

THE AMERICAN BOARD OF PEDIATRICS®

# CONTENT OUTLINE

## Adolescent Medicine

**Subspecialty In-Training, Certification, and  
Maintenance of Certification (MOC) Examinations**

## **INTRODUCTION**

This document was prepared by the American Board of Pediatrics Subboard of Adolescent Medicine for the purpose of developing in-training, certification, and maintenance of certification examinations. The outline defines the body of knowledge from which the Subboard samples to prepare its examinations. The content specification statements located under each category of the outline are used by item writers to develop questions for the examinations; they broadly address the specific elements of knowledge within each section of the outline.

**EXAM BLUEPRINT**  
**Pediatric Adolescent Medicine**

Each Pediatric Adolescent Medicine exam is built to the same specifications, also known as the blueprint. This blueprint is used to ensure that, for the initial certification and in-training exams, each exam measures the same depth and breadth of content knowledge. Similarly, the blueprint ensures that the same is true for each Maintenance of Certification exam form. The table below shows the percentage of questions from each of the content domains that will appear on an exam. Please note that the percentages are approximate; actual content may vary.

	<b>Content Categories</b>	<b>Initial Certification and In-Training</b>	<b>Maintenance of Certification (MOC)</b>
1.	HEENT	2%	2%
2.	Cardiovascular	2%	2%
3.	Pulmonology	2%	2%
4.	Physical Growth and Development	6%	6%
5.	Endocrine and Metabolism	6%	6%
6.	Musculoskeletal Diseases	4%	4%
7.	Allergy, Immunology, and Rheumatology	3%	3%
8.	Hematology/Oncology	4%	4%
9.	Neurology	2%	2%
10.	Mental Health	6%	7%
11.	Cognition, Social/Emotional Development, and Family/Chronic Illness	5%	5%
12.	Renal	2%	2%
13.	Reproductive - Female	6%	6%
14.	Reproductive - Male	4%	4%
15.	Sexuality	4%	4%
16.	Sexually Transmitted Infections	7%	7%
17.	Gastrointestinal	4%	4%
18.	Nutrition and Eating Disorders	5%	5%

19.	Infectious Diseases	4%	4%
20.	Dermatology	4%	4%
21.	Substance-Related and Addictive Disorders	5%	5%
22.	Pharmacology and Toxicology	2%	2%
23.	Prevention/Screening	4%	5%
24.	Health Services, Ethics, and Legal Issues	2%	2%
25.	Core Knowledge in Scholarly Activities	5%	3%

# Adolescent Medicine

## 1. HEENT

### A. Eyes

1. Recognize the relationship of myopia to puberty
2. Formulate a differential diagnosis for conjunctivitis in adolescence
3. Recognize that adenovirus is a common cause of epidemic conjunctivitis among adolescents
4. Differentiate between conjunctivitis and uveitis
5. Differentiate between infectious and autoimmune uveitis
6. Identify the differential diagnosis of hyphema in adolescence
7. Understand the pathophysiology of periorbital and orbital cellulitis in adolescence
8. Evaluate eye trauma
9. Formulate the differential diagnosis of proptosis
10. Formulate the differential diagnosis of ptosis
11. Formulate the differential diagnosis of papilledema
12. Plan the evaluation of papilledema
13. Recognize a blow-out fracture of the orbit
14. Formulate a differential diagnosis for acute loss of vision in an adolescent

### B. Ears

1. Recognize the most common causes of hearing loss in adolescence
2. Formulate a differential diagnosis of sensorineural hearing loss
3. Recognize the long-term complications of childhood otitis media
4. Plan the treatment and prevention of swimmer's ear
5. Formulate the differential diagnosis of vertigo in adolescents
6. Formulate the differential diagnosis of tinnitus in adolescents

### C. Nose

1. Plan the evaluation of an adolescent with epistaxis

### D. Sinuses

1. Recognize the signs and symptoms of sinusitis
2. Identify the common pathogens and appropriate treatment for acute sinusitis
3. Identify the common pathogens and appropriate treatment for chronic sinusitis
4. Identify the complications of sinusitis

### E. Mouth

1. Formulate the differential diagnosis of oral lesions (oral candidiasis, herpes labialis, inflammatory bowel disease)
2. Recognize and plan treatment for herpes labialis
3. Understand the dental changes associated with pubertal growth spurt
4. Recognize the dental changes associated with bulimia
5. Recognize the signs and symptoms of temporomandibular joint syndrome

### F. Throat

1. Formulate the differential diagnosis of pharyngitis in adolescents
2. Plan the evaluation and treatment of pharyngitis in adolescents
3. Recognize the signs of peritonsillar abscess
4. Recognize the signs and symptoms of upper airway obstruction
5. Formulate the differential diagnosis of upper airway obstruction in adolescents

6. Plan the management of an adolescent with upper airway obstruction
  7. Formulate the differential diagnosis of hoarseness in adolescents
  8. Formulate the differential diagnosis of stridor in adolescents
- G. Lymph nodes and salivary glands
1. Understand that involution of lymphoid tissue occurs during puberty
  2. Judge when to obtain a biopsy of a cervical or supraclavicular node
  3. Formulate the differential diagnosis of parotid enlargement
2. **Cardiovascular**
- A. Normal changes during puberty
1. Explain the changes in blood pressure and cardiac output that occur with puberty
  2. Differentiate between normal and pathologic electrocardiograms in adolescents
- B. Prevention and screening
1. Identify the risk factors for the future development of coronary artery disease in adolescents
  2. Recognize the most common causes of cardiac sudden death in adolescents
  3. Know the differential diagnosis of hyperlipidemia in adolescents
  4. Interpret lipid profiles in adolescents
  5. Know the current recommendations regarding cholesterol intake and screening examinations for hyperlipidemia during adolescence
  6. Understand the management of an adolescent with hyperlipidemia
  7. Recognize that a history of exertional syncope or chest pain requires further evaluation before permitting an adolescent to participate in sports
- C. Hypertension
1. Diagnose hypertension in an adolescent
  2. Formulate a differential diagnosis of hypertension
  3. Evaluate an adolescent with hypertension
  4. Plan the management of adolescents with hypertension, including athletes and those with chronic conditions
  5. Understand the concept of prehypertension
- D. Murmurs and heart sounds
1. Differentiate between innocent and pathologic murmurs in adolescents
  2. Diagnose mitral valve prolapse by physical findings
  3. Plan the management of an adolescent with mitral valve prolapse, including anticipatory guidance
  4. Know that an S3 and an S4 may be normal in adolescents
- E. Congenital heart disease
1. Provide anticipatory guidance for adolescents with congenital heart disease (eg, atrial septal defect, bicuspid aortic valve, coarctation of the aorta, aortic stenosis)
  2. Recognize tetralogy of Fallot as the most common cause of cyanotic congenital heart disease in adolescents
- F. Infectious and postinfectious diseases of the heart
1. Recognize the cardiac conditions and medical procedures that warrant antibiotic prophylaxis
  2. Plan antibiotic regimens for prophylaxis of infectious endocarditis
  3. Recognize the clinical manifestations of infectious endocarditis
  4. Diagnose myocarditis in an adolescent

5. Understand the causes of myocarditis in adolescents
  6. Counsel an adolescent with myocarditis
  7. Diagnose pericarditis in an adolescent
  8. Understand the causes of pericarditis in adolescents
- G. Dysrhythmias
1. Judge when to refer an adolescent with dysrhythmia to a cardiologist
  2. Identify the common causes of tachydysrhythmias in adolescents
  3. Identify the common causes of bradycardia in adolescents
  4. Know the differential diagnosis of palpitations in adolescents
  5. Evaluate an adolescent with palpitations
- H. Postural hypotension
1. Identify the causes of postural hypotension in adolescents
  2. Evaluate an adolescent with postural hypotension
- I. Thromboembolism
1. Understand the conditions that predispose an adolescent to deep venous thrombosis
  2. Recognize the signs and symptoms of superficial and deep venous thrombosis
  3. Evaluate an adolescent with deep venous thrombosis
  4. Plan the treatment of deep venous thrombosis
- J. Marfan syndrome
1. Understand the clinical manifestations of Marfan syndrome
  2. Understand the involvement of ocular, cardiovascular, and musculoskeletal systems in Marfan syndrome
  3. Provide anticipatory guidance and genetic counseling for an adolescent with Marfan syndrome
3. **Pulmonology**
- A. Upper airway and chest wall
1. Understand the effect of cocaine, marijuana, and tobacco on the upper airway
  2. Diagnose the cause of chest pain in an adolescent
  3. Plan the evaluation of an adolescent with chest pain
- B. Wheezing and coughing
1. Formulate a differential diagnosis for chronic cough during adolescence
  2. Evaluate chronic cough in an adolescent
  3. Plan the management of an adolescent with chronic cough
  4. Recognize the factors (intrinsic and extrinsic) that exacerbate asthma
  5. Recognize the laboratory and clinical indications for hospitalization in an adolescent with wheezing
  6. Recognize the changes in pulmonary function test results associated with asthma
  7. Develop a differential diagnosis for wheezing in an adolescent
  8. Plan the evaluation and management of an adolescent with acute asthma
  9. Plan the evaluation and management of an adolescent with chronic asthma
  10. Plan the evaluation and management of an adolescent with exercise- induced asthma
  11. Know the national classification guidelines for asthma
- C. Cystic fibrosis
1. Know that the median survival of a patient with cystic fibrosis is more than 25 years
  2. Recognize the patterns and causes of infertility among male and female adolescents with cystic fibrosis

3. Understand the multisystem complications and symptoms associated with cystic fibrosis (upper airway, gastrointestinal, reproductive, pancreatic, and pulmonary)
  4. Recognize the growth patterns of males and female adolescents with cystic fibrosis
  5. Understand the social and emotional stressors faced by early adolescents with cystic fibrosis and their families
  6. Understand the social and emotional stressors faced by late adolescents with cystic fibrosis and their families
  7. Develop a plan of transition from child-centered to adult-centered health care for young adults with cystic fibrosis
  8. Recognize the need for mental health assessment and emotional support in an adolescent with cystic fibrosis
  9. Provide genetic counseling to an adolescent with cystic fibrosis
- D. Immunocompromised host
1. Know the differential diagnosis of dyspnea in an immunocompromised adolescent
  2. Recognize the signs and symptoms of *Pneumocystis carinii* pneumonia in an immunocompromised adolescent
  3. Formulate a differential diagnosis for *P. carinii* pneumonia in an immunocompromised adolescent
  4. Plan the management of an immunocompromised adolescent with *P. carinii* pneumonia
  5. Know the prophylactic regimens for *Pneumocystis carinii* pneumonia in an immunocompromised adolescent
- E. Environmental pollutants/tobacco smoke
1. Know the impact of passive smoking on the pulmonary function of an adolescent
- F. Infections of the lung
1. Diagnose and plan the management of an adolescent with acute bronchitis
  2. Plan the management of an adolescent with pneumonia
  3. Plan the management of an adolescent with pneumonia caused by mycoplasma
- G. Other lung disorders
1. Recognize spontaneous pneumothorax in an adolescent
  2. Plan the management of an adolescent with recurrent spontaneous pneumothorax
  3. Formulate the differential diagnosis of hilar adenopathy in an adolescent
  4. Formulate the differential diagnosis of pleural effusion in an adolescent
  5. Formulate the differential diagnosis of pleuritis in an adolescent
  6. Identify the factors that predispose an adolescent to pulmonary embolism
  7. Recognize the signs and symptoms of pulmonary embolism in an adolescent
  8. Evaluate an adolescent with a suspected pulmonary embolism
  9. Plan the management of an adolescent with a pulmonary embolism
4. **Physical Growth and Development**
- A. Hormonal changes
1. Interpret findings of abnormal physiology of gonadotropin-releasing hormone (GnRH) during puberty
  2. Interpret findings of abnormal physiology of growth hormone-releasing hormone (HGhRH) during puberty
  3. Interpret findings of abnormal physiology of follicle-stimulating hormone (FSH) during puberty

4. Interpret findings of abnormal physiology of luteinizing hormone (LH) during puberty
  5. Interpret findings of abnormal physiology of human growth hormone (HGH) during puberty
  6. Recognize the significance of abnormal serum prolactin concentrations (PL) during puberty
  7. Understand the role of thyroid hormones in adolescent growth and development
  8. Describe the physiology of gonadal hormones
- B. Linear growth
1. Understand the physiology of epiphyseal closure
  2. Know the timing of epiphyseal closure relative to puberty
  3. Understand the normal physiology of insulin-like growth factor I (IGF I) during puberty
  4. Describe the use of growth velocity curves
  5. Interpret the results of bone age determinations
  6. Know how to use growth charts based on longitudinal data
  7. Describe the normal physiology of the pubertal linear growth spurt and the associated differences in boys and girls
  8. Understand the significance of midparental height in the prediction of adolescent growth
- C. Weight
1. Evaluate body weight in the context of gender, age, and height
  2. Understand the normal physiology of the pubertal growth spurt in weight
  3. Interpret weight growth curves
- D. Secondary sexual development
1. Understand the psychologic and behavioral impact of early versus late pubertal development
  2. Describe the normal physiology of secondary sexual development in the male
  3. Identify sexual maturity rating (Tanner) stages and know how to assess development of secondary sexual characteristics in the male
  4. Describe the normal physiology of secondary sexual development in the female
  5. Identify sexual maturity rating (Tanner) stages and know how to assess development of secondary sexual characteristics in the female
  6. Understand the relationship between height, weight, and sexual maturity rating (Tanner) stage
  7. Understand the normal physiology of menarche
  8. Describe the natural history of male adolescent gynecomastia
  9. Formulate a differential diagnosis for gynecomastia
  10. Counsel a patient with gynecomastia
  11. Identify the normal developmental changes in the testes during puberty
  12. Understand the hypothalamic-pituitary-testicular axis and the role of testosterone in the initiation of spermatogenesis
  13. Describe the role of chronic diseases (eg, cystic fibrosis, renal disease) in altering pubertal maturation
  14. Describe the normal physiology of male adolescent gynecomastia
- E. Bone and muscle changes
1. Describe the changes in muscle mass and strength during puberty

2. Describe the changes in bone and bone density that occur during adolescence
5. **Endocrine and Metabolism**
- A. Endocrine physiology
    1. Describe the normal physiology of gonadotropin-releasing hormone (GnRH) during puberty
    2. Describe the normal physiology of growth hormone-releasing hormone (HGhRH) during puberty
    3. Describe the normal physiology of follicle-stimulating hormone (FSH) during puberty
    4. Describe the normal physiology of luteinizing hormone (LH) during puberty
    5. Describe the normal physiology of human growth hormone (HGH) during puberty
    6. Describe the normal physiology of prolactin (PL) during puberty
    7. Identify the various thyroid function tests and their uses
  - B. Abnormal pubertal growth and development
    1. Short stature (male and female)
      - a. Identify when diagnostic evaluation of short stature is needed
      - b. Formulate a differential diagnosis for short stature
      - c. Plan the evaluation of an adolescent with short stature
      - d. Plan a management program for a patient without a pathologic cause for short stature
      - e. Plan a management program for the various pathologic causes of short stature
    2. Tall stature (male and female)
      - a. Identify when diagnostic evaluation of tall stature is needed
      - b. Formulate a differential diagnosis for tall stature
      - c. Plan the evaluation of an adolescent with tall stature
      - d. Plan the management of a patient without a pathologic cause for tall stature
      - e. Plan the management for the various pathologic causes of tall stature
    3. Delayed puberty (male and female)
      - a. Identify when diagnostic evaluation of delayed puberty is needed
      - b. Characterize constitutional delay of growth and development (constitutional delay of puberty)
      - c. Identify the components needed for a presumptive diagnosis of constitutional delay of puberty
      - d. Plan the management of a patient with constitutional delay of puberty
      - e. Identify the indications for pharmacologic therapy of constitutional delay of puberty
      - f. Formulate a differential diagnosis for delayed puberty
      - g. Plan the evaluation of an adolescent with delayed puberty
      - h. Describe the value of imaging studies in delayed puberty
      - i. Identify the gonadal causes of delayed puberty
      - j. Describe the presentation of classic and mosaic Klinefelter syndrome
      - k. Identify the complications of classic and mosaic Klinefelter syndrome
      - l. Describe the presentation of classic and mosaic Turner syndrome
      - m. Identify the complications of classic and mosaic Turner syndrome
      - n. Plan the management for various causes of delayed puberty
  - C. Diabetes mellitus
    1. General

- a. Identify the most common types of diabetes mellitus (eg, type 1 immune and non-immune mediated, type 2, maturity-onset diabetes of youth and ketosis-prone diabetes, gestational diabetes, and diseases of exocrine pancreas)
- b. Formulate a differential diagnosis for, evaluate, and plan the management of an adolescent with glucose intolerance
- c. Recognize the presentation of diabetes mellitus in an adolescent with cystic fibrosis
- d. Plan the diagnostic evaluation and treatment for the various types of diabetes mellitus in adolescents
- e. Plan the evaluation and management of an adolescent with suspected hyperinsulinism
- f. Know the criteria for a normal blood glucose concentration and the definitions of biochemical hyperglycemia and hypoglycemia, taking into consideration the criteria of the American Diabetes Association Expert Panels on Diabetes
- g. Formulate a differential diagnosis for, evaluate, and plan the management of an adolescent with impaired fasting glucose
- h. Know the diagnostic criteria for diabetes
- i. Know the recommendations for diabetes screening in adolescents
- j. Know the relationship between gestational diabetes and the risk of other types of diabetes
- k. Understand the risks of making tight control a goal for diabetes-related complications and hypoglycemia in diabetics with poor control
- l. Distinguish between microvascular and macrovascular complications of diabetes and understand the interrelationship of glucose control, blood pressure, and cholesterol as risk factors for each
- m. Recognize the association between type 2 diabetes and polycystic ovary disease
2. Insulin and oral hypoglycemic drugs
  - a. Know the formulation, onset, peak, and duration of actions of the various insulin preparations
  - b. Identify the mechanisms of action, indications for use, and side effects of the various types of oral hypoglycemic agents
  - c. Identify the methods of insulin delivery and the indications for their use
  - d. Design an insulin regimen for the various types of diabetes in adolescents
  - e. Recognize and formulate a management plan for an adolescent with over-insulinization (Somogyi phenomenon, hypoglycemia, excessive weight gain)
  - f. Recognize and formulate a management plan for an adolescent with the dawn phenomenon
3. Diet and nutrition
  - a. Know the principles of nutrition in the management of common types of diabetes in adolescents
  - b. Recognize the problem of weight control among adolescents with diabetes mellitus
  - c. Understand the principles of carbohydrate counting in the management of all types of diabetes
4. Psychologic and social factors
  - a. Identify the psychologic and social needs of an adolescent with diabetes mellitus
  - b. Identify techniques to facilitate coping abilities in adolescents with diabetes mellitus

