Numerous emerging respiratory tract viruses have been identified as significant causes of acute upper and lower respiratory tract illness in children. Human metapneumovirus is a paramyxovirus discovered in 2001 in the Netherlands, with a seasonal occurrence and spectrum of clinical illness most similar to the closely related respiratory syncytial virus. Several new members of the coronavirus family have been identified, including the truly novel agent of severe acute respiratory syndrome and others that probably have been circulating undetected. Avian influenza strains have caused numerous outbreaks with high mortality, including children, and are potential causes of pandemic influenza. Several zoonotic paramyxoviruses, including Nipah and Hendra viruses, have emerged as occasional causes of severe outbreaks of respiratory tract illness in children and adults.
the performance of selective diagnostic cultures, toxin testing, parasite studies, and the administration of antimicrobial therapy.

**Neonatal Candidiasis**

P. Brian Smith, William J. Steinbach, and Daniel K. Benjamin, Jr

In neonates born weighing less than 750 g, invasive candidiasis is common and often fatal. This situation provides an opportunity to study antifungal prophylaxis and treatment in this patient population, in which the pharmacokinetics, safety, and efficacy of antifungal products are unknown. The disease is less prevalent in larger, more mature, infants. Although some pharmacokinetic data for some products are available for term and near-term infants, optimal product choice, dosing, and other treatment strategies also are unknown in this older age group.

**Fluoroquinolone Antibiotics in Infants and Children**

Urs B. Schaad

The use of fluoroquinolones in children is limited because of the potential of these agents to induce arthropathy in juvenile animals and to potentiate development of bacterial resistance. No quinolone-induced cartilage toxicity as described in animal experiments has been documented unequivocally in patients, but the risk for rapid emergence of bacterial resistance associated with widespread, uncontrolled fluoroquinolone use in children is a realistic threat. Overall, the fluoroquinolones have been safe and effective in the treatment of selected bacterial infections in pediatric patients. There are clearly defined indications for these compounds in children who are ill.

**The Epidemiology of Childhood Pneumococcal Disease in the United States in the Era of Conjugate Vaccine Use**

Philip Toltzis and Michael R. Jacobs

In 2000, a heptavalent pneumococcal conjugate vaccine was licensed and included in the schedule of routine childhood immunizations in the United States. The vaccine contains the serotypes most commonly associated with invasive and noninvasive pneumococcal infection in children and the serotypes most commonly expressing antibiotic resistance. Since the introduction of the vaccine, the incidence of invasive pneumococcal disease has declined dramatically in the United States, particularly among children younger than 2 years of age. The incidences of pneumonia and acute otitis media also have declined, but less substantially. Several factors may blunt the future effectiveness of the vaccine, however, particularly the emergence of nonvaccine pneumococcal serotypes and the propensity for pathogenic pneumococci to switch their capsular types, evading vaccine-conferred immunity.
Infection Control, Hospital Epidemiology, and Patient Safety 647
Susan E. Coffin and Theoklis E. Zaoutis

Health care–acquired infections are a major risk for hospitalized children. Similar to adult patients, children are vulnerable to infections related to medical devices. Children also are at significant risk of nosocomial transmission of common pediatric viral illnesses, such as respiratory syncytial virus and varicella. In addition, pediatric patients have unique or incompletely developed immune systems.

The Link Between Bronchiolitis and Asthma 667
Tuomas Jartti, Mika J. Mäkelä, Timo Vanto, and Olli Ruuskanen

Bronchiolitis and asthma are common wheezing illnesses of childhood. Respiratory syncytial virus is the main causative agent of bronchiolitis. Rhinovirus is the most common trigger of exacerbations of asthma, but also has been detected increasingly in young children with bronchiolitis. Reportedly, childhood asthma develops in 40% of children with a history of bronchiolitis. No convincing link has been reported between bronchiolitis and development of atopy, although atopy generally is regarded as the main risk factor for chronic asthma. This article focuses on the association between bronchiolitis and the development of asthma. The authors address the question how respiratory syncytial virus and rhinovirus infections in young children, together with genetics and immunologic immaturity, may contribute to the development of asthma.

The Expanded Spectrum of Bartonellosis in Children 691
Francesco Massei, Laura Gori, Pierantonio Macchia, and Giuseppe Maggiore

*Bartonella* spp cause various clinical syndromes in immunocompetent and immunocompromised hosts. Domestic cats are the natural reservoir and vectors of *B. henselae*. *B. henselae* infection usually occurs early in childhood, is generally asymptomatic, and in most cases resolves spontaneously. It may, however, produce a wide spectrum of clinical symptoms, the most frequent feature being cat-scratch disease. Disseminated atypical *B. henselae* infection may follow cat-scratch disease after a symptom-free period or may present de novo mimicking a wide range of clinical disorders. A careful clinical history researching an intimate contact with a kitten associated with a specific serology and an abdominal ultrasound for typical hepatosplenic involvement may allow a rapid and accurate diagnosis.
Antiretroviral Therapy in HIV-Infected Children:
The Metabolic Cost of Improved Survival 713
Ethan G. Leonard and Grace A. McComsey

Although highly active antiretroviral therapy (HAART) has positively altered the mortality rates in HIV-infected children, these drugs have the potential to cause significant morbidity. These drugs cause changes in fat distribution, lipid profiles, glucose homeostasis, and bone turnover. The direct relationship between duration of drug exposure and increased risk of cardiovascular disease is particularly concerning for HIV-infected infants and children, who likely will have longer cumulative exposure to HAART. It is unclear whether the metabolic effects of decades of exposure would be reversible with cessation of therapy. The benefits of HAART in HIV infection are indisputable, but the impetus to find a cure or design more tolerable therapy is clear. Infarction may replace infection as the major cause of morbidity and mortality from HIV.

The Treatment of Children Exposed to Pathogens Linked to Bioterrorism 731
David Markenson

Health care providers must understand the following regarding pathogens linked to bioterrorism: (1) the classification and qualities of possible biologic agents; (2) the natural history and management of biologic, chemical, and radiologic injuries and exposures; (3) chemical agents that may be used and their properties; (4) different types of radiologic terrorism; (5) decontamination procedures; and (6) availability of antidotes and other therapeutics.

Implications of Methicillin-Resistant Staphylococcus aureus as a Community-Acquired Pathogen in Pediatric Patients 747
Sheldon L. Kaplan

Methicillin-resistant Staphylococcus aureus is now an established community pathogen in many areas of the United States and the world. Community-acquired methicillin-resistant S aureus infections have changed several aspects of staphylococcal infections in children. This article discusses epidemiology, clinical manifestations, laboratory diagnosis, treatment, and prevention.

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