

COMMON CLINICAL DIAGNOSES AND CONDITIONS**NEONATAL FEVER****INTRODUCTION**

Fever in a neonate (≤ 28 days of age) is defined as a rectal temperature above 38°C , and may occur in 20% of neonates admitted to the hospital. Approximately 10% of neonates with fever have a serious bacterial infection. However, some neonates with serious bacterial infection present with hypothermia, usually defined as a rectal temperature below 36.5°C . Infection in neonates often occurs as a result of both a naïve immune system and exposure to pathogenic bacteria during delivery, although pathogens acquired in the postnatal period are also possible. Serious bacterial infections in neonates are most predominant in the renal, pulmonary, central nervous, and blood systems. The prevalence of each varies by age and gender. Neonates may also develop serious illness when be exposed to viral infections, especially herpes simplex virus (HSV). In febrile neonates without a clear source of illness, distinguishing between those with self-limiting versus life-threatening infection is challenging. Well-appearing infants over 28 days of age may be managed without hospitalization in selected circumstances. However, more conservative inpatient evaluation, monitoring, and management of neonates younger than 28 days of age with abnormal temperature is currently standard. Pediatric hospitalists should render evidence-based care for these neonates.

KNOWLEDGE

Pediatric hospitalists should be able to:

- Define hypothermia and hyperthermia in neonates and describe how to correctly obtain a temperature using a variety of modalities.
- Discuss the basic mechanisms of temperature regulation in neonates.
- Compare and contrast basic immune maturity differences in neonates versus older infants.
- Delineate the elements of the history (such as birth history, perinatal exposures, maternal infections and others) and physical examination (such as skin lesions, neurobehavioral exam and others) that aid in determining a diagnosis.
- Describe the differential diagnosis of neonatal sepsis and discuss how other potentially serious illnesses, such as inborn error of metabolism, may mimic its presentation.
- List the organisms which are responsible for serious bacterial infection in neonates, including the types of infections they cause and the relative prevalence of each.
- Review the approach toward evaluation in the preterm infant, attending to extent of prematurity and neonatal intensive care course.
- Compare and contrast the signs and symptoms more suggestive of bacterial versus viral illnesses.
- Distinguish between the current standard laboratory evaluation for neonates with that for older infants, using current literature for reference.
- Describe the role of viral testing, including interpretation of frequencies of disease, co-infections with bacterial disease, local turnaround time, and predictive value of testing.
- Summarize the approach to empiric antimicrobial therapy and give examples of situations warranting expanded antimicrobial coverage.

SKILLS

Pediatric hospitalists should be able to:

- Obtain a complete history, including pregnancy and birth history, with particular attention paid to prenatal laboratory screening and the use of antibiotic prophylaxis prior to delivery.
- Perform a comprehensive physical examination, with attention paid to signs and symptoms that may indicate a source of infection or signify severe illness.
- Accurately perform, supervise, or direct basic procedures to obtain specimens, including venipuncture, bladder catheterization, lumbar puncture, and placement of intravenous access.
- Interpret the results of laboratory evaluations efficiently and adjust the differential diagnosis and plan of care accordingly.
- Select appropriate empiric antimicrobial coverage in an evidence-based manner.
- Perform careful reassessments daily and as needed, note changes in clinical status and respond with appropriate actions.
- Efficiently render care by creating a discharge plan which can be expediently activated when appropriate.

ATTITUDES

Pediatric hospitalists should be able to:

- Elicit and allay the concerns of the family/caregiver, educating them regarding the importance of a thorough evaluation for the source of infection and the need for empiric antimicrobial therapy.
- Communicate effectively with the family/caregiver and healthcare providers regarding findings and care plans.
- Educate the family/caregiver about the final diagnosis, clearly explaining the value of negative test results if applicable.
- Recognize the significance of performing invasive procedures on a neonate from the family/caregiver perspective, maintaining empathy when discussing the risks and benefits of necessary procedures.
- Assure an effective and safe discharge by communicating and coordinating effectively with the primary care provider.

SYSTEMS ORGANIZATION AND IMPROVEMENT

In order to improve efficiency and quality within their organizations, pediatric hospitalists should:

- Lead, coordinate or participate in the development and implementation of cost-effective, safe, evidence-based care pathways to standardize the evaluation and management of hospitalized neonates with fever.
- Lead, coordinate or participate in efforts to develop institutional guidelines for the judicious use of antimicrobials in neonates with fever.

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