5. Evaluation of diabetes control
  - a. Identify the indications for and interpret glycosylated hemoglobin and hemoglobin A1C values in the management of diabetes mellitus
  - b. Know the principles of self-monitoring of blood glucose concentrations for patients with diabetes
  - c. Identify the principles for using urine ketone assessment in the management of diabetes
  - d. Understand the effects of meals, exercise, illness, trauma and surgery on blood glucose concentrations and insulin/oral hypoglycemic management
  - e. Understand the effect of noncompliance on control of diabetes mellitus and develop a plan for evaluation and treatment
6. Major complications of diabetes mellitus
  - a. Diabetic ketoacidosis
    1. Understand the natural history and precipitating causes of diabetic ketoacidosis in all types of diabetes
    2. Understand the pathophysiology of diabetic ketoacidosis
    3. Design a comprehensive management plan for an adolescent with diabetic ketoacidosis
    4. Recognize the major complications of diabetic ketoacidosis in adolescents
    5. Develop a strategy to prevent and treat the complications of diabetic ketoacidosis in an adolescent
  - b. Nonketotic hyperglycemia
    1. Develop a comprehensive treatment plan for nonketotic hyperglycemia in an adolescent
    2. Develop a plan to treat complications of nonketotic hyperglycemia in an adolescent
    3. Differentiate between diabetic ketoacidosis and nonketotic hyperglycemia in an adolescent
  - c. Hypoglycemia
    1. Understand the precipitating factors for hypoglycemia in diabetes mellitus
    2. Identify the clinical presentations of hypoglycemia in an adolescent with diabetes mellitus
    3. Understand the pathophysiology of hypoglycemia in an adolescent with diabetes mellitus
    4. Design a management plan for the therapy of hypoglycemia in an adolescent with diabetes mellitus
  - d. Microvascular complications
    1. Diabetic retinopathy
      - a. Understand the natural history, epidemiology, and risk factors for diabetic retinopathy
      - b. Identify the fundoscopic features of diabetic retinopathy
      - c. Know the current standards for screening and treatment of diabetic retinopathy
    2. Diabetic nephropathy
      - a. Understand the natural history, epidemiology, and risk factors for diabetic nephropathy

- b. Formulate a differential diagnosis for albuminuria/proteinuria in a patient with diabetes
  - c. Develop a plan for the evaluation and management of an adolescent with albuminuria/proteinuria
  - d. Know the current standards for screening for diabetic nephropathy in adolescents
- 3. Diabetic neuropathy
  - a. Understand the natural history, epidemiology, and risk factors for diabetic neuropathy
  - b. Formulate a differential diagnosis for diabetic neuropathy
  - c. Formulate a plan for the evaluation and management of each of the diabetic neuropathies
  - d. Identify the common ways in which diabetic neuropathies present in adolescents
- 4. Diabetic skin diseases (necrobiosis diabetorum)
  - a. Identify the skin manifestations of diabetes mellitus
  - b. Formulate a differential diagnosis for skin diseases in an adolescent with diabetes mellitus
  - c. Understand the natural history and principles of therapy of the diabetic skin diseases
- e. Macrovascular complications
  - 1. Know the natural history, epidemiology, and risk factors for macrovascular complications in diabetes
  - 2. Know the current standards for screening for macrovascular complications in diabetes
  - 3. Develop a plan for the evaluation and management of a diabetic adolescent with elevated levels of blood lipids
  - 4. Develop a plan for the evaluation and management of a diabetic adolescent with increased blood pressure
- f. Other complications
  - 1. Understand the association between type 1 diabetes and other autoimmune conditions
  - 2. Know the accepted standards for screening for autoimmune conditions associated with type 1 diabetes
  - 3. Recognize the common presentations of the autoimmune conditions associated with type 1 diabetes
- 7. Type 1 diabetes
  - a. Know the role of racial heterogeneity in the etiology of type 1 diabetes
  - b. Know the risk of type 1 diabetes development in concordant twins, other siblings, offspring of parents of patients with type 1 diabetes
  - c. Understand the role of autoimmunity and its occurrence in type 1 diabetes mellitus
  - d. Understand the ways in which type 1 diabetes may present
  - e. Know that feeding and eating disorders can happen more commonly among patients with type 1 diabetes
  - f. Know that disordered eating is a cause of poor glycemic control and increase the risk for long-term microvascular complications

- g. Develop a plan for the evaluation and management of a diabetic adolescent suspected of having disordered eating
  - 8. Type 2 diabetes
    - a. Know the roles of insulin resistance, obesity and insulin deficiency in the pathophysiology of type 2 diabetes
    - b. Know the clinical and biochemical differences between type 1 diabetes and type 2 diabetes
    - c. Know the clinical and biochemical features of ketosis-prone diabetes
    - d. Plan the evaluation and management of an African-American adolescent who presents with moderate ketoacidosis
    - e. Know the clinical and biochemical differences between type 2 diabetes and maturity onset diabetes of youth (MODY)
- D. Hypoglycemia
  - 1. Formulate a differential diagnosis for fasting hypoglycemia
  - 2. Formulate a differential diagnosis for nonfasting hypoglycemia
  - 3. Plan the evaluation of an adolescent with suspected hypoglycemia
  - 4. Recognize the clinical and laboratory manifestations of an insulinoma and of reactive hypoglycemia
  - 5. Understand the principles of therapy for each type of hypoglycemia
  - 6. Describe the clinical manifestations of hypoglycemia
- E. Thyroid disorders
  - 1. Hyperthyroidism
    - a. Recognize the clinical and laboratory manifestations of thyrotoxicosis
    - b. Formulate a differential diagnosis for hyperthyroidism
    - c. Plan the evaluation of an adolescent with suspected hyperthyroidism
    - d. Understand the pathophysiology of Graves disease (toxic diffuse goiter) and toxic nodular goiter
    - e. Understand the natural history and common complications of Graves disease and toxic nodular goiter
    - f. Identify the principles and complications of therapy for thyrotoxicosis
    - g. Identify the modalities available to treat Graves disease and toxic nodular goiter and their advantages and disadvantages
  - 2. Nontoxic goiter
    - a. Identify the causes of nontoxic goiter
    - b. Plan the evaluation of an adolescent with a nontoxic goiter
    - c. Understand the principles of therapy for simple goiter and nontoxic nodular goiter
    - d. Understand the natural history and complications of simple and nontoxic nodular goiter
  - 3. Thyroiditis
    - a. Identify the clinical and laboratory manifestations of thyroiditis
    - b. Plan the evaluation of an adolescent suspected of having thyroiditis
    - c. Understand the principles of therapy for thyroiditis
    - d. Understand the natural history and complications of thyroiditis
  - 4. Hypothyroidism
    - a. Identify the clinical and laboratory manifestations of hypothyroidism
    - b. Evaluate an adolescent suspected of having hypothyroidism

- c. Formulate a differential diagnosis for hypothyroidism
  - d. Understand the principles of therapy of hypothyroidism
  - e. Understand the natural history and complications of hypothyroidism
  - f. Describe the effects of hypothyroidism on menstrual cycles
  - g. Describe the effects of hypothyroidism on growth and development
  - h. Describe the effects of hypothyroidism on skeletal maturation
  - i. Understand the relationship between hypothyroidism and hyperprolactinemia
  - j. Understand the risks of exogenous supplementation of thyroid replacement therapy
5. Thyroid nodule and cancer
- a. Identify the causes of thyroid nodule(s)
  - b. Identify the risk factors for thyroid nodule(s) and thyroid cancer in adolescents
  - c. Evaluate an adolescent with thyroid nodule(s)
  - d. Formulate a differential diagnosis for thyroid nodule(s)
  - e. Formulate a differential diagnosis for thyroid cancer
  - f. Understand the principles of therapy for thyroid cancer
  - g. Understand the natural history and complications of thyroid cancer
- F. Adrenal disorders
1. Congenital adrenal hyperplasia (late onset)
    - a. Recognize the clinical presentation of an adolescent with late-onset congenital adrenal hyperplasia
    - b. Identify the laboratory manifestations of the common types of late-onset congenital adrenal hyperplasia
    - c. Evaluate an adolescent with suspected late-onset congenital adrenal hyperplasia
    - d. Understand the natural history of late-onset congenital adrenal hyperplasia
    - e. Recognize the effects of noncompliance, overtreatment, and undertreatment for adolescents with congenital adrenal hyperplasia diagnosed at birth
    - f. Understand the management problems of an adolescent diagnosed at birth with salt-losing congenital adrenal hyperplasia
    - g. Counsel a female adolescent with congenital adrenal hyperplasia regarding sexuality and the timing of vaginal surgery
    - h. Understand the effect of ethnic origin on the prevalence of late-onset congenital adrenal hyperplasia
  2. Cushing syndrome
    - a. Identify the clinical and laboratory manifestations of Cushing syndrome
    - b. Evaluate an adolescent with suspected Cushing syndrome
  3. Addison disease
    - a. Identify the clinical and laboratory manifestations of Addison disease
    - b. Evaluate an adolescent with suspected Addison disease
- G. Diabetes insipidus
1. Know the differential diagnosis of diabetes insipidus
  2. Plan the laboratory evaluation of diabetes insipidus
  3. Plan the management of central diabetes insipidus
- H. Syndrome of inappropriate antidiuretic hormone secretion (SIADH)
1. Know the underlying pathophysiology of SIADH in an adolescent
  2. Recognize SIADH in an adolescent
  3. Plan the evaluation of an adolescent with SIADH

4. Plan the management of an adolescent with SIADH
- I. Phenylketonuria
  1. Understand the long-term sequelae for adolescents with phenylketonuria
6. **Musculoskeletal Diseases**
  - A. Pathophysiology
    1. Bone
      - a. Understand the possible complications of growth plate fractures
      - b. Understand the etiology and pathophysiology of stress fractures
      - c. Recognize the etiology of slipped capital femoral epiphysis
      - d. Differentiate among the various etiologies for bone masses (osteogenic sarcoma) in adolescents
      - e. Understand the etiology of osteomyelitis in adolescents
      - f. Recognize the elements of the female athlete triad
      - g. Recognize the effects of overweight and obesity on bone
      - h. Recognize the factors associated with low bone density
      - i. Recognize the factors that complicate the evaluation of bone density in adolescents
    2. Muscle
      - a. Understand the pathophysiology and complications of crush and other injuries to muscle
  - B. Diagnosis and treatment
    1. Diagnose osteopenia based on clinical and laboratory findings
    2. Recognize the signs and symptoms of bone malignancies (osteogenic sarcoma, Ewing sarcoma) in adolescents
    3. Plan the evaluation of a patient with a bone mass (osteogenic sarcoma)
    4. Recognize overuse musculoskeletal injuries
    5. Formulate a differential diagnosis of knee pain
    6. Formulate a differential diagnosis of heel pain
    7. Formulate a differential diagnosis of elbow pain
    8. Formulate a differential diagnosis of ankle pain
    9. Formulate a differential diagnosis of shoulder pain
    10. Formulate a differential diagnosis of neck pain
    11. Formulate a differential diagnosis of back pain
    12. Plan the evaluation and management of an adolescent with knee pain
    13. Plan the evaluation and management of an adolescent with heel pain
    14. Plan the evaluation and management of an adolescent with elbow pain
    15. Plan the evaluation and management of an adolescent with ankle pain
    16. Plan the evaluation and management of an adolescent with shoulder pain
    17. Plan the evaluation and management of an adolescent with neck pain
    18. Plan the evaluation and management of an adolescent with back pain
    19. Recognize the clinical presentation of slipped capital femoral epiphysis
    20. Recognize the physical findings of slipped capital femoral epiphysis
    21. Plan the management of an adolescent following musculoskeletal trauma
    22. Understand the management of an adolescent with a contusion to a large muscle
    23. Understand the principles of management for overuse musculoskeletal injuries (eg, stress fractures), including rehabilitative muscle, bone, and joint therapy
    24. Formulate a differential diagnosis for gait abnormalities in an adolescent

25. Recognize the clinical presentation of benign bone lesions
  26. Recognize the clinical presentation of spondylolisthesis
  27. Recognize the radiographic findings characteristic of spondylolysis
  28. Recognize the mechanical and clinical presentation of a torn anterior cruciate ligament
  29. Formulate a differential diagnosis of wrist pain
  30. Formulate a differential diagnosis of hip pain
  31. Understand the principles of management for acute musculoskeletal (strain, sprain) injuries
- C. Prognosis
1. Recognize the significance of leg length discrepancies in an adolescent
- D. Scoliosis
1. Plan the clinical and radiologic evaluation of an adolescent with scoliosis
  2. Plan the management of an adolescent with scoliosis
  3. Understand the likelihood of curve worsening for an adolescent with scoliosis in relation to pubertal maturation and curve severity
  4. Recognize that a scoliosis curve that is convex to the left is not “idiopathic“ and that an anatomic or neuromuscular defect should be sought
- E. Kyphosis
1. Plan the evaluation of an adolescent with kyphosis
  2. Plan the management of an adolescent with kyphosis
  3. Understand the timing of the presentation of an adolescent with kyphosis in relation to puberty
- F. Heat Illness
1. Recognize the signs and symptoms of heat illness
  2. Plan the management of an adolescent with heat illness
  3. Recognize the risk factors for heat illness/injury in an adolescent
7. **Allergy, Immunology, and Rheumatology**
- A. Juvenile idiopathic arthritis (JIA)
1. Interpret the results of synovial fluid analysis
  2. Formulate a differential diagnosis for juvenile idiopathic arthritis
  3. Recognize the signs and symptoms of juvenile idiopathic arthritis
  4. Plan the evaluation of an adolescent with juvenile idiopathic arthritis
  5. Plan the management of an adolescent with juvenile idiopathic arthritis
  6. Understand the complications of juvenile idiopathic arthritis
- B. Systemic lupus erythematosus (SLE)
1. Formulate a differential diagnosis for SLE in an adolescent
  2. Recognize the signs and symptoms of SLE in an adolescent
  3. Plan the evaluation of an adolescent with SLE
  4. Plan the management of an adolescent with SLE
  5. Understand the complications of SLE
- C. Dermatomyositis/polymyositis
1. Formulate a differential diagnosis for dermatomyositis/polymyositis
  2. Recognize the signs and symptoms of dermatomyositis/polymyositis
  3. Plan the evaluation of an adolescent with dermatomyositis/polymyositis
  4. Plan the management of an adolescent with dermatomyositis/polymyositis
  5. Understand the complications of dermatomyositis/polymyositis

- D. Vasculitis
  - 1. General
    - a. Recognize the clinical signs of vasculitis-like syndromes
    - b. Formulate a differential diagnosis for vasculitis-like syndromes
  - 2. Polyarteritis
    - a. Formulate a differential diagnosis for palpable purpura
- E. Reactive arthritis
  - 1. Formulate a differential diagnosis for reactive arthritis
  - 2. Recognize reactive arthritis based on historic, clinical, and laboratory findings
  - 3. Understand the principles of therapy for an adolescent with reactive arthritis
- F. Spondylitis
  - 1. Recognize ankylosing spondylitis in an adolescent
  - 2. Formulate a differential diagnosis for ankylosing spondylitis
  - 3. Plan the evaluation of an adolescent with suspected ankylosing spondylitis
- G. Fibromyalgia/chronic fatigue syndrome
  - 1. Recognize fibromyalgia in an adolescent
  - 2. Formulate a differential diagnosis for fibromyalgia in an adolescent
  - 3. Plan the evaluation of an adolescent with suspected fibromyalgia
  - 4. Describe the diagnostic criteria for chronic fatigue syndrome and how the criteria differ between adolescents and adults
  - 5. Formulate a differential diagnosis for chronic fatigue syndrome in an adolescent
  - 6. Plan the diagnostic evaluation of an adolescent with suspected chronic fatigue syndrome
  - 7. Plan a treatment program for an adolescent with chronic fatigue syndrome
  - 8. Plan the management of an adolescent with fibromyalgia
- 8. **Hematology/Oncology**
  - A. Hematology
    - 1. Normal findings
      - a. Understand the effect of pubertal maturation on hemoglobin concentration and hematocrit
      - b. Understand the basis for gender differences in hemoglobin concentration and hematocrit
    - 2. Hemoglobinopathies
      - a. Interpret the results of a complete blood count
      - b. Understand the genetic, geographic, and ethnic distribution of hemoglobinopathies
    - 3. Pathophysiology
      - a. Anemia
        - 1. Understand the pathophysiology of anemia in adolescence
        - 2. Diagnose anemia based on historic, clinical, and laboratory findings
        - 3. Differentiate among the various etiologies for anemia based on laboratory data
        - 4. Understand the general complications of anemia
      - b. Neutropenia
        - 1. Formulate a differential diagnosis for neutropenia
        - 2. Plan the evaluation of an adolescent with neutropenia
        - 3. Understand the complications of neutropenia
      - c. Thrombocytopenia

