

Infectious Diseases

Description:

The Pediatric Infectious Disease division sees a wide spectrum of pediatric disease including but not limited to congenital/perinatal infections, acquired and primary immunodeficiencies, febrile syndromes, skin and soft tissue infections and hospital-acquired infections. The pediatric resident is expected to be involved in the work-up and on-going management of all patients presenting to the infectious disease service.

Note:

The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete Pediatric Infectious Disease experience at the end of residency.

Primary Goals for this Rotation

GOAL: Prevention, Counseling and Screening. Understand the role of the pediatrician in preventing infectious disease conditions, and in counseling and screening individuals at risk for these diseases.

Provide routine preventive counseling about infectious disease to all patients and families, addressing:

1. Importance of routine immunization practices
2. Signs and symptoms of infectious disease

Provide preventive counseling to parents and patients with specific infectious diseases addressing:

1. Expected course of common childhood infections, such as viral respiratory tract and gastrointestinal infections
2. Risk of occult bacteremia
3. Support groups and information available for children with primary and acquired immunodeficiencies

Provide regular infectious disease screening for patients:

1. Importance of good prenatal care and its impact to prevent congenital/perinatal infections, such as gonorrhea, HIV, hepatitis B and syphilis
2. Screen for acquired and primary immunodeficiencies in the newborn period.
3. Screen for sexually-transmitted infections in cases of potential child abuse
4. Screen for sexually-transmitted disease in adolescents

GOAL: Normal Vs. Abnormal. Distinguish normal from pathologic states of the immune systems.

Describe the changes that occur over time in the hematologic indices of the normal infant and child (e.g., changes in leucocyte counts and differential counts).

Describe the changes that occur over time in the immunologic indices of the normal infant and child (e.g., changes in gammaglobulin levels).

Explain the findings on clinical history and examination that suggest an immunologic disease that requires further evaluation and treatment.

Interpret clinical and laboratory tests to identify immunologic/infectious disease (CBC, including indices and blood smear review, lymphocyte count, lymphocyte function, gammaglobulin levels).

GOAL: Undifferentiated Signs and Symptoms. Evaluate, treat, and/or refer patients with presenting signs and symptoms that may indicate an infectious disease process.

Develop a strategy to determine if the following presenting signs and symptoms are caused by an infectious disease process and determine if the patient needs treatment or referral:

1. Fatigue/malaise
2. Fever
3. Headache
4. Lymphadenopathy
5. Hepatomegaly and/or splenomegaly
6. Weight loss
7. Abdominal pain
8. Vomiting, diarrhea
9. Chronic cough
10. Rash

GOAL: Common Conditions Not Referred. Diagnose and manage patients with infectious diseases that generally do not need referral.

5.48.1 : Diagnose, explain, and manage the following infectious diseases:

1. Occult bacteremia
2. Upper and lower respiratory viral infections
3. Uncomplicated urinary tract infections
4. Bacterial pharyngitis
5. Bacterial pneumonia
6. Viral and bacterial conjunctivitis
7. Uncomplicated skin and soft tissue infections
8. Otitis media
9. Tinea corporis, capitis and oral thrush
10. Transient hypogammaglobulinemia of infancy

GOAL: Conditions Generally Referred. Diagnose and initiate management of patients with infectious diseases that generally need referrals.

Identify, explain, initially manage, and seek consultation or refer the following infectious disease conditions:

1. Suspected or confirmed acquired immunodeficiency
2. Complicated soft tissue infections
3. Osteomyelitis
4. Meningitis, encephalitis, brain abscess

5. Complicated or recurrent urinary tract infections
6. Chronic or periodic febrile syndromes
7. Tuberculosis
8. Endemic mycoses
9. Bacteremia
10. Neonatal HSV infection
11. Endophthalmitis, orbital cellulitis
12. Infections in immunocompromised hosts
13. Endocarditis
14. Intestinal parasites
15. Pneumonia with pleural effusion and empyema
16. Chronic lymphadenopathy
17. Renal abscess

In cases of serious or life-threatening disease, counsel the patient's families with sensitivity to their desire and need to know about:

1. Prognosis and possible impact of the disease
2. Likely steps in immediate and future treatment
3. Decisions about treatment options which they may face
4. Support services that they may seek in the hospital and community

Identify the role and general scope of practice of infectious disease; recognize situations where children benefit from the skills of specialists trained in the care of children; and work effectively with these professionals in the care of children with infectious diseases.

GOAL: Common childhood infections. Discuss the presentation, pathophysiology, and prognosis of important infections in children and adolescents.

