In Vitro Activity of Lefamulin (LEF) Against Bacterial Pathogens Commonly Caussing Community-Acquired Pneumonia (CABP): 2016 SENTRY Data From the United States

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INTRODUCTION

• Pneumonia is a major cause of morbidity and mortality in adults and children worldwide.
• The most commonly isolated bacterial pathogen from community-acquired pneumonia (CAP) is Streptococcus pneumoniae (S. pneumoniae), followed by Moraxella catarrhalis and Staphylococcus aureus, as well as atypical pathogens such as Legionella pneumophila.
• Macrolide-resistant pneumococci and Chlamydia pneumoniae.
• Antibiotic resistance rates are rising, and there is need for new therapies to treat CAP.

METHODS

• 1820 isolates were collected from 32 medical centers in the US as part of the SENTRY Antimicrobial Surveillance Program, including 8 S. aureus, 3 S. pneumoniae, 1149 M. catarrhalis and 659 S. pneumoniae isolates.
• Laboratory and composition were tested by Clinical and Laboratory Standards Institute (CLSI) both microdilution methods, and susceptibility was determined using CLSI (2016) breakpoints.

RESULTS

S. pneumoniae

• Lefamulin demonstrated potent in vitro activity against S. pneumoniae with MIC₉₀ values of 0.06–0.12 μg/mL, which reflect the potency of lefamulin activity against S. pneumoniae.
• Lefamulin demonstrated resistance (≥4-fold higher than MIC₉₀) against 1% (4/414) of S. pneumoniae isolates tested.
• The most commonly isolated bacterial pathogen from community-acquired pneumonia (CAP) was S. pneumoniae.

S. aureus

• Lefamulin was active against S. aureus (MIC₉₀ of 0.06–0.12 μg/mL).
• S. aureus isolates were susceptible (96%) in most cases, but resistance rates of ≥20% were reported for oxacillin, oxacillin-resistant methicillin (MRSA), and oxacillin-and erythromycin (Table 1).

H. influenzae

• Lefamulin demonstrated activity against H. influenzae (MIC₉₀ of 0.06 μg/mL).
• All S. pneumoniae isolates tested were susceptible to lefamulin.

M. catarrhalis

• All M. catarrhalis isolates were inhibited at concentrations ≤0.06 μg/mL (MIC₉₀ of 0.06–0.12 μg/mL).
• All M. catarrhalis isolates were susceptible to lefamulin.

Table 1. Activity of Lefamulin and Comparators Against Gram-Positive Pathogens

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>MIC₉₀</th>
<th>MIC₉₀ (%S)</th>
<th>MIC₉₀ (%R)</th>
<th>MIC₉₀ (%)</th>
</tr>
</thead>
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<tr>
<td>Lefamulin</td>
<td>0.06</td>
<td>98.2</td>
<td>1.3</td>
<td>98.2</td>
</tr>
<tr>
<td>Tobramycin</td>
<td>2</td>
<td>0.3</td>
<td>99.7</td>
<td>0.3</td>
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<tr>
<td>Amoxicillin</td>
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<td>0.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Clindamycin</td>
<td>0.25</td>
<td>100.0</td>
<td>0.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Penicillin</td>
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<td>100.0</td>
<td>0.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Daptomycin</td>
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<tr>
<td>Vancomycin</td>
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<td>0.0</td>
<td>100.0</td>
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Table 2. Activity of Lefamulin and Comparators Against Gram-Negative Pathogens

<table>
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<th>MIC₉₀ (%R)</th>
<th>MIC₉₀ (%)</th>
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<td>100.0</td>
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<tr>
<td>Penicillin</td>
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<td>0.4</td>
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REFERENCES