1. Formulate a differential diagnosis for thrombocytopenia
  2. Plan the evaluation of a patient with thrombocytopenia
  3. Understand the complications of thrombocytopenia
  4. Understand the principles of management of an adolescent with thrombocytopenia
- d. Disorders of spleen and lymph nodes
1. Splenomegaly
    - a. Know the differential diagnosis of splenomegaly
    - b. Plan the evaluation of a patient with splenomegaly
    - c. Understand the complications of splenomegaly
    - d. Understand the complications associated with a splenectomy
  2. Lymphadenopathy
    - a. Formulate a differential diagnosis for generalized lymphadenopathy
    - b. Formulate a differential diagnosis for localized (hilar, cervical, inguinal, axillary, supraclavicular) lymphadenopathy
    - c. Plan the evaluation of a patient with localized lymphadenopathy
    - d. Plan the evaluation of a patient with generalized lymphadenopathy
  3. Lymphedema
    - a. Plan the evaluation of a patient with lymphedema
    - b. Formulate a differential diagnosis for lymphedema
- e. Disorders of bone marrow
1. Recognize bone marrow failure in an adolescent
  2. Recognize marrow-related abnormalities of blood cell production (eg, consumption and premature destruction)
- f. Disorders of coagulation
1. Recognize disorders of coagulation
  2. Differentiate among causes of disorders of coagulation
  3. Plan the evaluation of disorders of coagulation
  4. Recognize the clinical presentation of disseminated intravascular coagulation
  5. Plan the management of an adolescent with von Willebrand disease
  6. Plan the evaluation and treatment of menorrhagia in adolescents with bleeding disorders
  7. Formulate the differential diagnosis of bleeding disorders
  8. Plan the management of an adolescent with a bleeding disorder
  9. Plan the management of excessive bleeding in an adolescent with a bleeding disorder
  10. Recognize the family history associated with an increased risk of hypercoagulability
  11. Plan the evaluation of an adolescent for hypercoagulability risk
  12. Understand the genetics and counseling issues associated with von Willebrand disease
  13. Recognize the clinical presentation of thromboembolism
  14. Recognize the factors that increase hypercoagulability risks
- g. Sickle cell disease
1. Counsel an adolescent with sickle cell trait
  2. Understand the complications associated with sickle cell disease

3. Understand the similarities of osteomyelitis and bone infarction in patients with sickle cell disease
  4. Plan the treatment of an adolescent with sickle cell anemia, bone pain, and fever
  - h. Thalassemia
    1. Counsel an adolescent and family with thalassemia or thalassemia trait
    2. Understand the complications associated with thalassemia
- B. Oncology**
1. Epidemiology
    - a. Recognize the common malignancies with onset in adolescence (thyroid, bone tumors, solid lymphoid)
    - b. Diagnose the common malignancies with onset in adolescence (thyroid, bone tumors, solid lymphoid)
  2. Pathophysiology
    - a. Leukemia
      1. Recognize the signs and symptoms of leukemia in an adolescent
    - b. Lymphoma
      1. Recognize the signs and symptoms of lymphoma in an adolescent
  3. Therapy
    - a. Understand the long-term sequelae of chemotherapy/radiation therapy (behavior, growth, intellectual functioning, fertility)
    - b. Recognize the risk of second malignancies in adolescents with a history of cancer
- 9. Neurology**
- A. Brain tumor**
1. Epidemiology
    - a. Recognize the signs and symptoms of brain tumors in adolescents
  2. Treatment
    - a. Understand the long-term medical and psychologic effects of the treatment of brain tumor
- B. Sensory disorders and pain**
1. Pain
    - a. Formulate a differential diagnosis of headache and other sensory/pain disorders
    - b. Recognize the clinical manifestations of a migraine, tension (muscle contraction), medication-overuse, and post-traumatic headache
    - c. Understand how to evaluate headaches and other sensory/pain disorders
    - d. Understand the standard regimens used in the prophylaxis and treatment of migraine and tension headaches
    - e. Understand the side effects of medications used in treating headaches and other sensory/pain disorders
    - f. Recognize the clinical manifestations of idiopathic intracranial hypertension
    - g. Know the causes of idiopathic intracranial hypertension
    - h. Formulate a plan for contraceptive use in an adolescent with headaches and other sensory/pain disorders
- C. Disorders of consciousness**
1. Seizures

- a. Recognize the classification and clinical manifestations of various seizure types in adolescents
  - b. Formulate a differential diagnosis of new-onset seizures
  - c. Plan the evaluation of an adolescent with new-onset seizures (single or recurrent)
  - d. Formulate a management plan for an adolescent with a seizure disorder, including driving and sports participation issues
  - e. Formulate a management plan for an adolescent with status epilepticus
  - f. Understand common drug interactions with anticonvulsant drugs
  - g. Identify the common anticonvulsant drugs and their associated side effects
  - h. Recognize the effect of anticonvulsant drugs on pregnancy
  - i. Recognize the effect of pregnancy on the risk of seizures
  - j. Recognize the interaction between anticonvulsant drugs and hormonal contraceptives
  - k. Recognize and treat non-epileptic seizure
  - l. Recognize and treat somatic symptom and related disorders
2. Altered states of consciousness
    - a. Know the differential diagnosis of delirium
    - b. Formulate a differential diagnosis for loss of consciousness
    - c. Plan the evaluation of an adolescent who is comatose or has an altered state of consciousness, including delirium
  3. Sleep disturbances
    - a. Formulate a differential diagnosis of sleep disorders
    - b. Recognize the clinical presentation of sleep-wake disorders (including breathing-related sleep disorders and parasomnias)
    - c. Plan the evaluation of an adolescent suspected of having a sleep disorder
    - d. Recognize the factors associated with the development of sleep-wake disorders (including breathing-related sleep disorders and parasomnias)
    - e. Plan the management of an adolescent with acute or chronic insomnia
- D. Motor symptoms
1. Formulate a differential diagnosis for movement disorder in an adolescent
  2. Formulate a differential diagnosis of ataxia in an adolescent
  3. Formulate a differential diagnosis of muscle weakness: central nervous system causes, peripheral nerve disease, neuromuscular junction disease, muscle disease
  4. Plan the evaluation of an adolescent with muscle weakness and/or sensory changes in the face, trunk, or limbs
  5. Plan the evaluation of an adolescent with radicular pain
  6. Identify the common causes of tics in adolescents
  7. Know the causes of paralysis in adolescents
  8. Plan the evaluation of a patient with paralysis
  9. Formulate a differential diagnosis of Guillain-Barre syndrome
  10. Plan the evaluation of an adolescent with Guillain-Barre syndrome
  11. Understand the characteristics of spina bifida in an adolescent
  12. Recognize the problems associated with latex allergy among adolescents with spina bifida
  13. Counsel an adolescent with spina bifida and his/her family regarding his/her reproductive future, including folate supplementation

14. Plan the management of an adolescent with tic disorders including Tourette disorder and other motor disorders
  - E. Syncope/dizziness
    1. Understand the different causes of syncope (vasovagal spells, coughing, straining, lifting, hyperventilation, medications, somatization, etc)
    2. Plan the evaluation of a patient with syncope or dizziness
  - F. Altered mental status and sensation
    1. Plan the management of an adolescent following head trauma (including concussion, contusion, or hemorrhage)
    2. Understand the complications of closed head trauma (cognitive, thought disorders, etc)
    3. Understand that headache and neurologic symptoms can persist for months after a traumatic loss of consciousness
    4. Counsel an adolescent who has sustained a head injury regarding participation in contact sports
  - G. Neurocutaneous syndromes
    1. Neurofibromatosis
      - a. Describe the genetic inheritance patterns of neurofibromatosis
      - b. Recognize the clinical presentations and variations of neurofibromatosis during adolescence
      - c. Understand the effect of puberty on an adolescent with neurofibromatosis
      - d. Explain the factors associated with the onset of type 2 neurofibromatosis during adolescence
      - e. Recognize the conditions associated with neurodevelopmental disorders and endocrinopathies associated with neurofibromatosis
    2. Tuberous sclerosis
      - a. Recognize the clinical triad of tuberous sclerosis (seizures, mental deficiency, and adenoma sebaceum)
      - b. Understand that as many as 40% of all patients with tuberous sclerosis have normal intelligence and vary widely in clinical presentation
      - c. Describe the patterns of inheritance associated with tuberous sclerosis
  - H. Demyelinating disorders
    1. Recognize the differential diagnosis and clinical presentation of multiple sclerosis or other demyelinating disorders
- 10. Mental Health**
- A. General
    1. Prepare an adolescent and family members for a psychiatric consultation
    2. Appreciate the role of imaging technology in mental health
    3. Appreciate the role of assessment tools in mental health for screening, diagnosis, and treatment
    4. Plan for integrated treatments including psychotherapies and pharmacotherapies for common mental health conditions
    5. Understand the special considerations for the use of psychotropic medications in adolescents
    6. Know when to recommend and request mental health consultation for an adolescent
  - B. Depressive disorders
    1. Major depressive disorder

- a. Recognize the clinical manifestations of depressive disorders
- b. Recognize the psychosocial factors that affect depressive disorders, including predisposing and perpetuating factors
- c. Plan the evaluation of an adolescent with depression
- d. Plan the management, including psychotropic drug therapy, of an adolescent with a major depressive disorder
- e. Recognize the risk factors for depression
- 2. Suicide and nonsuicidal self-injurious behavior
  - a. Identify a patient at risk for suicide
  - b. Determine when a patient with suicidal thoughts is appropriate for outpatient counseling versus immediate assessment
  - c. Understand the evaluation of the suicidal patient
  - d. Know the risk factors for suicidal behavior
  - e. Plan the management of an adolescent at risk for suicide
  - f. Understand the criteria for hospitalization of a suicidal patient
  - g. Identify a patient with self-injurious behavior
  - h. Differentiate between suicidal behaviors and non-suicidal self-injurious behaviors
  - i. Know the psychiatric disorders commonly associated with self-injurious behaviors
  - j. Plan intervention for an adolescent with self-injurious behaviors
  - k. Recognize the need for referral of an adolescent with self-injurious behavior
  - l. Appreciate the cumulative risk of repeated suicidal gestures
- 3. Persistent depressive disorder (formerly dysthymia)
  - a. Formulate a differential diagnosis for persistent depressive disorder
  - b. Understand the risks associated with untreated persistent depressive disorder
  - c. Recognize the relationship between depressive disorders and externalizing psychopathology
- 4. Depressive disorder due to another medical condition
  - a. Formulate a differential diagnosis for depressive disorder due to a medical condition
  - b. Recognize the depressive features of an adolescent with mood disorder due to another medical condition
  - c. Diagnose a major depressive-like episode in a patient with mood disorder due to another medical condition (eg, hyperthyroidism)
- 5. Disruptive mood dysregulation disorder
  - a. Recognize disruptive mood dysregulation disorder
  - b. Formulate a differential diagnosis for disruptive mood dysregulation disorder
- C. Bipolar and related disorders
  - 1. Bipolar and related disorders
    - a. Formulate a differential diagnosis for bipolar and related disorders
    - b. Understand the relationship between bipolar disorder and substance use disorder (bipolar disorder)
    - c. Formulate a differential diagnosis for bipolar and related disorder due to another condition
    - d. Recognize that general medical conditions may induce symptoms of a mood disorder (eg, hyperthyroidism)

- e. Recognize that substance/medication use/abuse may induce the symptoms of a mood disorder
- D. Trauma and stressor-related disorders
1. Post-traumatic stress disorder
    - a. Distinguish between normal and pathologic responses to stress
    - b. Recognize the clinical manifestations of post-traumatic stress disorder
    - c. Formulate an evaluation and treatment plan for an adolescent with post-traumatic stress disorder
    - d. Recognize the risk factors that contribute to post-traumatic stress disorder
    - e. Recognize the normal progression of post-traumatic stress disorder
    - f. Differentiate acute stress disorder from adjustment disorder, post-traumatic stress disorder, and normal response to stress
- E. Anxiety disorders
1. Fear/phobias
    - a. Distinguish normal fears from pathologic fears and phobias
    - b. Identify the characteristics of specific phobias and their varied feared situations or objects
    - c. Evaluate a patient with a specific phobia
    - d. Plan the treatment of a patient with fears and phobias to eliminate them
    - e. Recognize the risk factors that contribute to a patient's development of phobias and maintenance of symptoms
    - f. Evaluate a patient with social anxiety disorder
  2. Generalized anxiety disorder and panic disorder
    - a. Formulate a differential diagnosis for the symptoms of generalized anxiety disorder
    - b. Distinguish normal anxiety from pathologic anxiety
    - c. Recognize the clinical manifestations of a generalized anxiety disorder
    - d. Evaluate a patient with anxiety
    - e. Plan the treatment for a patient with generalized anxiety disorder
    - f. Recognize the risk factors that contribute to anxiety disorders
    - g. Recognize the clinical manifestations of panic disorder
    - h. Evaluate a patient with panic attacks and panic disorder
    - i. Plan the treatment for a patient with panic disorder
  3. Separation anxiety disorder
    - a. Recognize that school refusal may represent separation anxiety disorder
    - b. Formulate a differential diagnosis for separation anxiety disorder
    - c. Plan collaborative treatment with school and mental health personnel for an adolescent with separation anxiety disorder
- F. Obsessive-compulsive and related disorders
1. Recognize the clinical manifestations of obsessive-compulsive disorders and related disorders
  2. Recognize the risk factors that contribute to obsessive-compulsive disorders and related disorders
  3. Recognize the clinical manifestations of body dysmorphic disorder
  4. Distinguish body dysmorphic disorder from normal adolescent concerns about noticeable physical defects
- G. Dissociative disorders

1. Formulate a differential diagnosis for dissociative disorders
  2. Recognize the relationship of dissociative disorders to trauma and post-traumatic stress disorder
  3. Recognize the diverse manifestations of dissociative disorder
- H. Somatic symptoms and related disorders
1. Recognize the risk factors that predispose to somatic symptoms and related disorders
  2. Recognize patients with somatic disorders usually seek attention initially in a medical setting rather than a mental health setting
  3. Plan the treatment for a patient with a somatic symptoms and related disorders
  4. Formulate a differential diagnosis for somatic symptom disorder
  5. Plan the management for a patient with conversion disorder (functional neurologic symptom disorder)
  6. Plan the treatment for a patient with a factitious disorder imposed upon another (Münchausen by proxy)
  7. Know the diagnostic criteria and specific symptom types for functional neurologic symptom disorder (conversion disorder)
  8. Formulate a differential diagnosis for functional neurologic symptom disorder (conversion disorder)
  9. Plan collaborative treatment for an adolescent who is co-managed by a medical and a mental health provider
  10. Plan the treatment for a patient with a factitious disorder imposed upon self (Münchausen)
  11. Recognize the diagnostic criteria for illness anxiety disorder, including care-seeking and care-avoidant types
- I. Schizophrenia spectrum and other psychotic disorders
1. Recognize the signs and symptoms of schizophrenia spectrum
  2. Formulate a differential diagnosis for schizophrenia spectrum
  3. Recognize key features of psychotic disorders
  4. Recognize symptoms of schizotypal personality disorder
- J. Personality disorders
1. Recognize the core clinical features of personality disorders
  2. Recognize borderline personality disorder
  3. Recognize antisocial personality disorder
  4. Recognize schizoid personality disorder
  5. Formulate a differential diagnosis for conduct disorder
  6. Recognize an adolescent with conduct disorder
  7. Know when to arrange a mental health referral for an adolescent with conduct disorder
  8. Recognize an adolescent with oppositional defiant disorder
  9. Formulate a differential diagnosis for oppositional defiant disorder
  10. Understand the comorbidities associated with externalizing disorders in adolescents
  11. Recognize that adolescents with ODD may have interactions with the juvenile justice system
  12. Differentiate between mood disorders and personality disorders in adolescents
- 11. Cognition, Social/Emotional Development, and Family/Chronic Illness**
- A. Neurodevelopmental disorders
1. General

- a. Understand the common tests of academic achievement and performance and their utility
- b. Be familiar with the long-term mental health sequelae of various forms of abuse, including physical, psychological, neglect, and sexual
2. Intellectual disability and neurodevelopment disorders
  - a. Understand the expected differences in function among adolescents with varying degrees of intellectual disability
  - b. Understand that the etiology of most intellectual disability is unknown
  - c. Know that adolescents with mild intellectual disability may not be diagnosed in the childhood years
  - d. Recognize the social, mental health, and sexual needs of adolescents with intellectual disability of neurodevelopment disorder
  - e. Know that an intellectually disabled adolescent is at risk for sexual abuse and pregnancy
  - f. Know that intellectually disabled adolescent girls need special help in managing their menstrual and personal hygiene
  - g. Plan a program for providing contraception for an intellectually disabled adolescent
  - h. Understand the legal issues regarding marriage, reproduction, and legal rights of developmentally disabled adolescents
  - i. Understand and provide counseling for the primary parental concerns regarding intellectual disability (vocational potential, opportunities to form lasting social relationships, reproductive potential, and vulnerabilities)
3. Autism spectrum disorder
  - a. Formulate a differential diagnosis for autism spectrum disorder
  - b. Formulate a differential diagnosis for the range of pervasive developmental disorders (including autism spectrum disorder) and identify the associated co-morbidities
  - c. Recognize the functional range at presentation of autism spectrum disorders
  - d. Understand and provide counseling for the primary parental concerns regarding autism spectrum disorders (eg, vocational potential, opportunities to form lasting social relationships, reproductive potential, and vulnerabilities)
  - e. Understand the treatment plan for an adolescent with autism spectrum disorder
4. Attention deficit/hyperactivity disorder (ADHD)
  - a. Understand that adolescents with ADHD constitute a markedly heterogeneous group with widely varying clinical manifestations and responses to treatment
  - b. Know that hyperactivity does not always accompany attention deficit disorder
  - c. Know that adolescents with ADHD are often emotionally labile
  - d. Understand the natural history of ADHD up to 12 years of age
  - e. Understand the epidemiology of ADHD
  - f. Plan the evaluation of a patient with ADHD
  - g. Develop a management plan for a patient with ADHD
  - h. Formulate a differential diagnosis for a patient with impulsivity, inattention, and distractibility
  - i. Understand the comorbidities commonly associated with ADHD and formulate a treatment plan for them
5. School achievement problems

