5-9 µg/dL: repeat and follow
  – >10 µg/dL: refer to health dept. to check house
  – > 45 µg/dL: drug chelation (> 70 µg/dL: 2 drugs)

• USPSTF recommends AGAINST screening asymptomatic children at average risk (D recommendation)

• USPSTF concludes that evidence is insufficient to recommend for or against screening in asymptomatic children who are at increased risk (I recommendation)
Adolescent Health Care
Health Care in Adolescents

• Screening in adolescents
  – Yearly exams may not be cost-effective

• BIHEADS screening
  – Body Image
  – Home/Health
  – Education/Employment
  – Activities
  – Drugs/Depression
  – Safety/Sexuality

• Bullying—work with school officials
Vaccinations

- **Age 11/12—HPV, Tdap, Meningococcal (MCV4)**
- Influenza—yearly
- Age 16-18—Meningococcal booster
USPSTF Recommendations
A Recommendations (Strongly Recommended)

• Pap smears:
  – Beginning at age 21
• Sexually active females younger than 25 years for chlamydia infection
• Folic acid supplementation for females
• HIV screening for adolescents > 15 or younger if at increased risk for HIV infection
• Syphilis screening for those at increased risk
B Recommendations (Recommended)

• Gonorrhea infection if at increased risk
• Counseling on sexually transmitted infections (STIs) for all sexually active adolescents at increased risk
• Screening of adolescents (12-18 years of age) for major depressive disorder (MDD)
• Obesity screening for children 6 years and over
B Recommendations (Recommended)

- Counseling (ages 10-24 with fair skin) about minimizing UV exposure
- Intimate partner violence screening for females of childbearing age
- Interventions to prevent initiation of tobacco use in school aged and adolescents
I Recommendations (Insufficient Evidence)

- Lipid disorders (ages 1-20)
- Speech and language delay
- Physical abuse or neglect of children
- Proper use of motor vehicle occupant restraints
- Counseling re: driving under the influence or with alcohol-impaired drivers
- STI counseling for non-sexually active adolescents
- Alcohol misuse or illicit drug use by adolescents
I Recommendations (Insufficient Evidence)

- Children (7-11 years of age) for depression
- Physical activity counseling
- Nutrition
- Primary HTN in asymptomatic children and adolescents
- Iron deficiency anemia in asymptomatic children
- Gonorrhea screening for males at increased risk
D Recommendations (Not Recommended)

- Testicular cancer screening in asymptomatic adolescent males
- Asymptomatic adolescents for idiopathic scoliosis
- Pap smears in females less than 21
- Screening for herpes or syphilis in asymptomatic adolescents
- Screening for gonorrhea in males/females at low risk
- Ovarian cancer screening
Suicide in Adolescents

- The USPSTF recommends screening of adolescents (12-18 years of age) for major depressive disorder (MDD) when systems are in place to ensure accurate diagnosis, psychotherapy (cognitive-behavioral or interpersonal), and follow-up—B recommendation
- 75% of completed suicides are by white males
- Adolescents and the elderly are high risk
Suicide Risk Factors

- Psychiatric disorders
  - Mood disorders
  - Substance abuse
  - Eating disorders
  - Personality disorders
  - Psychoses
- Family history and genetics
- Social and environment
  - Family crisis
  - Physical abuse
  - Suicide in community
  - Trouble in school or with the law
- Often unexpected
3. A 17-year-old female presents to the emergency department. Which condition can you treat without the consent of her parents?

A. A broken arm
B. An exposure to a sexually transmitted disease
C. A 3-cm laceration on her leg
D. A headache
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- C. A 3-cm laceration on her leg
- D. A headache

Correct answer: B.

97% correct
Consent

• Age of consent is 18-21 y.o. and state-dependent
• Either parent can consent
• No parental consent usually required for:
  – Contraception, STIs, rape, incest
  – Drug and alcohol treatment
  – Emancipation, married, parent, living independently
  – Emergency where delay in treatment could cause harm
• Always encourage discussion with parents
4. You are seeing a young girl for her pre-high school physical. The form asks for Tanner stage. She has small but developed breasts and a small amount of dark, straight pubic hair. She is Tanner stage:

A. I
B. II
C. III
D. IV
E. V
4. You are seeing a young girl for her pre-high school physical. The form asks for Tanner stage. She has small but developed breasts and a small amount of dark, straight pubic hair. She is Tanner stage:

