Rosenfeld et al. recommended a "watchful waiting" approach where prescriptions are given at the initial visit with instructions to fill if there is no improvement after 7 days or worsening at any time.[889] Multiple systematic reviews,[405,406] reviews with recommendations,[31,151] and clinical practice guidelines[32,88] have thoroughly compared different antibiotics, dosages, and therapy durations. Consensus is that amoxicillin ± clavulanate is first line in treating suspected ABRS. Whether to include clavulanate is controversial,[31,32,88,151] although this combination has 88% to 97% response rate in penicillin-resistant pneumococcus and beta-lactamase positive infections.[408] High dose (4 gm/d) Standardize appears to have greater efficacy of reducing nasopharyngeal carriage of pneumococcus and resistant isolates compared to lower dose (1.5 gm/d).[409] Resistance of common bacteria is an increasing concern. Middle meatal swabs from a mixed adult/pediatric group showed penicillin-resistant pneumococcus in 72%, and ampicillin-resistant *H. influenzae* and *M. catarrhalis* in 60% and 58.3%, respectively.[410] Options after failing amoxicillin ± clavulanate or for penicillin allergy include trimethoprim-sulfamethoxazole, doxycycline, or a fluoroquinolone. Concomitant use of the latter with systemic steroids should be undertaken with great caution.[411] Duration is typically recommended for 10 days or less, with shorter courses favoring fewer adverse events and higher compliance.[31,88]

A Cochrane review[405] showed adverse effects were greater in amoxicillin-treated patients than placebo (31% vs 22%) and that discontinuation rates were highest with amoxicillin-clavulanate (3.4%). No significant differences have been observed between amoxicillin and placebo with regard to missed work days or inability to do non-work activities (Table VII-10).[405,412]

Antibiotic Therapy for ARS

Aggregate Grade of Evidence: B for antibiotics with some small benefit (Level 1: 6 meta-analyses of RCTs but with some conflicting observations; Table VII-9); C for amoxicillin-clavulanate being superior to amoxicillin (Level 2: 2 studies; level 3: 2 studies; level 4: 3 studies; Table VII-10).
Benefit: Potential for shorter duration of symptoms; reduced pathogen carriage.
Harm: Gastrointestinal (GI) complaints greater than observed in placebo for both drugs, more pronounced for amoxicillin-clavulanate. Potential for resistance and for anaphylaxis (see Table II-1).
Cost: Low to moderate. Similar among options available as generics.
Benefits-Harm Assessment: Benefit of treatment over placebo is small.
Value Judgments: Decision to treat and timing thereof should also consider mitigating circumstances including severe symptoms, immunocompromised state, concern for impending complications, and suspected odontogenic source.
Policy Level: Option.
Interventions: Consider initial watchful waiting in uncomplicated cases, with institution of antibiotic therapy if no improvement after 7 days or worsening at any time, or for mitigating circumstances as noted above.

VII.D.2 | ARS Management: Corticosteroids

Treatment with corticosteroids is hypothesized to reduce mucosal inflammation (nasal and meatal) to restore aeration of the sinuses and allow for natural mucociliary clearance (MCC) for symptom resolution.[416,417]

VII.D.2.a. ARS Management: Intranasal Corticosteroids (INCS)

INCS offer anti-inflammatory benefits and potential edema reduction with negligible systemic bioavailability.[418,419] Randomized placebo controlled trials have examined different INCS (fluticasone, mometasone, budesonide) with variable doses (110, 200, 400 μg) administered either daily or twice daily to manage ARS symptoms. Randomized placebo controlled clinical trials demonstrate that for patients with mild to moderate symptoms, treatment with monotherapy INCS is better than antibiotic treatment alone[420] and may be useful as an adjunctive therapy in those treated with antibiotics for presumed bacterial RS.[419,421] High dose INCS improve ARS symptoms, in particular congestion and rhinorrhea as compared to lower dose INCS, standard antibiotic therapy or placebo sprays.[416,7,8] Symptom duration has also been shown to be shortened with INCS as compared to placebo sprays.[419–424] A Cochrane review meta-analysis, which included 1943 participants from 4 studies, similarly found that ARS patients receiving INCS were more likely to resolve or improve than in placebo treated patients.[416] However, these effects were modest, requiring INCS treatment of 100 patients to provide 7 patients with complete or marked symptom relief.[416]

With rare adverse events and limited systemic uptake,[416] INCS use in ARS is a strong recommendation with grade A aggregate quality of evidence, showing a modest effect. Additional studies comparing ideal INCS formulation,