- a. School overachievement
    - 1. Recognize the signs and symptoms and associated comorbidities of fear of school failure in adolescents in junior and senior high school
    - 2. Formulate a differential diagnosis and treatment plan for an adolescent with school overachievement
  - b. School underachievement
    - 1. Identify the types of tests that should be ordered in evaluating an adolescent with school underachievement
    - 2. Understand the epidemiology of school underachievement
    - 3. Identify the factors associated with school underachievement
    - 4. Evaluate an adolescent with school underachievement
    - 5. Formulate a differential diagnosis and treatment plan for an adolescent with school underachievement
- B. Social/emotional development
- 1. Cognitive thinking
    - a. Clinically assess the cognitive level of a patient from early through late adolescence
    - b. Understand that verbal expression skills are a good proxy measure for complexity of cognition at all stages of development
  - 2. Future time perspective
    - a. Understand that the capacity to project one's self into the future (eg, to understand future consequences) is a developmental capacity that emerges in middle adolescence
    - b. Understand that population-based prevention strategies for most adolescents must be based on the immediate rather than the future consequences of a behavior
  - 3. Social cognition
    - a. Recognize egocentrism as a normal developmental phase of early adolescent social cognitive maturation
    - b. Understand the role of peers in shaping self-identity and autonomy in early adolescence
    - c. Understand the changing role of friendships and peer pressure from early through late adolescence
    - d. Describe the typical parent-peer conflicts of adolescence
    - e. Counsel parents and adolescents about resolving typical parent-peer conflicts
  - 4. Development of autonomy
    - a. Develop strategies that empower an adolescent to take control of managing his/her condition or treatment plan
  - 5. Gender dysphoria
    - a. Evaluate and develop a management plan for an adolescent with gender dysphoria
    - b. Recognize gender dysphoria in an adolescent
  - 6. Affective development
    - a. Know the social/emotional tasks of early, middle, and late adolescence
  - 7. Adherence to medical regimens
    - a. Understand the factors that enhance or inhibit adherence to therapeutic regimens for an adolescent with a chronic illness

- b. Know the aspects of adherence associated with medications, diet, exercise, appointment, and self-monitoring
- C. Familial problems
  - 1. Loss of family members, friends
    - a. Understand the variety of responses to the death of a parent or close friend relative to the age and developmental stage of an adolescent
    - b. Understand the difference between normal and complicated bereavement
  - 2. Divorce
    - a. Understand the social and emotional effects of divorce on adolescents and their families
    - b. Counsel parents and patients about the effect on adolescents of blended families following remarriage
  - 3. Out-of-home placement
    - a. Understand the potential benefits and risks of recommending out-of-home placement for adolescents
  - 4. Adolescent physical abuse
    - a. Recognize the risk factors for physical abuse
    - b. Recognize the historic and physical clues to physical abuse
    - c. Recognize the psychiatric and medical sequelae of physical abuse among adolescents
    - d. Manage an adolescent who reports being physically abused
  - 5. Adoption
    - a. Counsel adoptive parents regarding informing adolescents about and assisting them in a search for birth parents
    - b. Recognize that access to adoption records varies among states
- D. Chronic illness/disability
  - 1. Chronic and disabling conditions
    - a. Design a program to address the psychologic, social, and sexual needs of an adolescent with chronic disease
    - b. Plan the management of an adolescent with chronic pain
  - 2. Sexuality/reproductive health
    - a. Identify the chronic/disabling conditions in male and female adolescents in which infertility tends to occur
    - b. Identify the chronic/disabling conditions associated with impotence in adolescents
    - c. Provide counseling regarding reproductive health issues to an adolescent with a chronic/disabling condition
  - 3. Socioemotional/family considerations
    - a. Understand the factors that contribute to the social isolation of adolescents with chronic/disabling or mental health conditions
    - b. Understand the role of social isolation in chronic/disabling or mental health problems and its impact on intrafamilial and extrafamilial social functioning
    - c. Assess adolescent and parental functioning in families with a chronically ill or disabled adolescent and provide appropriate counseling and referral
  - 4. Transplantation issues (bone marrow, kidney, heart, etc)
    - a. Recognize the mental health factors to be addressed during the screening of potential transplant patients

- b. Understand the principles of counseling for adolescents and their families regarding transplantation, including donor issues
- c. Understand the potential for nonadherence to immunosuppressive medication regimens in adolescents following transplantation
- d. Understand potential mental health complications for transplant recipients and their families
- e. Recognize mental health conditions that impact adherence
- f. Recognize psychological factors that affect a diagnosed medical condition

## 12. Renal

### A. Normal

- 1. Anatomy
  - a. Know the normal anatomy of the male and female genitourinary tracts
- 2. Laboratory evaluation
  - a. Understand the information that can be obtained by generic dipstick testing and microscopic urinalysis
  - b. Understand the indications for renal imaging studies
  - c. Understand the benefits and limitations of the various types of renal and genitourinary imaging studies

### B. Urinary tract infection

- 1. Urethritis in a male adolescent
  - a. Recognize the clinical signs and symptoms associated with urethritis in a male adolescent
  - b. Understand the implications of pyuria in an asymptomatic, sexually active male adolescent
  - c. Understand the microbiology of urethritis in male adolescents
  - d. Understand the epidemiologic variations in the differential diagnosis of urethritis based on age, sexual behavior, and clinical setting
  - e. Plan the laboratory evaluation of a male adolescent with urethritis
  - f. Interpret the results of laboratory testing in a male with urethritis
  - g. Understand the antimicrobial treatment of urethritis based on age, sexual behavior, and clinical setting
  - h. Plan a treatment protocol for the sexual partner(s) of male adolescents with urethritis
  - i. Provide counseling regarding primary and secondary prevention of urethritis in a male adolescent
- 2. Urethritis/cystitis in a female adolescent
  - a. Formulate a differential diagnosis for urethritis/cystitis in a female adolescent
  - b. Understand the epidemiologic variations in the differential diagnosis of urethritis/cystitis in a female adolescent based on age, sexual behavior, and clinical setting
  - c. Understand the antimicrobial treatment of urethritis/cystitis in a female adolescent
  - d. Plan the laboratory evaluation of urethritis/cystitis in a female adolescent
  - e. Interpret the results of laboratory tests in a female adolescent with suspected cystitis
  - f. Understand the indications for and interpret the results of various renal imaging studies in a female adolescent with recurrent cystitis

- g. Provide counseling regarding primary and secondary prevention of urethritis in a female adolescent
- h. Understand the relationship between urinary tract infections and contraceptive methods
- 3. Pyelonephritis
  - a. Understand the pathophysiology of pyelonephritis
  - b. Understand the relationship between pregnancy and pyelonephritis
  - c. Recognize the clinical presentation of pyelonephritis
  - d. Plan the laboratory evaluation and treatment of an adolescent with suspected pyelonephritis
  - e. Understand the indications for and interpret the results of imaging studies in the evaluation of an adolescent with pyelonephritis
- C. Enuresis/incontinence
  - 1. Formulate a differential diagnosis for primary, secondary, daytime, and/or nocturnal incontinence in adolescents
  - 2. Plan the laboratory evaluation of an adolescent with incontinence
  - 3. Understand the treatment modalities for adolescents with nocturnal enuresis
  - 4. Plan the treatment for an adolescent with daytime incontinence
  - 5. Identify the bladder and bowel symptoms associated with spinal cord injuries and anomalies
  - 6. Recognize the symptoms of and plan the evaluation and treatment for interstitial cystitis and other bladder disorders
- D. Proteinuria
  - 1. Formulate a differential diagnosis for proteinuria in an adolescent
  - 2. Plan the laboratory evaluation of an adolescent with proteinuria
- E. Hematuria
  - 1. Formulate a differential diagnosis for hematuria
  - 2. Plan the laboratory evaluation of an adolescent with hematuria
  - 3. Interpret the results of laboratory tests in an adolescent with hematuria
  - 4. Plan the management of an adolescent with hematuria
  - 5. Recognize the presenting signs and symptoms of acute poststreptococcal glomerulonephritis
  - 6. Recognize the renal findings and complications of sickle trait and sickle cell disease
- F. Renal stones
  - 1. Recognize the usual presenting signs and symptoms of an adolescent with a renal stone
  - 2. Plan the evaluation of an adolescent with a suspected or documented renal stone, including imaging studies
  - 3. Understand the management of an adolescent with a renal stone, including dietary and pharmacologic approaches
- G. Trauma
  - 1. Recognize the clinical presentation of an adolescent with renal trauma
  - 2. Plan appropriate diagnostic studies for an adolescent with renal trauma
- H. Polyurias
  - 1. Formulate a differential diagnosis for polyuria
  - 2. Plan the laboratory evaluation of an adolescent with polyuria

- I. Acute and chronic kidney disease
  - 1. Understand the causes of interstitial nephritis
  - 2. Recognize the signs and symptoms of acute and chronic kidney disease (eg, anemia, growth failure, and hypertension)
  - 3. Formulate a differential diagnosis for acute renal failure
  - 4. Formulate a differential diagnosis for chronic kidney disease
  - 5. Counsel an adolescent who has received a renal transplant
  - 6. Understand the reproductive health problems of an adolescent receiving dialysis (menstrual problems, Papanicolaou smears, contraception)
  - 7. Identify the common menstrual problems in female adolescents with renal disease
  - 8. Counsel an adolescent with chronic kidney disease or who has received a renal transplant regarding contraceptive options
  - 9. Counsel a female adolescent who has had a renal transplant regarding sexually transmitted infections, genital warts, and Papanicolaou smears
- J. Congenital abnormalities
  - 1. Understand the association between congenital abnormalities of the kidneys and many genetic syndromes, including Turner syndrome
  - 2. Recognize that obstructive müllerian anomalies may be associated with renal agenesis

### 13. Reproductive—Female

- A. General
  - 1. Pelvic examination
    - a. Recognize the indications for a speculum examination and a bimanual pelvic examination in adolescents
    - b. Recognize normal vulvar, vaginal, and cervical anatomy
    - c. Understand the causes of an enlarged uterus
    - d. Understand the differential diagnosis of adnexal tenderness
    - e. Understand the differential diagnosis of adnexal enlargement
    - f. Understand reasons why adolescents may refuse a pelvic examination: previous abuse, previous inappropriate examination, cultural bias
  - 2. Screening tests
    - a. Understand the use of a vaginal smear in the assessment of estrogen status
- B. Normal vaginal and cervical physiology, fertility, and menstruation
  - 1. Vaginal
    - a. Understand the uses and limitations of wet preparations in the evaluation of vaginal discharge in adolescents
    - b. Differentiate between normal and abnormal vaginal discharge and changes in the vaginal discharge related to the menstrual cycle
    - c. Understand how pH measurements can aid in the diagnosis of vaginal discharge
  - 2. Cervical
    - a. Understand the changes in the appearance of the squamocolumnar junction during puberty and during oral contraceptive use
    - b. Recognize the changes that occur in the cervical mucus during the normal menstrual cycle
  - 3. Menstruation
    - a. Know the normal mean age and range of ages for the onset of menses and the relationship of menarche to sexual maturity rating and race (ethnicity)

- b. Understand menstrual cycle variations throughout adolescence
- c. Understand the pattern of gonadotropins during the normal ovulatory menstrual cycle
- d. Understand the pattern of estrogen and progesterone in ovulatory and anovulatory cycles
- e. Distinguish between abnormal and normal vaginal bleeding
- 4. Ovary
  - a. Understand the normal physiology of the ovary during the menstrual cycle
- C. Menstrual problems
  - 1. Amenorrhea
    - a. Primary
      - 1. Formulate a differential diagnosis for primary amenorrhea
      - 2. Understand the importance of a general physical examination and a pelvic examination in the evaluation of primary amenorrhea
      - 3. Understand the presentation and management of an adolescent with an imperforate hymen
      - 4. Formulate a differential diagnosis for vaginal agenesis (androgen insensitivity, isolated vaginal-uterine agenesis)
      - 5. Understand the treatment options for an adolescent with vaginal agenesis
      - 6. Recognize ovarian failure as a cause of amenorrhea
      - 7. Formulate a differential diagnosis for ovarian failure
      - 8. Recognize the association between ovarian failure and chemotherapy
      - 9. Recognize the presentation of an adolescent with a prolactinoma and primary amenorrhea
      - 10. Plan the laboratory evaluation of a patient with primary amenorrhea
      - 11. Interpret the results of laboratory tests in a patient with primary amenorrhea
      - 12. Order and interpret the results of imaging studies in a patient with primary amenorrhea
      - 13. Recognize the clinical signs and symptoms in a patient with Turner syndrome (delayed development, primary or secondary amenorrhea, menstrual irregularity, or short stature)
      - 14. Understand the management modalities for amenorrhea based on diagnosis
    - b. Secondary amenorrhea and oligomenorrhea
      - 1. Formulate a differential diagnosis for secondary amenorrhea
      - 2. Interpret the results of a progestin challenge in the evaluation of amenorrhea
      - 3. Plan the laboratory evaluation of a patient with secondary amenorrhea
      - 4. Interpret the results of laboratory tests in a patient with secondary amenorrhea
      - 5. Order and interpret the results of imaging studies in a patient with secondary amenorrhea
      - 6. Understand the evaluation of a female adolescent with an increased serum prolactin concentration and secondary amenorrhea
      - 7. Plan the management of long-term estrogen deficiency in an adolescent
      - 8. Understand the implications of long-term estrogen deficiency for adolescents
      - 9. Describe the treatment modalities for secondary amenorrhea and their related side effects
  - 2. Dysmenorrhea

- a. Understand the pathophysiology of dysmenorrhea and its associated symptoms
  - b. Understand the impact of dysmenorrhea on the lives of adolescents
  - c. Recognize an adolescent with dysmenorrhea
  - d. Distinguish between primary and secondary dysmenorrhea
  - e. Recognize the signs and symptoms of endometriosis in adolescents
  - f. Plan the management of an adolescent with dysmenorrhea
  - g. Know that dysmenorrhea usually improves during hormonal contraceptive therapy
  - h. Formulate a differential diagnosis for midcycle pain in an adolescent
3. Premenstrual syndrome
    - a. Recognize that migraine headaches and seizures may increase in the premenstrual phase of the menstrual cycle
    - b. Recognize the diagnostic criteria for premenstrual dysphoric disorder (PMDD)
    - c. Understand the treatment modalities for premenstrual dysphoric disorder
  4. Abnormal vaginal bleeding and dysfunctional uterine bleeding
    - a. Formulate a differential diagnosis for irregular and abnormal vaginal bleeding in adolescents
    - b. Understand the pathophysiology of anovulatory dysfunctional uterine bleeding
    - c. Understand the relationship between history and amount of bleeding and hematocrit in an adolescent with vaginal bleeding
    - d. Plan the laboratory evaluation of a patient with menorrhagia
    - e. Interpret the results of laboratory tests in a patient with menorrhagia
    - f. Order and interpret the results of imaging studies for a patient with menorrhagia
    - g. Recognize the association between menorrhagia and coagulopathy
    - h. Recognize the indications for hospitalization of an adolescent with vaginal bleeding
    - i. Develop a management plan for a patient with anovulatory bleeding
    - j. Know that dilatation and curettage are rarely indicated in the management of dysfunctional uterine bleeding
    - k. Recognize the indications for imaging studies in an adolescent with menorrhagia
  5. Infertility
    - a. Understand the causes of dysfunctional uterine bleeding that affect future fertility
    - b. Understand that pelvic inflammatory disease (overt and silent) can result in tubal pregnancies and infertility
    - c. Understand that adolescents may fail to use contraceptives because of concern about infertility
    - d. Understand the causes of infertility in female adolescents (ovarian failure, uterine agenesis, etc)
    - e. Plan treatment for the various causes of infertility in female adolescents
- D. Polycystic ovary syndrome
1. Recognize the clinical spectrum and pathophysiology of polycystic ovary syndrome
  2. Understand the immediate and long-term consequences of polycystic ovary syndrome including psychological sequelae and adjustment issues
  3. Formulate a differential diagnosis for polycystic ovary syndrome
  4. Evaluate suspected polycystic ovary syndrome
  5. Recognize the diseases associated with polycystic ovary syndrome
  6. Plan the management of a patient with polycystic ovary syndrome