A. I
B. II
C. III
D. IV
E. V

C. III
Tanner Staging

- Allows physicians to give anticipatory guidance
- Females
  - Development begins age 8-13 with breast buds
  - Growth spurt (~ 4 in) during stage 2
  - Menarche ~ age 12
  - Acne common during stages 3 and 4
- Males
  - Development begins ages 9-13 with scrotal enlargement
  - Growth spurt (~ 5-7 in) between stages 3 and 4
  - Ejaculations begin during stage 3
  - Strength peaks between stages 4 and 5
5. A 16-year-old is brought to you by her mother with concerns that she may have a body image problem. She denies any problems. She is normal weight but you note that the enamel on her teeth is thinned. What is the probable diagnosis?

A. Addison’s disease
B. Bulimia nervosa
C. Anorexia nervosa
D. Hyperthyroidism
5. A 16-year-old is brought to you by her mother with concerns that she may have a body image problem. She denies any problems. She is normal weight but you note that the enamel on her teeth is thinned. What is the probable diagnosis?

A. Addison’s disease 1%
B. Bulimia nervosa 93%
C. Anorexia nervosa 6%
D. Hyperthyroidism 0%
Bulimia Nervosa

• Prevalence 1-19%
• Clinical features:
  – Chronic vomiting, dehydration, electrolyte abnormalities, bloating, diarrhea, swelling of hands and feet, loss of tooth enamel
  – Chronic laxative use leads to hypokalemia (weakness and tingling), acute acidosis, chronic alkalosis, dehydration, constipation
• Diagnostic criteria:
  – Recurrent episodes of binge eating
  – Recurrent inappropriate compensatory behavior in order to prevent weight gain.
  – Binge eating and compensatory behaviors occur at least twice weekly for 3 months
  – Self-evaluation unduly influenced by body shape and weight
Anorexia Nervosa

- Prevalence 0.3-3%
- 90% white; 75% started in adolescence
- Most are middle to upper class
- High-risk sports
  - Ballet, wrestling, swimming, gymnastics, skating
Anorexia: Diagnosis

**Clinical features**
- Amenorrhea
- Fluid/electrolyte imbalance
- Metabolic alkalosis
- Hypothermia
- Bradycardia
- Hypotension
- Lanugo-type hair (face, shoulders, back)
- Lethargy

**Diagnostic criteria (DSM V)**
- Restriction of food intake leading to weight loss or failure to gain weight
- Intense fear of gaining weight
- Distorted body image
- Restricting vs. binge/purging type
Anorexia: Labs

- Elevated BUN
- Leukopenia
- Normal or low LH and FSH
- Normal or low T4 and T3
- Elevated liver transaminases
- EKG: bradycardia, low-voltage changes
- Most common cause of sudden death is prolonged QT interval resulting in arrhythmia
- Criteria for admission: heart rate < 40 beats/min, blood pressure < 80/50 mm Hg, temperature < 36° C
Obesity

***Defined by BMI percentile for age and gender

- Overweight
  - 85-94th%
- Obese
  - > 95th%

- The USPSTF recommends that clinicians screen children aged 6 years and older for obesity and offer them or refer them to comprehensive, intensive behavioral interventions to promote improvement in weight status.
(B Recommendation)
6. Which of the following milestones would an 18 mo. old not be expected to reach yet?

A. Walks
B. Speaks some words
C. Understands simple commands
D. Draws circle
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A. Walks  
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D. Draws circle
7. All of the following are routine immunizations offered at 11 years old, except:

A. HPV
B. Tdap
C. Meningococcal
D. Pneumococcal
7. All of the following are routine immunizations offered at 11 years old, except:

A. HPV
B. Tdap
C. Meningococcal
D. Pneumococcal

- A. HPV: 94%
- B. Tdap: 2%
- C. Meningococcal: 3%
- D. Pneumococcal: 2%
8. The CDC definition of obesity for ages 2-19 is:

A. BMI 85-94%
B. BMI > 95%
C. BMI 25-29
D. BMI > 30
8. The CDC definition of obesity for ages 2-19 is:

A. BMI 85-94%
B. BMI > 95%
C. BMI 25-29
D. BMI > 30

Correct answer: B. BMI > 95%
Take Home Pearls

- Know developmental milestones
- Immunizations at age 11
- BMI %s for overweight/obesity
Answers

1. A
2. C
3. B
4. C
5. B
6. D
7. D
8. B