**Introduction**

- Between 2000 and 2013, the proportion of patients hospitalized for infective endocarditis whose infections were directly related to injection drug use increased from 7% to 12%. This represents an estimated growth from 3,578 cases per year to 8,530 cases per year nationally.
- The right-sided heart structures (tricuspid and pulmonary valves) are more commonly involved in IVDU-related IE due to being the first anatomical structure exposed to foreign injected matter.
- The most common microorganism isolated in IVDU-related IE is *S. aureus*, followed by *Streptococcus spp.*
- IV antibiotics, the current mainstay of therapy for IE, are not always feasible or desirable for patients affected by IVDU for several reasons, primarily cost and safety.
- The role of oral antibiotic treatment is not well established.

**Objectives**

1. Answer the clinical question: In adult intravenous drug users with native valve infective endocarditis, are oral antibiotics as effective in resolving infection and reducing complications as intravenous antibiotics?
2. Explore the cost difference in IV antibiotics vs. oral antibiotics commonly used in the treatment of IE in IVDUs

**Methods**

- UNC Health Sciences Library links to the PubMed and CINAHL Plus databases were used. Within the PubMed database, the MeSH search builder was utilized and the following terms were added: “infective endocarditis”, “intravenous drug users”, “antibiotics”, “oral antibiotics”, and “intravenous antibiotics”. In the CINAHL Plus database, a search was conducted to include the following terms: “infective endocarditis” AND “intravenous drug use” AND “antibiotics”.
- A retrospective cohort study, a systematic review, as well as a Cochrane review have been selected to address the clinical question.
- Risk of bias was assessed using the Cochrane Collaboration’s risk-of-bias assessment tool.

**Results**

**Cure Rate and Toxicity Comparison in a 4-Week Course of Antibiotics**


<table>
<thead>
<tr>
<th>IV Course (Vancomycin or Oxacillin)</th>
<th>Oral Course (Ciprofloxacin + Rifampin)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cure Rate (%)</strong></td>
<td><strong>Drug Toxicity (%)</strong></td>
</tr>
<tr>
<td>90</td>
<td>1.5</td>
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<tr>
<td>89</td>
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</tbody>
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**Percentage of Deaths at Various Stages of Follow-Up**

Mzabi et al (2016)

Cost Comparison of Antibiotics Used to Treat IVDU Associated IE

Weiland et al (2011)

**Discussion and Conclusion**

- It is necessary to consider treatment setting in the population of IVDUs. Allowing a patient outside of a supervised facility presents the risk of using a PICC line to directly inject other substances. No clear-cut guidelines exist, and the practitioner must weigh the risks and benefits in each case.
- The use of oral antibiotics was not associated with an increased risk of reinfection or mortality, and is feasible in less severely ill patients.
- For uncomplicated staphylococcal endocarditis, amoxicillin, linezolid, or fluoroquinolones may be used effectively. Oral formulations are associated with less drug toxicity than IV therapy.
- Using oral antibiotics as opposed to the well-established IV regimens has significant cost-saving potential where appropriate.
- In order for the use of oral antibiotics to become a largely accepted practice incorporated into guidelines, higher quality and more consistent studies should be performed.

**References**