7. Order and interpret the results of laboratory and radiologic studies in an adolescent with polycystic ovary syndrome
  8. Recognize the presentation of an adolescent with hyperthecosis, androgen excess, acanthosis nigricans, and insulin resistance
  9. Understand the use and limitations of oral contraceptives in the management of a patient with polycystic ovary syndrome
  10. Understand the use and limitations of insulin-sensitizing drugs in the management of a patient with polycystic ovary syndrome
- E. Hirsutism
1. Formulate a differential diagnosis for an adolescent female with hirsutism
  2. Recognize the clinical manifestations of androgen excess in the female
  3. Evaluate a female adolescent with hirsutism (including laboratory studies)
- F. Ovarian cysts and tumors
1. Recognize the indications for and limitations of pelvic ultrasonography in evaluating ovarian cysts and tumors
  2. Recognize that ovarian tumors and cysts can be asymptomatic or cause chronic or acute pelvic pain
  3. Plan and interpret the results of the laboratory evaluation of a patient with suspected ovarian tumor
  4. Order and interpret the results of imaging studies in a patient with suspected ovarian tumor
  5. Plan the management of a patient with an ovarian cyst
  6. Understand the natural history of follicular cysts
  7. Recognize that a patient with a female phenotype and a Y line is at risk for gonadal tumors
  8. Plan the management of a patient with a female phenotype and a Y line
- G. Pelvic pain
1. Acute
    - a. Formulate a differential diagnosis for acute pelvic pain
    - b. Plan the evaluation of an adolescent female with acute pelvic pain
  2. Chronic
    - a. Formulate a differential diagnosis for chronic pelvic pain
    - b. Plan the evaluation of an adolescent female with chronic pelvic pain
    - c. Plan the management of a patient with chronic pelvic pain of unknown origin
    - d. Understand the side effects of the various treatment modalities for endometriosis
- H. Vulvovaginitis
1. General
    - a. Formulate a differential diagnosis of vaginal discharge in an adolescent
    - b. Plan the laboratory evaluation of an adolescent with vaginitis
  2. *Candida* vulvovaginitis
    - a. Recognize the predisposing factors for *Candida* vaginitis (pregnancy, antibiotic usage, HIV infection, and diabetes mellitus)
    - b. Recognize the clinical findings of *Candida* vaginitis
    - c. Interpret the laboratory findings associated with *Candida* vaginitis
    - d. Plan the management of an adolescent with *Candida* vaginitis
    - e. Understand the risk of recurrence of *Candida* vaginitis

3. Trichomonal vaginitis
  - a. Recognize the common clinical findings of trichomonal vaginitis
  - b. Plan the management of an adolescent with trichomonal vaginitis
  - c. Understand the treatment modalities and possible complications of treatment for trichomonal vaginitis
  - d. Know that recurrences of trichomonal vaginitis are usually related to reinfection
  - e. Order and interpret the results of laboratory tests to evaluate a patient with suspected trichomonal vaginitis (including an understanding of the limitations of vaginal wet mount preparations)
4. Bacterial vaginosis
  - a. Understand the pathophysiology of bacterial vaginosis and the associated complex alteration in vaginal flora
  - b. Recognize the clinical signs and symptoms associated with bacterial vaginosis
  - c. Plan and interpret the results of the laboratory evaluation in a patient with bacterial vaginosis (significance of clue cells, pH, “whiff test,” and Gram stain)
  - d. Plan the management of an adolescent with bacterial vaginosis
  - e. Understand the side effects and complications of treatment for bacterial vaginosis
  - f. Recognize the risk factors for bacterial vaginosis
  - g. Understand the association between bacterial vaginosis and the risk of sexually transmitted infection
  - h. Recognize that treatment of bacterial vaginosis in high-risk patients with a history of preterm delivery may decrease the risk of preterm delivery
  - i. Recognize the association of bacterial vaginosis with postpartum endometritis, pregnancy complications, irregular menstrual bleeding, and pelvic inflammatory disease after invasive procedures
5. Other
  - a. Recognize that a bloody, foul-smelling vaginal discharge can be caused by a retained tampon or other foreign body
  - b. Understand that müllerian duct anomalies may cause malodorous discharge
- I. Cervical disorders
  1. Recognize the alterations in cervical anatomy and appearance of mucus in a patient with cystic fibrosis
  2. Understand the microbiology of cervicitis
  3. Formulate a differential diagnosis for cervicitis
  4. Recognize the signs and symptoms associated with cervicitis
  5. Know the range of laboratory tests available to make the diagnosis of cervicitis
  6. Plan the laboratory evaluation of a patient with suspected cervicitis
  7. Interpret the results of laboratory tests in a patient with cervicitis
  8. Plan an initial treatment regimen for a patient with cervicitis
- J. Breasts
  1. Variations
    - a. Understand the cyclic changes of the breast during ovulatory cycles
    - b. Formulate a differential diagnosis for each of the various breast disorders in female adolescents
    - c. Recognize that asymmetry commonly occurs early in breast development and may or may not disappear by the end of puberty

- d. Understand the significance of breast asymmetry to an adolescent and the options for therapy
  - e. Recognize the emotional and physical consequences of breast hypertrophy, and counsel appropriately
  - f. Recognize that fibrocystic changes are common findings in the breasts of normal adolescents
  - g. Understand the importance of timing in and the complications of reduction mammoplasty
  - h. Understand the use of imaging modalities in female adolescents with breast lesions
2. Neoplasms
    - a. Formulate the differential diagnosis for a breast mass in a female adolescent
    - b. Evaluate a breast mass in a female adolescent
    - c. Counsel adolescents about the risk factors for breast cancer
    - d. Provide counseling to a female adolescent with a breast mass
  3. Infections
    - a. Understand the diagnosis and management of breast infections
  4. Galactorrhea, hyperprolactinemia
    - a. Formulate a differential diagnosis for galactorrhea
    - b. Formulate a differential diagnosis for hyperprolactinemia
    - c. Order laboratory tests for the evaluation of a patient with galactorrhea
    - d. Order and interpret the results of laboratory tests in the evaluation of a patient with hyperprolactinemia
    - e. Order and interpret the results of imaging studies in the evaluation of a patient with hyperprolactinemia
    - f. Plan a treatment regimen for a patient with hyperprolactinemia
  5. Trauma
    - a. Understand the natural history of breast lesions resulting from trauma

#### 14. Reproductive—Male

- A. Varicocele
  1. Understand the etiology of varicoceles
  2. Develop a management plan for an adolescent with a varicocele
  3. Recognize the symptoms associated with varicoceles
- B. Masses/neoplasms
  1. Understand the epidemiology of testicular tumors
  2. Recognize the signs and symptoms associated with testicular neoplasms
  3. Formulate a differential diagnosis for a testicular mass
  4. Plan the laboratory evaluation of a patient with a testicular mass
  5. Understand the long-term prognosis associated with testicular cancer
- C. Torsion of testes
  1. Differentiate between torsion of the spermatic cord and torsion of the testicular appendage based on history, physical, and laboratory findings
  2. Plan the management of an adolescent with torsion of the spermatic cord
  3. Know the prognostic importance of the time of onset to testicular survival for torsion of the spermatic cord
  4. Plan the management of an adolescent with torsion of the testicular appendage
- D. Spermatocele

1. Know the presenting signs and symptoms of spermatocele
2. Plan the management of a patient with spermatocele
3. Describe the prognosis of a patient with spermatocele
- E. Congenital problems
  1. Undescended testicle
    - a. Plan the diagnosis and treatment for an adolescent with undescended testes
  2. Hypospadias
    - a. Understand the possible complications of repaired and unrepaired hypospadias
- F. Infections
  1. Epididymitis
    - a. Understand the microbiology of epididymitis
    - b. Formulate a differential diagnosis for a painful scrotal mass in the male adolescent
    - c. Recognize the signs and symptoms associated with epididymitis
    - d. Plan the laboratory evaluation of a patient with suspected epididymitis
    - e. Differentiate between epididymitis and testicular torsion
  2. Prostatitis
    - a. Recognize the signs and symptoms of prostatitis
    - b. Plan a treatment regimen for a patient with prostatitis
- G. Infertility/impotence/sexual dysfunction
  1. Formulate a differential diagnosis for infertility in the male adolescent
  2. Formulate a differential diagnosis for erectile dysfunction in an adolescent male
  3. Plan the evaluation and management of an adolescent male with erectile dysfunction
  4. Manage an adolescent male with premature ejaculation
  5. Evaluate an adolescent male with priapism

## 15. Sexuality

- A. Sexual behavior and screening
  1. Behavior
    - a. Describe the types and frequency of sexual behaviors practiced by adolescents
    - b. Understand the stages of sexual arousal in male and female adolescents
    - c. Understand the normal development of sexuality during the different stages of adolescence (including sexual thoughts, fantasies, behaviors, and relationships)
    - d. Understand the normalcy of masturbatory activity in boys and girls during adolescence
    - e. Know the sexual behaviors practiced by sexual minority adolescents
    - f. Identify the laboratory screening tests that should be conducted for sexually active adolescents according to their specific sexual behaviors
    - g. Identify the components of a physical examination that are most relevant to include in a general screening examination for sexually active adolescents according to their specific sexual behaviors
    - h. Understand the definition of “biologic sex,” “gender identity,” “sexual orientation,” and “sexual behaviors”
    - i. Understand the definitions of lesbian, gay, bisexual, and transgender terminology
    - j. Know the demography of sexual orientation among adolescents in the United States
  2. Health care of sexual minority adolescents
    - a. Distinguish between same-sex interest and homosexuality in early adolescence

- b. Understand the stages of sexual orientation in adolescence
  - c. Recognize the medical conditions associated with anal insertive and anal receptive intercourse
  - d. Understand the potential mental and physical health disparities for a sexual minority adolescent
  - e. Know the important issues (at home, school, on-line, legal) for sexual minority adolescents
  - f. Counsel sexual minority adolescents about sexual and affectional relationships
  - g. Understand mental health risks for sexual minority adolescents
- B. Pregnancy
1. Psychosocial issues
    - a. Know the epidemiology of adolescent pregnancy
    - b. Identify the risk factors and protective factors for adolescent pregnancy
    - c. Know which interventions during an office visit contribute to preventing a first or subsequent pregnancy
    - d. Understand the attitudes and customs among various cultural groups about sexual activity and pregnancy in adolescence
    - e. Recognize the mental health factors that increase risk for adolescent pregnancy and early sexual debut
    - f. Recognize that major depressive disorder can occur in the peripartum period
  2. Diagnosis of pregnancy
    - a. Recognize the clinical manifestations of adolescent pregnancy
    - b. Understand the indications for, interpretation of, and limitations of urine pregnancy tests
    - c. Understand the indications for, interpretation of, and limitations of serum pregnancy tests
    - d. Understand the role of ultrasonography in diagnosing pregnancy
    - e. Estimate gestational age by history and physical examination
    - f. Understand the use and significance of changing serum human chorionic gonadotropin (hCG) concentrations during pregnancy
    - g. Know how to counsel an adolescent regarding pregnancy options
    - h. Formulate a management plan for an adolescent requesting an abortion
    - i. Understand the techniques for abortion at different stages of gestation
    - j. Understand the complications of abortion at different stages of gestation
    - k. Recognize that pregnant adolescents are at high risk of having sexually transmitted infections
    - l. Recognize what factors contribute to poor outcomes of pregnancy for very young adolescents: socioeconomic status, substance abuse, nutrition, and sexually transmitted infections
    - m. Understand the reasons why adolescents may have a late diagnosis of pregnancy and inadequate prenatal care
    - n. Understanding the timing and management of a medical abortion
  3. Disorders of pregnancy
    - a. Understand the symptoms and signs of ectopic pregnancy
    - b. Plan the evaluation and management of an adolescent with suspected or confirmed ectopic pregnancy

- c. Recognize the risk factors for ectopic pregnancy
  - d. Understand the symptoms and signs of missed or threatened abortion
  - e. Plan the management of a patient with missed or threatened abortion
  - f. Recognize the signs and symptoms of a molar pregnancy
  - g. Interpret the findings on abdominal and transvaginal ultrasonography for a normal and abnormal pregnancy
  - h. Understand the effects of maternal drug use on pregnancy outcomes
- C. Contraception
1. General
    - a. Understand the risk factors for noncompliance with contraception
    - b. Understand the theoretical and use effectiveness of the various methods of contraception including natural family planning
    - c. Understand the contraceptive needs of adolescents with chronic illnesses
    - d. Judge the relative efficacy of various methods of contraception for the prevention of sexually transmitted infections
    - e. Understand the hormonal potency of contraceptive estrogens and progestins
  2. Combined (estrogen/progestin) hormonal contraceptives
    - a. Understand the mechanism of action of combined hormonal contraceptives
    - b. Manage the common side effects of combined hormonal contraceptives
    - c. Differentiate between the minor side effects and serious complications of combined hormonal contraceptives
    - d. Understand the most frequent concerns of adolescents about combined hormonal contraceptives
    - e. Manage an adolescent who has missed one or more doses of an oral contraceptive
    - f. Recognize that combined hormonal contraceptive use can alter the results of laboratory tests
    - g. Understand the interactions of combined hormonal contraceptives with other medications that result in decreased contraceptive efficacy
    - h. Understand the causes of combined hormonal contraceptive failure
    - i. Identify the contraindications to the use of combined hormonal contraceptives
    - j. Understand the health benefits of combined hormonal contraceptive use
    - k. Counsel adolescents using combined hormonal contraceptives about the risk of sexually transmitted infections and the importance of the continued use of condoms
    - l. Evaluate an adolescent with breakthrough bleeding who is using combined hormonal contraception
    - m. Plan the management of an adolescent with amenorrhea who is using combined hormonal contraception
    - n. Manage the timing issues associated with initiation or resumption of the use of various hormonal contraceptives
    - o. Recognize the benefits and complications associated with the use of transdermal combined hormonal contraceptives in adolescents
    - p. Recognize the benefits and complications associated with the use of intravaginal combined hormonal contraceptives in adolescents
    - q. Plan the management of an adolescent who is using a transdermal contraceptive patch

- r. Plan the management of an adolescent who is using an intravaginal contraceptive ring
  - 3. Progestin-only contraceptives (pills, injectables, implants, etc)
    - a. Describe the mechanism of action of progestin-only contraceptives
    - b. Understand the side effects associated with progestin-only contraceptives
    - c. Know the pregnancy rate and the duration of action associated with progestin-only contraceptives
    - d. Identify the absolute and relative contraindications to the use of progestin-only contraceptives
    - e. Know the indications for prescribing progestin-only contraceptives
    - f. Know the contraindications to the use of progestin-only contraceptives
    - g. Plan management for the side effects associated with progestin-only contraceptives
    - h. Understand the health benefits of the use of progestin-only contraceptives
    - i. Understand and manage the injection schedule associated with the depot form of medroxyprogesterone acetate
    - j. Understand the delay in fertility associated with discontinuation of the depot form of medroxyprogesterone
    - k. Understand the effect of the depot form of medroxyprogesterone acetate on bones and clinical approaches to minimizing associated loss of bone density
  - 4. Postcoital contraception
    - a. Plan the management of an adolescent following unprotected sexual intercourse
    - b. Understand the side effects associated with the various forms of postcoital hormonal contraception
    - c. Understand the utilization and timing of postcoital contraception
    - d. Know the mechanisms of action and efficacy of the various forms of postcoital hormonal contraception
    - e. Understand the contraindications for use of the various forms of postcoital contraception
  - 5. Condoms
    - a. Provide instructions to an adolescent for the proper use of condoms
    - b. Understand reasons for nonuse of condoms among adolescents
    - c. Understand the causes of condom failure
    - d. Understand the indications for the use of non-latex barrier methods of contraception
  - 6. Female barrier contraceptive methods/spermicides
    - a. Identify the available female barrier contraceptive methods and the mechanisms of action for each
    - b. Identify the various types of spermicide and the potential side effects of and contraindications for each
    - c. Recognize the benefits and problems associated with the use of cervical barriers for contraception
  - 7. Intrauterine devices
    - a. Identify the different types of intrauterine devices and the indications, contraindications, and complications for each type
- D. Sexual dysfunction

1. Formulate a differential diagnosis for dyspareunia, anorgasmia, premature ejaculation, and erectile dysfunction
  2. Evaluate and manage an adolescent with sexual dysfunction
- E. Sexual assault
1. General
    - a. Understand the epidemiology of sexual abuse/sexual assault in adolescents
    - b. Counsel adolescents on prevention of sexual assault, including discussion of “date rape drugs”
    - c. Recognize the clinical presentations of adolescents who have been victims of incest or sexual abuse/assault
    - d. Know that pregnancy or sexually transmitted infection in a very young adolescent may be a sign of sexual abuse
    - e. Recognize the sequelae of intrafamilial sexual abuse
  2. Examination of the sexual assault victim
    - a. Recognize the traumatic injuries associated with intercourse (rectal, anal, vaginal, urethral)
    - b. Describe the appropriate approach to the examination of an adolescent who has been sexually assaulted
    - c. Understand the need to obtain medical evidence in cases of alleged rape
    - d. Know the elements that constitute medical evidence of rape
    - e. Recognize the physical findings of sexual assault in a female adolescent
    - f. Recognize the physical findings of sexual assault in a male adolescent
    - g. Understand the importance of testing for sexually transmitted infections at the time of an examination for sexual assault and at follow-up
    - h. Know the importance of performing a pregnancy test at the time of an examination for sexual assault
  3. Management
    - a. Understand the importance of follow-up screening examinations for victims of rape (serology test for syphilis, HIV, pregnancy)
    - b. Understand the indications for the use of antibiotics, emergency contraception, and postexposure prophylaxis for HIV and hepatitis B in rape victims
    - c. Recognize that adolescents may experience trauma- and stressor-related disorders after a rape
  4. Prevention
    - a. Develop potential strategies for the prevention of sexual abuse in adolescents
- F. Sexuality and developmentally delayed patients
1. Understand the timing of pubertal development in various syndromes associated with developmental delay
  2. Recognize the range of sexual behavior in developmentally delayed youths
- G. Sexuality education
1. Identify the sexual education methods that have been associated with decreasing or preventing STIs among adolescents
  2. Identify the sexuality education methods that have been successful in promoting contraceptive use among adolescents
16. **Sexually Transmitted Infections**
- A. Pathogenesis of sexually transmitted infections