Summarize the common ages, presenting signs and symptoms, diagnostic procedures, principles of current therapy, prognosis, and long-term complications (due to disease or treatment) for the following conditions:

1. Congenital/perinatal infections
2. Bacterial and viral meningitis
3. Kawasaki disease
4. Osteomyelitis
5. Septic arthritis
6. Neonatal HSV infection
7. Orbital cellulitis
8. Occult bacteremia
9. Upper and lower respiratory viral infections
10. Uncomplicated urinary tract infections
11. Bacterial pharyngitis
12. Bacterial and viral pneumonia
13. Viral and bacterial conjunctivitis
14. Uncomplicated skin and soft tissue infections
15. Otitis media
16. Tinea corporis, capitis and oral thrush
17. Viral and bacterial gastroenteritis

Compare and contrast the common side effects of frequently used antimicrobials,

including: penicillin, amoxicillin, amoxicillin-clavulanic acid, ceftriaxone, vancomycin, gentamicin, clindamycin, rifampin, trimetoprim-sulfamethoxazole, fluconazole, acyclovir, etc.

GOAL: Microbiology laboratory tools. Identify diagnostic options available that aid in delineating diagnostics in infectious disease.

Identify common laboratory procedures that are routinely used to formulate a microbiologically-confirmed diagnosis in pediatric patients, such as:

1. Gram stain
2. Bacterial and viral cultures: stool, blood, respiratory
3. Polymerase chain reaction (PCR)
4. Parasitology: ova and parasite stool exam
5. Serology

GOAL: Proper use of antibiotics and prevention of hospital-acquired infections. Understand the rationale behind antibiotic stewardship programs to prevent development of antibiotic resistance. Identify organisms associated with nosocomial spread.

1. Antibiotic stewardship and rationale use of antibiotics in the inpatient and outpatient setting
2. Identify isolation precautions available to prevent infection spread (contact, droplet, airborne) in the inpatient and outpatient setting
3. Methicillin-resistant *S. aureus* (MRSA) infections
4. Vancomycin-resistant (VRE) infections
5. Extended-spectrum beta-lactamase (ESBL) organisms
6. *C. difficile*

GOAL: Pediatric Competencies in Brief. Demonstrate high standards of professional competence while working with patients under the care of a subspecialist.

Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.

1. Use a logical and appropriate clinical approach to the care of patients presenting for hematology or oncology care, applying principles of evidence-based decision-making and problem-solving.

2. Describe general indications for infectious disease procedures and interpret results for families.

Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.

1. Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of infectious disease.

2. Critically evaluate current medical information and scientific evidence related to infectious disease and modify your knowledge base accordingly.

Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.

1. Provide effective patient education, including reassurance, for a condition(s) common to infectious disease.

2. Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.

3. Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for infectious disease patients in the outpatient and inpatient setting.

Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.

1. Identify standardized guidelines for diagnosis and treatment of conditions common to infectious disease and adapt them to the individual needs of specific patients.

2. Identify personal learning needs related to infectious disease; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.

Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.

1. Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).

2. Demonstrate a commitment to carrying out professional responsibilities.

3. Adhere to ethical and legal principles, and be sensitive to diversity.

Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.

1. Identify key aspects of health care systems as they apply to infectious disease, including the referral process, and differentiate between consultation and referral.

2. Demonstrate sensitivity to the costs of clinical care in infectious disease, and take steps to minimize costs without compromising quality

3. Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service.

4. Recognize one's limits and those of the system; take steps to avoid medical errors.

Rotation Specific Competencies

Patient Care:

1. Understands and weighs alternatives for diagnosis and treatment
2. Elicits subtle findings on physical examination
3. Obtains a precise, logical, and efficient history
4. Is able to manage multiple problems at once
5. Develops and carries out management plans
6. Competently understands/performs/interprets procedures:
 - _____ Peripheral Blood cultures: Indication, Risks, Benefits
 - _____ Lumbar puncture: : Indication, Risks, Benefits
 - _____ Peripherally-inserted central line catheters: Indication, Risks, Benefits
 - _____ Urine culture: Indication, Risks, Benefits

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used antimicrobials and procedures
2. Applies the basic science, clinical, epidemiologic, and social-behavioral knowledge to the care of the patient

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Undertakes self-evaluation with insight and initiative
2. Facilitates the learning of students and other health care professionals

Professionalism:

1. Is honest, reliable, cooperative, and accepts responsibility
2. Shows regard for opinions and skills of colleagues
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Applies knowledge of how to partner with health care providers to assess, coordinate and improve patient care
2. Advocates for high quality patient care and assists patients in dealing with system complexity

References:

1. American Board of Pediatrics, Content Specification, 2007
2. Ambulatory Pediatric Association
3. Association of Pediatric Program Directors
4. Pediatric RRC, January 2006

ADDENDUM:

Cultural competency

Cultural competence is widely recognized as a fundamental aspect of quality in health care — particularly for diverse patient populations—and as an essential strategy for reducing disparities by improving access, utilization, and quality of care.

Cultural competence refers to an ability to interact effectively with people of different cultures. Cultural competence comprises four components: (a) Awareness of one's own cultural worldview, (b) Attitude towards cultural differences, (c) Knowledge of different cultural practices and worldviews, and (d) cross-cultural skills. Developing cultural competence results in an ability to understand, communicate with, and effectively interact with people across cultures.

References:

- <http://nccc.georgetown.edu/resources/publicationstype.html>
<http://minorityhealth.hhs.gov/templates/browse.aspx?lvl=2&lvlID=11>

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