

Streamlined Approach to Transitioning IV to PO Antibiotics

What's so great about IV antibiotics? Are they really better than oral options? These are commonly encountered scenarios in the ED.

Bioavailability - Proportion of drug that enters the circulation

- Many of the antibiotics we use in the ED have good oral bioavailability ([MacGregor 1997](#))

Guideline Recommendations

- Many guidelines for empiric treatment of common infections (SSTI, UTI, PNA) recommend oral antibiotics for mild and some moderate severity cases ([Stevens 2014](#), [Gupta 2011](#), [Metlay 2019](#))

Comparing IV vs PO

- RCTs in cellulitis patients found no difference in outcomes between IV and PO regimens ([Aboltins 2015](#), [Bernard 2002](#), [Bernard 1992](#), [Jorup-Ronstrom 1984](#), [Dalen 2018](#))
- Cochrane review of severe UTIs: no evidence oral less effective than parenteral ([Pohl 2007](#))
- RCTs in pediatric PNA ([Addo-Yobo 2004](#), [Atkinson 2007](#), [Hazir 2008](#), [Agweyu 2015](#)) and adult PNA ([Oosterheert 2006](#), [Belforti 2016](#)) found no difference in outcomes
- No difference in outcomes for complex bone and joint infections ([Li 2019](#))

Harms of IV

- Even one dose of IV antibiotics in the ED can lead to an increased risk of antibiotic-associated diarrhea and *C. diff* ([Haran 2014](#))
- Expense, prolonged length of stay, phlebitis, extravasation injury, thrombosis, local or systemic infection ([Li 2015](#))

A Word on Vancomycin

Don't give vancomycin as a [one-time dose](#) ([Mueller 2015](#)). Even a 30 mg/kg dose will only achieve therapeutic levels 34% of the time ([Rosini 2015](#)).

When IV is Needed

Severe infection, critically ill, oral dose can't be tolerated or patient can't swallow, anticipated altered absorption ([Lehmann 2017](#))

A Path Forward

- Most ED patients can be given oral antibiotics for mild and moderate infections
 - Patients think IV antibiotics are stronger, so talk with them
- If IV antibiotics are truly indicated, choose the IV form of the antibiotics you plan to continue at home so we can evaluate progress and confirm it is the correct choice
- There are some clinical risk factors associated with oral antibiotic failure in SSTI which may be taken into account when developing a plan ([Peterson 2014](#), [Yadav 2019](#), [Volz 2013](#))