1. General
  - a. Know the epidemiology of sexually transmitted infections in an adolescent population
  - b. Formulate a differential diagnosis for genital lesions
  - c. Understand the importance of obtaining a careful history of all forms of sexual activity in the differential diagnosis of sexually transmitted infections
  - d. Understand the importance of looking for other sexually transmitted infections in a patient in whom one is found
  - e. Know the importance of recommending that sexually active adolescents utilize latex and polyurethane condoms during vaginal and anal intercourse
  - f. Plan a program for the prevention of sexually transmitted infections in an adolescent after rape or consensual intercourse
  - g. Plan the management of the sexual partner(s) of an adolescent with a sexually transmitted infection
  - h. Understand the risk factors for acquiring sexually transmitted infections during adolescence, including adolescent groups at special risk (sex workers, runaways, homeless or incarcerated youths)
  - i. Know the methods for verifying that a patient with a sexually transmitted infection has been cured and which sexually transmitted infections do not require verification of cure
  - j. Understand the clinical usefulness and limitations of the various diagnostic tests for each sexually transmitted infection
  - k. Understand the principles and benefits of routine screening for sexually transmitted infections
  - l. Interpret the results of testing for sexually transmitted infections based on prevalence, sensitivity, and specificity
  - m. Understand the mental health conditions that increase risks for sexually transmitted infections
2. Specific bacterial pathogens
  - a. *Neisseria gonorrhoeae*
    1. Understand the differences in age-specific gonorrhea rates by gender and race
    2. Recognize the clinical manifestations of *Neisseria gonorrhoeae* infection during adolescence
    3. Formulate a differential diagnosis for disseminated gonorrhea
    4. Understand the association between disseminated gonorrhea and complement deficiencies
    5. Understand the principles of treatment for *Neisseria gonorrhoeae*
    6. Plan the treatment protocols for sexual partner(s) of persons infected with *Neisseria gonorrhoeae*
    7. Counsel an adolescent regarding the sexual transmission of gonorrhea and preventive measures
  - b. *Treponema pallidum* (syphilis)
    1. Know the risk factors for *T. pallidum* infection in adolescents
    2. Recognize the signs and symptoms (general and genital) of *T. pallidum* infection in an adolescent
    3. Plan the evaluation of an adolescent with a suspected *T. pallidum* infection

4. Interpret the laboratory findings in an adolescent with a suspected *T. pallidum* infection
5. Understand the management principles and complications in an adolescent with a *T. pallidum* infection
6. Understand the serologic response to the treatment of syphilis
7. Understand the importance of testing for the human immunodeficiency virus in an adolescent with syphilis
- c. *Haemophilus ducreyi*
  1. Recognize the signs and symptoms (general and genital) of *Haemophilus ducreyi* infection in an adolescent
- d. *Chlamydia trachomatis*
  1. Know the risk factors for *Chlamydia trachomatis* infection in adolescents
  2. Recognize the signs and symptoms (general and genital) of *C. trachomatis* infection in an adolescent
  3. Plan the evaluation of an adolescent with a suspected *C. trachomatis* infection
  4. Interpret the laboratory findings in an adolescent with a *C. trachomatis* infection
  5. Understand the management principles and complications in an adolescent with a *C. trachomatis* infection
- e. Lymphogranuloma venereum
  1. Recognize the signs and symptoms (general and genital) of lymphogranuloma venereum in an adolescent
  2. Understand the management principles and complications in an adolescent with lymphogranuloma venereum
3. Specific viral pathogens
  - a. Herpes
    1. Formulate a differential diagnosis of genital herpes infections
    2. Know the risk factors for herpes infection in adolescents
    3. Recognize the signs and symptoms (general and genital) of herpes infection in an adolescent
    4. Plan the evaluation of an adolescent with suspected primary, non-primary, or recurrent herpes infection
    5. Interpret the laboratory findings in an adolescent with a herpes infection
    6. Understand the management principles and complications in an adolescent with primary herpes infection
    7. Understand the mode of transmission of herpes simplex virus types 1 and 2
    8. Recognize the signs and symptoms of systemic herpes infections
    9. Counsel adolescents about preventive measures regarding herpes infections
    10. Know that latency and reactivation of both herpes simplex types 1 and 2 are common and that they may be symptomatic or asymptomatic
    11. Know the risk of perinatal transmission of primary and secondary herpes simplex virus
    12. Understand the indications for using herpes simplex virus type-specific antibody tests and how to interpret their results
    13. Understand the management principles and complications in an adolescent with nonprimary herpes infection

14. Understand the management principles and complications in an adolescent with recurrent herpes infection
- b. Human papillomavirus
  1. Know that the lesions associated with human papillomavirus (HPV) vary according to the type of HPV
  2. Recognize the clinical manifestations of HPV infection
  3. Identify the mode of transmission of HPV infections of the genitals
  4. Understand the natural history of infection with HPV of the genitals
  5. Understand the pathophysiology of HPV and mechanisms by which squamous intraepithelial lesions develop
  6. Formulate a differential diagnosis for warts or papules in the genital area for males and females
  7. Identify the indications for the use of colposcopy in sexually active adolescents
  8. Develop a treatment plan for patients with external genital and perianal warts
  9. Develop a treatment plan for patients with vaginal, cervical, perianal, or urethral meatal warts
  10. Understand the limitations of treatment for condylomata or squamous intraepithelial lesions
  11. Plan the management of a patient with a low-grade intraepithelial lesion, high-grade intraepithelial lesion, or atypical squamous cells of undetermined significance
- c. Human immunodeficiency virus (HIV)
  1. Recognize the modes of acquisition of HIV infection during adolescence: intravenous substance use, sexual behavior, vertical transmission, and exposure to blood products
  2. Understand the reliable methods for preventing sexual transmission of HIV
  3. Know the importance of advising patients about the relative risks of acquiring HIV infection through anal, vaginal, and oral insertive and receptive intercourse
  4. Understand the epidemiology of human immunodeficiency virus
  5. Plan the diagnostic evaluation of patients with a HIV infection who present with fever, respiratory, skin, gastrointestinal, or neurologic symptoms
  6. Interpret the characteristic immunologic, virologic, and laboratory findings in adolescents with human immunodeficiency virus infection
  7. Recognize the risk of transmission of the HIV to infants of mothers who are infected and ways to mitigate the risk of such transmission
  8. Recognize the indications for recommending HIV screening during adolescence
  9. Understand the natural history of untreated HIV infection
  10. Understand that an adolescent could be treated for HIV infection at the time of diagnosis or at any CD4 count
  11. Understand the importance of close monitoring of adolescents infected with HIV to determine the co-occurrence of opportunistic infections
  12. Understand the common barriers to medication adherence in the treatment of HIV infection and ways to improve adherence
  13. Understand the implications of viral resistance in the treatment of HIV infection
  14. Utilize and interpret the results of HIV testing in adolescents with acute seroconversion, indeterminate test results, or a need for routine screening

15. Know the mental health factors that commonly occur with HIV infection
4. Specific protozoans
  - a. *Trichomonas vaginalis*
    1. Plan the laboratory evaluation for male and female adolescents with suspected *Trichomonas vaginalis* infection
    2. Plan the treatment protocols for sexual partner(s) of male and female adolescents with *Trichomonas vaginalis* infections
    3. Know the limitations of wet mount and Papanicolaou smear techniques with *Trichomonas vaginalis*
5. Ectoparasites
  - a. Plan the management of a patient with *Phthirus pubis* infestation
- B. Syndromes
  1. Pelvic inflammatory disease (PID)
    - a. Understand the microbiology of PID in adolescents
    - b. Recognize the clinical manifestations of PID
    - c. Recognize the physical findings associated with PID
    - d. Plan the laboratory evaluation of a patient with suspected PID
    - e. Interpret the results of laboratory tests in a patient with PID
    - f. Understand the principles of management of PID, including indications for hospitalization
    - g. Identify the acute and chronic complications of PID
    - h. Understand the role of laparoscopy in the diagnosis and treatment of PID
    - i. Understand the role of ultrasonography in the diagnosis and management of PID
    - j. Plan the management of an adolescent with tubo-ovarian abscess
    - k. Understand the indications for the presumptive diagnosis and treatment of PID
  2. Genital ulcers
    - a. Formulate a differential diagnosis for genital ulcers
    - b. Understand the microbiology of genital ulcers
    - c. Understand the risk for HIV in patients with genital ulcers
    - d. Understand that ulcers may also occur in the pharynx and anogenital area, depending on sexual behavior
    - e. Plan the laboratory evaluation of a patient with a genital ulcer
  3. Proctitis
    - a. Understand the microbiology and pathogenesis of proctitis
    - b. Recognize the clinical signs and symptoms associated with proctitis
    - c. Develop a treatment regimen for a patient with proctitis
  4. Pharyngitis
    - a. Understand the microbiology of sexually acquired pharyngitis (oral sex)
    - b. Recognize the clinical signs and symptoms associated with sexually acquired pharyngitis
    - c. Plan a program of drug therapy for a patient with sexually acquired pharyngitis
17. **Gastrointestinal**
  - A. Acute and chronic abdominal pain (nonreproductive organ etiology)
    1. Formulate a differential diagnosis for acute abdominal pain
    2. Recognize the clinical and laboratory manifestations of acute appendicitis
    3. Plan the evaluation of an adolescent with acute abdominal pain

4. Interpret the physical findings associated with acute abdominal pain, including acute appendicitis
  5. Formulate a differential diagnosis for chronic abdominal pain
- B. Dyspepsia
1. General
    - a. Formulate a differential diagnosis for dyspepsia and epigastric pain peptic ulcer disease
  2. Peptic ulcer disease and *Helicobacter pylori* infection
    - a. Identify the clinical manifestations of peptic ulcer disease
    - b. Describe the pathophysiology, natural history, epidemiology, and risk factors for peptic ulcer disease
    - c. Understand the utility of various diagnostic tests for *H. pylori* in the assessment and management of peptic ulcer disease
    - d. Understand the principles of acute therapy and long-term management for peptic ulcer disease and *H. pylori* infection
    - e. Understand the role of *H. pylori* in peptic ulcer disease
  3. Esophagitis/gastritis
    - a. Formulate a differential diagnosis for esophagitis
    - b. Describe the pathophysiology, natural history, and risk factors for esophagitis
    - c. Plan the evaluation of an adolescent with suspected esophagitis
    - d. Recognize the major complications of esophagitis
    - e. Understand the principles of therapy for esophagitis
    - f. Formulate a differential diagnosis for gastritis
    - g. Describe the pathophysiology, natural history, and risk factors for gastritis
    - h. Plan the evaluation of an adolescent with suspected gastritis
    - i. Understand the principles of therapy for gastritis
- C. Specific disease entities
1. Diarrhea
    - a. Formulate a differential diagnosis for acute and chronic diarrhea
    - b. Describe the pathophysiology and epidemiology of the common causes of diarrhea in an adolescent
  2. Infectious diarrhea
    - a. Identify the clinical and laboratory manifestations of the common infectious diarrheas
    - b. Describe the course of the common infectious diarrheas
    - c. Describe the pathophysiology, natural history, epidemiology, and risk factors associated with the common infectious diarrheas
    - d. Plan the evaluations of adolescents with common infectious diarrheas
    - e. Understand the principles of therapy for the common infectious diarrheas
    - f. Understand the role of *Clostridium difficile* in acute diarrhea, and plan the evaluation and management of an adolescent with *C. difficile* infection
  3. Inflammatory bowel disease
    - a. Crohn disease
      1. Identify the clinical and laboratory manifestations of Crohn disease
      2. Describe the pathophysiology, natural history, epidemiology, and risk factors associated with Crohn disease

3. Plan the evaluation of an adolescent with suspected Crohn disease
  4. Understand the principles of acute therapy and long-term management of an adolescent with Crohn disease
  5. Recognize the major complications and non-gastrointestinal features of Crohn disease
  6. Differentiate between Crohn disease and ulcerative colitis
  - b. Ulcerative colitis
    1. Identify the clinical and laboratory manifestations of ulcerative colitis
    2. Describe the pathophysiology, natural history, epidemiology, and risk factors associated with ulcerative colitis
    3. Plan the evaluation of an adolescent with a suspected ulcerative colitis
    4. Understand the principles of acute therapy and long-term management of an adolescent with ulcerative colitis
    5. Recognize the major complications and non-gastrointestinal features of ulcerative colitis
  4. Carbohydrate malabsorption
    - a. General
      1. Understand the range of common conditions associated with carbohydrate malabsorption (eg, lactose deficiency; secondary/ acquired conditions caused by viruses; *Giardia*; AIDS; cow-milk allergy; and physiologic; eg, fructose, sorbitol)
      2. Understand the clinical manifestations, evaluation, and management of the more common types of carbohydrate malabsorption
    - b. Lactose intolerance
      1. Identify the clinical manifestations of lactose intolerance
      2. Describe the pathophysiology, natural history, and epidemiology of lactose intolerance
      3. Plan the evaluation of an adolescent with a suspected lactose intolerance
      4. Understand the principles of therapy and long-term management for an adolescent with lactose intolerance
  5. Gluten enteropathy
    - a. Understand the clinical manifestations and plan the evaluation of a patient with suspected gluten enteropathy
    - b. Plan the management of an adolescent with gluten enteropathy
  6. Irritable bowel syndrome
    - a. Identify the clinical manifestations of irritable bowel syndrome
    - b. Describe the pathophysiology, natural history, epidemiology, and risk factors associated with irritable bowel syndrome
    - c. Plan the evaluation of an adolescent with suspected irritable bowel syndrome
    - d. Understand the principles of therapy and long-term management for an adolescent with irritable bowel syndrome
- D. Gallbladder disease
1. Formulate a differential diagnosis for gallbladder disease
  2. Identify the clinical and laboratory manifestations of gallbladder disease
  3. Describe the pathophysiology, natural history, epidemiology, and risk factors associated with gallbladder disease

4. Plan the evaluation of an adolescent with suspected gallbladder disease
  5. Understand the principles of therapy for an adolescent with gallbladder disease
  6. Recognize the major complications of gallbladder disease
- E. Pancreatitis
1. Formulate a differential diagnosis for pancreatitis
  2. Identify the clinical and laboratory manifestations of pancreatitis
  3. Describe the pathophysiology, natural history, epidemiology, and risk factors associated with pancreatitis
  4. Plan the evaluation of an adolescent with suspected pancreatitis
  5. Understand the principles of therapy for an adolescent with pancreatitis
  6. Recognize the major complications and non-abdominal features associated with pancreatitis
- F. Liver disease
1. Autoimmune hepatitis
    - a. Describe the pathophysiology, natural history, epidemiology, and risk factors associated with autoimmune hepatitis
    - b. Identify the clinical and laboratory manifestations of autoimmune hepatitis
  2. Fatty liver disease
    - a. Describe the pathophysiology, natural history, epidemiology, and risk factors associated with non-alcoholic fatty liver disease (steatosis and steatohepatitis)
    - b. Identify the clinical and laboratory manifestations of non-alcoholic fatty liver disease
    - c. Recognize the major complications of non-alcoholic fatty liver disease
  3. Hepatitis
    - a. Formulate a differential diagnosis for hepatitis
    - b. Formulate a differential diagnosis for drug-induced hepatitis
    - c. Identify the clinical and laboratory manifestations of infectious hepatitis
    - d. Describe the pathophysiology, natural history, epidemiology, and factors associated with hepatitis A, B, C, D, or E
    - e. Recognize the chronic hepatitis B carrier state
    - f. Identify the modes of transmission of hepatitis A
    - g. Plan the evaluation of an adolescent with suspected infectious hepatitis, including laboratory tests (eg, anti-HAV IgM, anti-HCV, HBsAg, anti-HBs, HBcAg, anti-HBc)
    - h. Interpret the results of laboratory testing in a patient with hepatitis
    - i. Understand the principles of therapy for an adolescent with hepatitis and the indications for referral to a subspecialist for treatment
    - j. Recognize the major complications and diseases associated with hepatitis
    - k. Understand the long-term sequelae of hepatitis B infection
    - l. Understand the long-term sequelae of hepatitis C infection
    - m. Evaluate an adolescent with abnormal results of liver function tests
  4. Hyperbilirubinemia
    - a. Identify the clinical and laboratory manifestations of Gilbert syndrome
  5. Wilson disease
    - a. Recognize the clinical presentation (including hepatic, neurologic, and ophthalmologic findings) of Wilson disease in an adolescent

- b. Plan the management of an adolescent with Wilson disease
- G. Gastrointestinal bleeding
  1. Formulate a differential diagnosis for the causes of upper gastrointestinal bleeding
  2. Formulate a differential diagnosis for the causes of lower gastrointestinal bleeding
  3. Describe the pathophysiology, natural history, epidemiology, and risk factors associated with upper and lower gastrointestinal bleeding
  4. Plan the evaluation of an adolescent with suspected upper or lower gastrointestinal bleeding
  5. Plan the management of an adolescent with gastrointestinal bleeding
- H. Dysfunctional bowel
  1. Constipation
    - a. Formulate a differential diagnosis for constipation in an adolescent
    - b. Describe the pathophysiology, natural history, epidemiology, and risk factors associated with constipation in an adolescent
    - c. Plan the evaluation of an adolescent with constipation
    - d. Understand the principles of therapy for an adolescent with constipation
  2. Encopresis
    - a. Formulate a differential diagnosis for encopresis in an adolescent
    - b. Describe the pathophysiology, natural history, epidemiology, and risk factors associated with encopresis in an adolescent
    - c. Plan the evaluation of an adolescent with encopresis
    - d. Understand the principles of therapy for an adolescent with encopresis
- I. Abdominal trauma
  1. Formulate a differential diagnosis for post-traumatic acute abdominal pain in an adolescent
  2. Plan the evaluation of an adolescent following an abdominal injury
- J. Abdominal mass
  1. Plan the evaluation of an adolescent with an abdominal mass
  2. Formulate a differential diagnosis for an abdominal mass in an adolescent
- K. Enteric infections
  1. Understand the microbiology of enteric infections acquired through sexual behavior
  2. Understand the risk factors for enteric infections
  3. Understand that enteric infections can cause proctitis, proctocolitis, and enteritis
  4. Identify the organisms that most commonly cause enteritis (*Giardia lamblia*, *Salmonella*, *Entamoeba histolytica*)
  5. Identify the organisms that most commonly cause proctocolitis (*Campylobacter*, *Chlamydia trachomatis*, *Shigella*, *E. histolytica*, and toxigenic *Escherichia coli*)
  6. Plan the laboratory evaluation of an adolescent with an enteric infection
  7. Interpret the results of laboratory testing in an adolescent with an enteric infection
  8. Recognize the clinical syndromes associated with toxigenic *E. coli* infection
  9. Recognize the clinical presentation of enteric infection
  10. Plan the management of an adolescent with an enteric infection
  11. Know the importance of notification and treatment of sexual partner(s) of patients with enteric infections
  12. Know the public health issues and measures associated with enteric infections
  13. Understand the potential complications of enteric infections

