sent for culture and sensitivity testing. Depending on complications, additional drainage and surgical procedures may be necessary.

Empirical IV antibiotic therapy for children without recurrent AOM or recent antibiotic treatment consists of vancomycin (if there is concern about antibiotic-resistant *S. pneumoniae* or MRSA) or a cephalosporin (e.g., cefepime or ceftazidime). Patients with recurrent AOM or recent antibiotic treatment should be given vancomycin plus an antipseudomonal penicillin. Culture and sensitivity results will guide antibiotic changes. IV antibiotic therapy should be continued for 7–10 days, and patients should complete a 4-week course of oral antibiotics.

SINUS SYMPTOMS

Sinus symptoms are commonly due to respiratory viruses. These symptoms are considered acute if they last <4 weeks, subacute if they last 4–12 weeks, and chronic if they last ≥12 weeks. Beyond sinus infection, the differential diagnosis of rhinitis includes the common cold, allergic rhinitis **(Chap. 352)**, vasomotor rhinitis, rhinitis medicamentosa due to topical decongestants, drug-induced rhinitis (e.g., due to aspirin, ibuprofen, or beta blockers), autoimmune disease (e.g., granulomatosis with polyangiitis), and cerebrospinal fluid leak. Pain over the sinuses can be caused by headaches **(Chap. 430)**, facial pain syndromes, temporomandibular disorder **(Chap. 36)**, and dental pathology. Gastroesophageal reflux can cause referral of symptoms to the sinuses. Patients who have uncontrolled diabetes or are otherwise immunocompromised can have rapidly progressing invasive fungal infections **(Chap. 211)**. More indolent fungal infections should be considered in the event of recurrent or nonresolving sinusitis. In children, it is important to consider the presence of a foreign body as a cause of sinus symptoms.

■ ACUTE SINUSITIS

Definition and Etiology *Sinusitis* is an inflammation of the paranasal sinuses; *rhinosinusitis* also involves the nasal passages.