

## ID CORNER

## Oral versus Intravenous Antimicrobials for Serious Infections

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There is a common belief among physicians and patients, that “*intravenous (IV) antibiotics are better than oral antibiotics, they are stronger, they work faster*”. However, for many infectious conditions, including serious infections, there is no conclusive evidence that IV antibiotics are superior to oral antibiotics. The bacteria also do not know how the antibiotic gets to the infection site<sup>1</sup>.

Additionally, IV antibiotics are not a panacea without downsides. IV antibiotics are associated with prolonged hospital stays; they may be associated with more adverse events and higher costs. The line needed for outpatient parenteral antimicrobial therapy (OPAT) can complicate in 22% of cases, with almost half of them requiring emergency department visit or hospital admission<sup>2</sup>.

Oral step-down therapy has been studied in bone and joint infections and in endocarditis:

**Bone and joint infections:** In pediatrics, oral step-down therapy is a common practice and recommended in guidelines<sup>3</sup>. More recently, in adults, the OVIVA trial showed that oral antibiotic therapy was non-inferior to IV antibiotics for complex orthopedic infections<sup>4</sup>. Of note, this population had low rates of Methicillin-resistant *Staphylococcus aureus* (MRSA), and 92% underwent some form of surgical debridement.

**Infectious endocarditis:** In the POET trial studying left side endocarditis stable patients, oral step-down therapy was non-inferior to continued IV antibiotic therapy<sup>5</sup>. In this approach, all participants received IV antibiotics for at least 10 days before randomization to either oral antibiotic therapy or continued IV antibiotic therapy. Of note, none had MRSA infection and very few people who inject drugs (PWID) were included.

Oral step-down therapy is emerging as a non-inferior and feasible option for selected patients with serious infections such as bone and joint infections and endocarditis. These patients should also have a functional gastrointestinal tract and the chosen oral antibiotic should have high bioavailability in order to achieve blood levels necessary to kill pathogens.

**Notes**

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