14. Plan the evaluation and management of an adolescent with a helminthic infection

## 18. Nutrition and Eating Disorders

### A. Nutrition

#### 1. Normal

##### a. Nutritional requirements

##### 1. Calories/energy intake

- a. Identify which nutritional requirements are increased during puberty
- b. Recognize the differences in caloric intake needed for different stages of somatic development in male and female adolescents
- c. Calculate the calorie change necessary for the loss or gain of weight

##### 2. Protein

- a. Understand daily protein requirements recommended for adolescents during the time of peak height velocity
- b. Understand the impact of dietary protein supplementation on renal function in an adolescent athlete

##### 3. Minerals

- a. Identify the best food sources of calcium

##### 4. Vitamins

- a. Understand the relationship between increased energy demands in adolescence and the increased need for various vitamins (A, B12, C, D, and E; folate; thiamine; niacin; and riboflavin)
- b. Identify when vitamin supplements are indicated for healthy adolescents

##### b. Measurements

##### 1. Dietary assessment

- a. Counsel an adolescent regarding diet and weight reduction or gain

##### 2. Anthropometric measurements

- a. Understand the uses and limitations of the existing weight-for-height and body mass index charts during puberty

##### c. Clinical evaluation

1. Identify the components of the physical examination that are most helpful in evaluating nutritional status in an adolescent
2. Evaluate the nutritional adequacy of an adolescent's diet
3. Formulate a differential diagnosis for weight loss in male adolescents
4. Formulate a differential diagnosis for weight loss in female adolescents

##### d. Laboratory evaluation

1. Assess nutritional status through laboratory evaluation (eg, hemoglobin concentration, hematocrit, serum ferritin, serum protein, and serum albumin concentrations)

#### 2. Deficiency states and hypervitaminosis

- a. Recognize the signs and symptoms of inadequate caloric intake and/or dietary deficiencies
- b. Understand the physiologic alterations of organ systems (lung, cardiovascular, gastrointestinal, renal, hematologic) due to prolonged restricted caloric intake
- c. Plan the laboratory evaluation of severe caloric restriction
- d. Recognize the signs and symptoms of excessive intake of vitamin supplements

#### 3. Special populations

- a. Identify the supplemental (protein, vitamin, and mineral) needs of adolescents with semi-vegetarian, lacto-ovo vegetarian, and vegan diets
  - b. Understand the dietary needs of pregnant adolescents
  - c. Understand why adolescent athletes (and especially female adolescent athletes) are at risk for iron deficiency
  - d. Know the various dietary supplements used to enhance athletic performance and their potential side effects
- B. Feeding and eating disorders
- 1. General
    - a. Know the diagnostic criteria for feeding and eating disorders other than anorexia nervosa and bulimia nervosa
    - b. Understand the role of psychotropic medications in the treatment of feeding and eating disorders
    - c. Understand the principles of collaboration with psychiatric and mental health specialists in the diagnosis and treatment of feeding and eating disorders
  - 2. Anorexia nervosa
    - a. Understand the epidemiology of anorexia nervosa
    - b. Understand the principles of treatment for a patient with anorexia nervosa
    - c. Identify the current diagnostic criteria for anorexia nervosa
    - d. Recognize the clinical features of anorexia nervosa
    - e. Understand the laboratory abnormalities of anorexia nervosa
    - f. Identify the criteria necessitating inpatient medical admission for a patient with anorexia nervosa
    - g. Identify the most common causes for sudden death from anorexia nervosa
    - h. Understand the complications of tube feeding in an adolescent with anorexia nervosa
    - i. Recognize the medical manifestations of refeeding syndrome in an adolescent with severe malnutrition
  - 3. Bulimia nervosa
    - a. Understand the epidemiology of bulimia nervosa
    - b. Formulate a differential diagnosis for bulimia nervosa
    - c. Plan the management of an adolescent with bulimia nervosa
    - d. Identify the diagnostic criteria for bulimia nervosa
    - e. Recognize the clinical features of bulimia nervosa
    - f. Recognize the similarities and differences between bulimia nervosa and anorexia nervosa
    - g. Understand the laboratory abnormalities associated with bulimia nervosa
    - h. Understand the medical consequence of laxative abuse
    - i. Understand the medical consequence of diuretic abuse
    - j. Understand the medical consequence of ipecac abuse
    - k. Understand the medical complications of self-induced vomiting
    - l. Understand the medical complications of potassium supplementation
  - 4. Avoidant/restrictive food intake disorder
    - a. Diagnose and plan the management of avoidant/restrictive food intake disorder
    - b. Recognize the similarities and differences between avoidant/restrictive food intake disorder and anorexia nervosa

5. Binge-eating disorder
  - a. Diagnose and manage binge-eating disorder
  - b. Recognize the similarities and differences between binge-eating disorder and bulimia nervosa
6. Obesity/overweight
  - a. Understand the epidemiology of overweight in adolescents
  - b. Formulate a differential diagnosis (including psychomorbidities) for an overweight adolescent
  - c. Plan the management of an overweight adolescent
  - d. Understand the risk factors for being overweight in adolescence
  - e. Understand the medical risks associated with being overweight in adolescence
  - f. Understand the available treatments (including bariatric surgery) for overweight or being at risk for overweight and their limitations
  - g. Understand the components of pre-evaluation and screening of a possible candidate for bariatric surgery
  - h. Recognize the potential risks and benefits of bariatric surgery in morbidly obese adolescents
  - i. Understand the long-term management of an adolescent following bariatric surgery
  - j. Understand the mental health risks associated with obesity

## 19. Infectious Diseases

- A. Infectious mononucleosis and Epstein-Barr virus
  1. Understand the epidemiology of infectious mononucleosis
  2. Recognize the clinical manifestations of infectious mononucleosis
  3. Know the differential diagnosis of infectious mononucleosis
  4. Recognize the complications of infectious mononucleosis
  5. Plan the evaluation of an adolescent with infectious mononucleosis
  6. Interpret the serologic findings in infectious mononucleosis
  7. Plan the management of an adolescent who has infectious mononucleosis with or without complications
  8. Understand the limitations in the sensitivity of the Monospot test during the early phase of infectious mononucleosis (usually coincident with pharyngitis)
- B. Pertussis
  1. Recognize the clinical manifestations of pertussis in adolescents who were immunized in childhood
  2. Plan the management of an adolescent exposed to a sibling with symptomatic pertussis
- C. Tuberculosis
  1. Recognize the signs and symptoms of pulmonary tuberculosis in an adolescent
  2. Identify adolescent populations at risk for tuberculosis
  3. Recognize the need for an “index of suspicion” for acquired immunodeficiency syndrome in an adolescent with tuberculosis
  4. Plan the management of an adolescent with tuberculosis
- D. Cytomegalovirus
  1. Recognize the clinical presentation of cytomegalovirus infection in an adolescent
  2. Understand the problems associated with cytomegalovirus infection in an immunocompromised adolescent
  3. Plan the evaluation of an adolescent with suspected cytomegalovirus infection

4. Interpret the results of laboratory tests in an adolescent with cytomegalovirus infection
- E. Acute rheumatic fever
1. Know the epidemiology of rheumatic fever
  2. Know the diagnostic criteria for rheumatic fever
  3. Recognize the clinical manifestations of rheumatic fever in an adolescent
  4. Plan the management of an adolescent with acute rheumatic fever
  5. Identify rheumatic fever as the leading cause of acquired heart disease in adolescence
- F. Measles
1. Know the epidemiology of measles in adolescents
  2. Recognize the clinical manifestations and complications of measles
- G. Mumps
1. Recognize the spectrum of clinical presentation following infection with the mumps virus
  2. Understand the complications of infection with the mumps virus
- H. Rubella
1. Formulate a differential diagnosis for an acute erythematous maculopapular rash with lymphadenopathy and low-grade fever
  2. Identify the clinical manifestations of rubella
  3. Describe the pathophysiology, natural history, and epidemiology associated with rubella
  4. Understand the consequences of rubella infection in a pregnant adolescent and preventive measures to take
  5. Counsel a pregnant adolescent with rubella exposure
- I. Lyme disease
1. Recognize the clinical manifestations of Lyme disease
  2. Formulate a differential diagnosis for Lyme disease
  3. Plan the management of an adolescent with Lyme disease
- J. Toxic shock syndrome
1. Understand the pathophysiology of toxic shock syndrome
  2. Recognize the clinical presentation of toxic shock syndrome
  3. Plan management and counseling for an adolescent with toxic shock syndrome
- K. Varicella
1. Recognize herpes zoster in an adolescent
  2. Recognize the complications of varicella in adolescents
  3. Plan the management of healthy and immunocompromised adolescents with varicella
  4. Plan the management of an immunocompromised adolescent with exposure to varicella
- L. Meningitis and meningococcal infection
1. Understand the epidemiology of meningitis in adolescents
  2. Know the common organisms responsible for meningitis in adolescents
  3. Formulate a differential diagnosis for meningitis in adolescents
  4. Recognize the clinical manifestations of meningococcal disease in adolescents
  5. Know the limitations of meningococcal vaccine efficacy
- M. Infections in an immunocompromised host
1. Know the organisms most likely to cause infection in an immunocompromised adolescent

- N. Methicillin-resistant *Staphylococcus aureus* (MRSA) infection
  - 1. Understand the epidemiology and diagnosis of MRSA infections in adolescents
  - 2. Understand the treatment of MRSA infections in adolescents

## 20. Dermatology

- A. Acne
  - 1. Identify the pathophysiology of acne in adolescents
  - 2. Plan the management for acne
  - 3. Recognize the side effects and contraindications for the topical and systemic use of isotretinoin in the treatment of acne
  - 4. Understand that topical medications may worsen the appearance of acne during the first month of use
  - 5. Recognize acne fulminans
  - 6. Formulate the differential diagnosis for acne
  - 7. Counsel adolescents in the management of acne
- B. Dermatitis
  - 1. Atopic
    - a. Recognize the various cutaneous manifestations of drug-induced reactions
    - b. Recognize atopic dermatitis (eczema) and its association with other allergic conditions (eg, asthma)
  - 2. Contact
    - a. Recognize the manifestations of contact dermatitis
    - b. Know the common causes of contact dermatitis in adolescents
    - c. Recognize the characteristic skin rash of plant dermatitis
    - d. Plan the management of a patient with plant dermatitis
  - 3. Seborrheic
    - a. Recognize the skin lesions of eczema and seborrheic dermatitis
    - b. Plan a treatment regimen for eczema and seborrheic dermatitis
- C. Infections
  - 1. Fungal
    - a. Pityriasis (tinea) versicolor
      - 1. Recognize the manifestations of pityriasis (tinea) versicolor
      - 2. Diagnose pityriasis (tinea) versicolor in an adolescent
      - 3. Plan the management of an adolescent with pityriasis (tinea) versicolor
      - 4. Understand the natural history of pityriasis (tinea) versicolor
    - b. Tinea pedis
      - 1. Recognize the manifestations of tinea pedis
      - 2. Formulate a differential diagnosis for tinea pedis
      - 3. Plan the management of an adolescent with tinea pedis
    - c. Tinea cruris/tinea corporis
      - 1. Recognize the manifestations of tinea cruris/tinea corporis
      - 2. Formulate a differential diagnosis for tinea cruris/tinea corporis
      - 3. Plan the management of an adolescent with tinea cruris/tinea corporis
    - d. Candidiasis
      - 1. Recognize the manifestations of cutaneous candidiasis
      - 2. Diagnose cutaneous candidiasis in an adolescent
      - 3. Plan the management of an adolescent with cutaneous candidiasis

2. Infestations
  - a. Scabies
    1. Recognize the clinical manifestations of scabies
    2. Diagnose scabies in an adolescent
    3. Plan the treatment of scabies
  - b. Pediculosis pubis
    1. Understand the mode of transmission of pediculosis pubis
    2. Plan the management of an adolescent with pediculosis pubis
3. Viral
  - a. Pityriasis rosea
    1. Understand the natural history of pityriasis rosea
    2. Recognize the clinical manifestations of pityriasis rosea
    3. Recognize that systemic symptoms of pityriasis rosea may precede skin lesions by one to three weeks
    4. Know the differential diagnosis of pityriasis rosea
    5. Recognize the color and distribution of the typical skin lesions associated with pityriasis rosea
  - b. Molluscum contagiosum
    1. Understand the mode of transmission of molluscum contagiosum
    2. Recognize the characteristic skin lesions associated with molluscum contagiosum
    3. Plan the evaluation and management of an adolescent with molluscum contagiosum
4. Bacterial
  - a. Impetigo
    1. Know the differential diagnosis of impetigo
    2. Recognize and distinguish between the types of impetigo (staphylococcal versus streptococcal)
    3. Plan the management of an adolescent with impetigo
  - b. Gonorrhea
    1. Recognize the dermatologic manifestations of gonorrhea
- D. Neurocutaneous syndromes
  1. Recognize the cutaneous manifestations of the various neurocutaneous syndromes in adolescents
- E. Miscellaneous skin
  1. Sun exposure
    - a. Describe the skin-related effects of prolonged exposure to ultraviolet light
  2. Moles/dysplastic nevus syndrome
    - a. Recognize moles suggestive of dysplastic nevus syndrome or melanoma
    - b. Understand the importance of family history in dysplastic nevus syndrome or melanoma
  3. Drug-associated rash
    - a. Recognize a drug-induced rash
    - b. Recognize the spectrum of severity of erythema multiforme and its various skin manifestations

- c. Understand that the manifestations of erythema multiforme may appear weeks after exposure
- d. Identify the various causes of erythema multiforme major
- e. Understand the potential complications of erythema multiforme major, including corneal and pulmonary involvement
- f. Plan the management of an adolescent with Stevens-Johnson syndrome
- 4. Erythema nodosum
  - a. Recognize the characteristic skin lesions of erythema nodosum
  - b. Recognize the conditions and medications associated with erythema nodosum
- 5. Erythema migrans
  - a. Recognize the characteristic skin manifestations of erythema migrans
  - b. Plan the management of an adolescent with erythema migrans
- 6. Psoriasis
  - a. Recognize that psoriasis often appears during adolescence
  - b. Recognize the clinical manifestations of psoriasis
  - c. Identify the systemic diseases associated with psoriasis
- 7. Vitiligo
  - a. Differentiate among the various types of hypopigmented skin lesions
  - b. Understand the association between vitiligo and autoimmune disease
- 8. Urticaria
  - a. Know the differential diagnosis of urticaria
  - b. Plan the evaluation of an adolescent with urticaria
- 9. Acanthosis nigricans
  - a. Recognize that acanthosis nigricans may be an indication of systemic illness
- 10. Hidradenitis suppurativa
  - a. Recognize the signs and symptoms of hidradenitis suppurativa
- F. Hair loss
  - 1. Identify the types of alopecia
  - 2. Differentiate between alopecia areata and trichotillomania
  - 3. Understand the relationship between physiologic stress and hair loss
  - 4. Evaluate hair loss in an adolescent girl
  - 5. Plan the management of a male adolescent with androgenetic hair loss

## 21. Substance-Related and Addictive Disorders

- A. General
  - 1. Counsel parents regarding their role in the prevention of substance-related and addictive disorders
  - 2. Understand the indications for and limitations of laboratory testing in substance-related and addictive disorders
  - 3. Understand epidemiologic trends and patterns of substance-related and addictive disorders by age
  - 4. Recognize the likelihood of relapse after successful cessation of substance-related and addictive disorders
  - 5. Assess the type and degree of substance use in an adolescent
  - 6. Identify the components of an effective program for the treatment of substance-related and addictive disorders in adolescents

7. Understand the principles of stages of change and motivational interviewing in substance-related and addictive disorders treatment
  8. Recognize that illicit substances used by adolescents vary in strength, potency, cost, availability, and method of use
  9. Describe patterns of prescription drug substance abuse including opiates, stimulants, and sedatives among adolescents
  10. Describe patterns of proprietary medication abuse, including cough and cold preparations, among adolescents
- B. Tobacco
1. Identify the consequences of tobacco use
  2. Identify the pathophysiologic changes associated with the use of tobacco, including smokeless tobacco
  3. Plan a program for tobacco use cessation in adolescents
  4. Understand the role of pharmacologic therapy in tobacco use cessation
  5. Understand the side effects associated with the use of nicotine replacement therapy
  6. Recognize the psychosocial factors affecting tobacco use
  7. Recognize the association of risk-taking behavior and tobacco use in adolescents
  8. Understand the effects of tobacco use on pregnancy outcomes
  9. Counsel adolescents about the risks of tobacco substitutes
  10. Diagnose tobacco-related disorders, including use disorder, withdrawal disorder, and induced withdrawal disorder
- C. Alcohol
1. Plan treatment for acute alcohol intoxication or chronic alcohol use
  2. Recognize the risk factors associated with alcohol use in adolescents
  3. Understand the effects of alcohol use on pregnancy outcomes
  4. Recognize the comorbidity associated with alcohol use (trauma, sexual activity, school failure, substance abuse, depression, risk-taking behavior)
  5. Recognize the association between unintentional injuries and alcohol use in adolescents
  6. Understand the pharmacologic effects of alcohol
- D. Cannabis
1. Recognize the signs and symptoms of cannabis use
  2. Recognize the laboratory findings diagnostic of cannabis abuse
  3. Recognize the association between motor vehicle crashes and cannabis use in adolescents
  4. Know the diagnostic criteria for cannabis use disorder
  5. Recognize signs and symptoms of cannabis intoxication
- E. Stimulant-related disorder
1. Recognize the signs and symptoms of stimulant-related disorder
  2. Plan the treatment of stimulant-related disorder
  3. Know the different types and forms of stimulants
  4. Understand the medical complications associated with stimulant-related disorder
  5. Recognize the signs and symptoms of stimulant use disorders
- F. Sedative-hypnotic or anxiety-related disorders
1. Recognize the signs and symptoms of the use and abuse of sedatives (including gamma-hydroxybutyrate and flunitrazepam)

