

# Review of: "[Mini Review] Sinus Bacterial Infections"

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This article lacks emphasis on the role of biofilm in sinus bacterial infections and details on non-antibiotic treatment strategies which often can be the most important since antibiotics are unlikely to fully manage biofilm bacteria. Use of saline can thin and flush bacterial load and over the counter (OTC) nasal steroids can control inflammation thus promote opening and draining of sinus channels. The statement that "It is essential to take all of the prescribed antibiotics in order to ensure that the infection is totally treated and does not return" is based on old science involving bacterial planktonic phenotype. Fleming stated in his 1945 Nobel prize speech, "It is not difficult to make microbes resistant to penicillin in the laboratory by exposing them to concentrations not sufficient to kill them". However his 1945 statement was based on his studies of planktonic bacteria. It was not until the early 1970's, with availability of scanning electron microscopy, that JW Costerton was able to identify that most bacteria do not exist planktonically, instead exist in a protective biofilm phenotype which affords bacterial protection from antibiotic kill predominately through metabolic slowing. Further ineffective use of antibiotics promotes antibiotic resistance via horizontal gene transfer. Therefore, the emphasis of this review should be on prevention and use of OTC sinusitis treatment strategies.

Theoretically, sinusitis is most likely to begin with chronic irritation leading to inflammation, bacterial entrapment and biofilm formation thus rendering antibiotics largely ineffective. As stated, inappropriate use of antibiotics will only provide pressure for development of bacterial resistance; a huge and growing global challenge. Antibiotics have impact only for acute infections, when bacteria have invaded the tissue which will reflect in systemic response (eg leucocytosis).

A far more meaningful discussion of 'sinusitis' should involve the role of the biofilm phenotype, distinction between chronic and acute sinus infection, and the appropriate use of OTC products verses antibiotics. I do believe that culturing can play a meaningful role in treatment of any acute infection.