G. Opioid-related disorder

1. Recognize the signs and symptoms of opioid use disorder
2. Plan the treatment of amphetamine intoxication
3. Plan the treatment of barbiturate intoxication
4. Plan the treatment for sedative, hypnotic, or anxiolytic intoxication
5. Plan the treatment of opioid intoxication
6. Recognize the association of gamma-hydroxybutyrate, ketamine, and flunitrazepam with sexual assault
7. Recognize that gamma-hydroxybutyrate may be used by adolescents who wish to increase muscle mass

H. Hallucinogen-related disorders

1. Recognize the signs and symptoms of phencyclidine (PCP) use disorder
2. Plan the treatment of PCP intoxication

I. Lysergic acid (LSD)

1. Recognize the signs and symptoms of LSD use disorder
2. Plan the treatment of LSD intoxication

J. Inhalant-related disorders

1. Recognize the signs and symptoms of inhalant use disorder

K. Caffeine

1. Recognize signs of caffeine-related disorder
2. Plan the treatment of inhalant intoxication
3. Recognize the risk of sudden death from the abuse of inhalants
4. Identify the types of inhalants used for inhalant abuse
5. Understand the pharmacology of various agents that might be inhaled by adolescents

L. Anabolic steroids

1. Understand the prevalence and side effects of the use of anabolic steroids in adolescence
2. Recognize the signs of anabolic steroid abuse
3. Counsel adolescents (including athletes) regarding the use of anabolic steroids

**22. Pharmacology and Toxicology**

A. General complications

1. Understand the potential interactions of prescription, nonprescription (OTC), and illicit drugs taken by adolescents
2. Understand the effects of prescription and illicit drugs in a pregnant adolescent

B. Specific toxicities

1. Acetaminophen

- a. Recognize the signs and symptoms of acetaminophen toxicity
- b. Utilize laboratory tests to diagnose and manage acetaminophen toxicity
- c. Plan the treatment of an adolescent with acetaminophen toxicity

2. Salicylate

- a. Recognize the signs and symptoms of salicylate toxicity
- b. Understand the management of an adolescent with salicylate toxicity

3. Ferrous sulfate

- a. Recognize the signs and symptoms of ferrous sulfate toxicity
- b. Understand the management of an adolescent with ferrous sulfate toxicity

4. Tricyclic antidepressants

- a. Recognize the signs and symptoms of tricyclic toxicity
- b. Plan the management of an adolescent with tricyclic toxicity
- 5. Nonsteroidal anti-inflammatory drugs (NSAIDs)
  - a. Recognize the signs and symptoms of NSAID toxicity
  - b. Understand the management an adolescent with NSAID toxicity
- 6. Tetracycline and its derivatives
  - a. Identify the common drugs that interact with tetracycline or its derivatives
  - b. Recognize the signs and symptoms of conditions associated with the use of tetracycline or its derivatives (pancreatitis, idiopathic intracranial hypertension, headache, visual disturbances)
- 7. Corticosteroids
  - a. Understand the monitoring and complications associated with chronic use of corticosteroids
  - b. Utilize laboratory tests to diagnose and manage corticosteroid toxicity
- 8. Isoniazid
  - a. Recognize the signs and symptoms of isoniazid toxicity
  - b. Understand the management of an adolescent with isoniazid toxicity
- 9. Cholinergic/anticholinergic
  - a. Recognize the signs and symptoms of muscarinic toxicity and other cholinergic toxicities
  - b. Plan the acute treatment of anticholinergic toxicity
- 10. Psychopharmacologic drugs
  - a. Anxiolytic drugs
    - 1. Understand the pharmacodynamics of anxiolytic drugs
    - 2. Recognize the potential for substance-related and addictive disorder with anxiolytic drugs
    - 3. Identify the side effects of and contraindications for the use of the various anxiolytic drugs
    - 4. Recognize the signs and symptoms of anxiolytic drug toxicity
    - 5. Plan the management of an adolescent with anxiolytic drug toxicity
  - b. Antipsychotic drugs
    - 1. Understand the pharmacodynamics of antipsychotic drugs
    - 2. Identify the side effects of and contraindications for the use of the various antipsychotic drugs
    - 3. Recognize the signs and symptoms of antipsychotic drug toxicity
    - 4. Plan the management of an adolescent with antipsychotic drug toxicity
  - c. Stimulant drugs
    - 1. Understand the pharmacodynamics of stimulant drugs
    - 2. Recognize the potential for substance-related and addictive disorder with the use of stimulant drugs
    - 3. Identify the side effects of and contraindications for the use of the various stimulant drugs
    - 4. Recognize the signs and symptoms of stimulant drug toxicity
    - 5. Plan the management of an adolescent with stimulant drug toxicity
  - d. Antidepressant drugs

1. Understand the pharmacokinetics and pharmacodynamics of the drugs used to treat mood disorders
2. Identify the side effects of and contraindications for the use of the various antidepressant drugs
3. Recognize and plan the management of an adolescent with antidepressant drug toxicity
4. Recognize the signs and symptoms of withdrawal from antidepressants

### 23. Prevention/Screening

#### A. Anticipatory guidance

1. Provide anticipatory guidance to an adolescent and his/her parent(s), considering an adolescent's chronologic age, pubertal development, and psychologic development (psychosocial and cognitive)

#### B. Immunization

##### 1. General

- a. Know the recommended immunization schedules for healthy adolescents
- b. Recognize the indications for using the pneumococcal vaccine in an adolescent
- c. Know which vaccines are contraindicated for a pregnant adolescent
- d. Understand the principles of immunizations with live vaccines, including side effects and adverse reactions, precautions, and contraindications
- e. Plan a dosage schedule, including the total number of doses required, for an adolescent to achieve immunity to hepatitis A and B
- f. Recommend appropriate measures for an adolescent who has been exposed to someone with viral hepatitis
- g. Describe the appropriate use of acellular pertussis vaccine in adolescents
- h. Recognize the indications for pertussis vaccine in adolescents
- i. Understand the risks associated with immunizations and their biologic components in adolescents
- j. Know which vaccines are contraindicated for an immunocompromised adolescent
- k. Recognize the indications for human papillomavirus vaccine in adolescents

##### 2. Immigrants/travel

- a. Understand the immunization schedule for an adolescent immigrant

#### C. Screening examinations

##### 1. Clinical

- a. Understand how to screen an adolescent for posture and gait abnormalities
- b. Know the indications for testing an adolescent's vision
- c. Know the indications for testing an adolescent's hearing
- d. Know the proper technique for obtaining an adolescent's blood pressure
- e. Understand the recommendations for testicular self-examination
- f. Explain the importance and limitations of breast examinations to an adolescent and her parent(s)
- g. Interpret the results of audiometric screening tests in an adolescent

##### 2. Laboratory

###### a. Tuberculosis

1. Understand the indications for a screening evaluation for tuberculosis in an adolescent
2. Interpret the results of a screening evaluation for tuberculosis in an adolescent

- b. Papanicolaou test (see also XVI.A.3.b)
  - 1. Plan the diagnostic evaluation of a patient with abnormal results of Papanicolaou test cytology
  - 2. Recognize the indications for performing a Papanicolaou test and the limitations of screening
  - 3. Recognize the importance of adequate sampling for Papanicolaou tests and describe the appropriate technique for obtaining the test
  - 4. Understand the significance of atypical cells of undetermined significance on Papanicolaou tests and interpret the results of a Papanicolaou test (eg, reparative/reactive changes, *Trichomonas vaginalis* infection, atypical squamous cells of undetermined significance, low- or high-grade squamous intraepithelial lesions), their significance, and the indications for colposcopic evaluation
  - 5. Understand the association between human papillomavirus and abnormal cytology
- c. Anemia
  - 1. Understand the indications for anemia screening in adolescents
  - 2. Recognize the indications for hemoglobin electrophoresis in an adolescent

#### D. Safety

- 1. Injury prevention
  - a. Know the common causes of mortality/morbidity among adolescents
  - b. Counsel an adolescent regarding safety in the operation of vehicles, including cars, motorcycles, boats, and bicycles
  - c. Counsel an adolescent regarding drowning prevention, including the role of swimming lessons and adequate supervision
  - d. Counsel an adolescent about fire safety, including smoke detectors, planning escape routes, and smoking in bed
  - e. Counsel adolescents and parents about firearm safety
  - f. Counsel an adolescent and parent(s) regarding safety for learning and new drivers, including behaviors and circumstances that increase risks of an accident and strategies for risk reduction
- 2. Sports related
  - a. Understand the implications of past injuries for the risk of future injury in sports participation
  - b. Understand the importance of protective equipment in preventing sports injuries, including those associated with motorcycles and bicycles
  - c. Counsel an athlete in contact sports regarding oral protection
  - d. Understand the implications of mild to moderate hypertension for sports participation
  - e. Identify patient conditions that would limit participation in collision sports
  - f. Understand the possible effect of a sports injury on psychosocial functioning and mental health
  - g. Counsel an adolescent athlete regarding weight gain or loss
  - h. Understand the implication of concussion for continued participation in contact sports

#### E. Behavioral disorders

1. Substance use disorder
  - a. General
    1. Understand the importance of educational intervention in the prevention of substance use in adolescents
    2. Understand the difference between substance use screening and drug testing
  - b. Tobacco
    1. Counsel an adolescent about smoking prevention
    2. Counsel an adolescent about the use of smokeless tobacco
  - c. Alcohol
    1. Counsel an adolescent about alcohol, substance-related, and addictive disorders
2. Violence
  - a. Identify the risk factors for violence among adolescents
  - b. Counsel an adolescent regarding the risks of intimate partner violence
  - c. Plan a program to help adolescents adjust after community violence or a traumatic event
  - d. Identify cultural and community factors and describe effective prevention approaches associated with bullying behavior
  - e. Know that bullying increases risk for mental health disorders and suicide
3. Tattoos and piercings
  - a. Recognize the inherent risks associated with tattoos
  - b. Counsel an adolescent and/or parent regarding tattooing and body piercing

#### **24. Health Services, Ethics, and Legal Issues**

##### **A. Health services**

1. Understand the counseling role of physicians regarding infectious disease epidemics in schools, colleges, and other residential settings
2. Describe the factors that are linked to adolescents' use of or forgoing health care (eg, having a usual source of care, race/ethnicity, perceptions of health care settings, gender, insurance status, presence of a disability)
3. Describe the potential impact of mandatory parental notification and/or consent on adolescents' health-seeking behaviors
4. Describe the barriers clinicians most often cite to providing health care to adolescents

##### **B. Ethics**

1. General issues
  - a. Understand the legal and ethical aspects of drug screening examinations, including consent and confidentiality issues
  - b. Understand the ethical and legal obligations involved in the care of adolescents
2. Confidentiality
  - a. Understand the difficulty of maintaining patient confidentiality during the provision of management services for an adolescent with a sexually transmitted infection
  - b. Understand the confidentiality issues involved in providing contraception to adolescents
3. Cultural sensitivity
  - a. Understand the range of diversity within cultural groups and the potential for tension between generations within a cultural group
  - b. Know the difference between disease and illness, cure and healing

- c. Understand how cultural practices, beliefs, and norms can enhance or compromise health
  - d. Understand how cultural practices, beliefs, and norms can promote or interfere with healing
  - e. Understand the concept of culturally sensitive medical care
  - f. Identify the components of culturally competent medical care
- C. Legal issues
- 1. Reporting requirements
    - a. Know the sexually transmitted infections and infectious disease organisms that require reporting to the local public health department
    - b. Describe and understand the legal aspects and reporting requirements for physical, sexual, and other forms of abuse
  - 2. Guardianship
    - a. Know when to request a court-appointed guardian for an adolescent patient
  - 3. Consent
    - a. Know that parental consent is not required in all states to diagnose and/or treat an adolescent with a suspected sexually transmitted infection
    - b. Recognize which persons are legally able to authorize or consent to medical treatment in various circumstances

## 25. Core Knowledge in Scholarly Activities

- A. Principles of use of biostatistics in research
- 1. Types of variables
    - a. Distinguish types of variables (eg, continuous, categorical, ordinal, nominal)
    - b. Understand how the type of variable (eg, continuous, categorical, nominal) affects the choice of statistical test
  - 2. Distribution of data
    - a. Understand how distribution of data affects the choice of statistical test
    - b. Differentiate normal from skewed distribution of data
    - c. Understand the appropriate use of the mean, median, and mode
    - d. Understand the appropriate use of standard deviation
    - e. Understand the appropriate use of standard error of the mean
  - 3. Hypothesis testing
    - a. Distinguish the null hypothesis from an alternative hypothesis
    - b. Interpret the results of hypothesis testing
  - 4. Statistical tests
    - a. Understand when to use and how to interpret the chi square test
    - b. Understand when to use and how to interpret tests comparing continuous variables between two groups (eg, t test, Mann Whitney U)
    - c. Understand when to use and how to interpret tests comparing continuous variables between three or more groups (eg, ANOVA, Kruskal-Wallis)
    - d. Understand when to use paired tests
    - e. Understand the appropriate use of parametric versus nonparametric tests
    - f. Interpret a p value
    - g. Interpret a p value when multiple comparisons have been made
    - h. Interpret a confidence interval
    - i. Identify a type I error

- j. Identify a type II error
- 5. Measurement of association and effect
  - a. Understand how to interpret relative risk and absolute risk
  - b. Understand how to interpret odds ratio
  - c. Understand how to interpret number needed to treat or harm
  - d. Understand how to interpret hazard ratio
  - e. Understand when to use and how to interpret correlation coefficient
- 6. Regression
  - a. Understand when to use and how to interpret regression analysis (eg, linear, logistic)
  - b. Understand when to use and how to interpret survival analysis (eg, Kaplan Meier)
- 7. Diagnostic tests
  - a. Recognize the importance of an independent “gold standard” in evaluating a diagnostic test
  - b. Interpret sensitivity and specificity
  - c. Interpret positive and negative predictive values
  - d. Understand how disease prevalence affects the positive and negative predictive value of a test
  - e. Interpret a receiver operating characteristic curve
- 8. Systematic reviews and meta-analysis
  - a. Understand the purpose of a systematic review
  - b. Understand the advantages of adding a meta-analysis to a systematic review
  - c. Interpret the results of a meta-analysis
- B. Principles of epidemiology and clinical research design
  - 1. Assessment of study design, performance and analysis (internal validity)
    - a. Recognize and understand the strengths and limitations of a cohort study, case control study, and randomized controlled clinical trial
    - b. Recognize the use and limitations of surrogate endpoints
    - c. Understand the use of intent-to-treat analysis
    - d. Understand how sample size affects the power of a study
  - 2. Assessment of generalizability (external validity)
    - a. Understand how nonrepresentative samples can bias results
    - b. Assess how the data source (eg, diaries, billing data, discharge diagnostic code) may affect study results
  - 3. Bias and confounding
    - a. Identify common strategies in study design to avoid or reduce bias
    - b. Identify common strategies in study design to avoid or reduce confounding
  - 4. Causation
    - a. Understand the difference between association and causation
  - 5. Incidence and prevalence
    - a. Distinguish disease incidence from disease prevalence
  - 6. Screening
    - a. Understand factors that affect the rationale for screening for a condition or disease (eg, prevalence, test accuracy, risk benefit, disease burden, presence of a presymptomatic state)
  - 7. Cost benefit, cost effectiveness, and outcomes

- a. Interpret cost-effectiveness ratios
  - b. Distinguish costs from charges
  - c. Understand quality-adjusted life years
8. Measurement
- a. Understand the types of validity that relate to measurement (eg, face, construct, criterion, predictive, content)
  - b. Distinguish accuracy from precision
  - c. Understand when to use and how to interpret a kappa coefficient
- C. Ethics in research
- 1. Professionalism and misconduct in research
    - a. Identify and manage potential conflicts of interest in the funding, design, and/or execution of a research study
    - b. Identify various forms of research misconduct (eg, plagiarism, fabrication, falsification)
    - c. Know how, and to whom, to report concerns of research misconduct
  - 2. Principles of research with human subjects
    - a. Understand and contrast the functions of an Institutional Review Board and a Data Safety Monitoring Board
    - b. Recognize the types of protections in designing research that might be afforded to children and other vulnerable populations
    - c. Understand the federal regulatory definitions regarding which activities are considered research and what constitutes human subjects research
    - d. Understand the federal regulatory definition of minimal risk and apply this to research involving children
    - e. Understand the ethical considerations of study design (eg, placebo, harm of intervention, deception, flawed design)
  - 3. Principles of consent and assent
    - a. Understand what constitutes informed consent in research
    - b. Distinguish between consent and assent in research involving children
- D. Quality improvement
- 1. Design of a project
    - a. Understand various models of quality improvement and recognize that all utilize a data-informed, iterative process using tests of change to achieve a stated aim
    - b. Understand that the aim of any quality improvement project should be specific, measurable, achievable, realistic, and time-limited
    - c. Understand strategies to optimize identification of key drivers and interventions to achieve a specific aim
    - d. Understand tools to facilitate completion of quality improvement work, including key driver diagrams and process maps
    - e. Understand each phase of a Plan-Do-Study-Act (PDSA) cycle
  - 2. Data and measurement
    - a. Differentiate between process, outcome, and balancing measures
    - b. Interpret a run chart and identify shifts, trends, and outliers in data
    - c. Differentiate between a run chart and a control chart
    - d. Differentiate between common cause and special cause variation