Background: Iclaprim is a diaminopyrimidine, which inhibits bacterial dihydrofolate reductase. In an era of increasing antimicrobial resistance, iclaprim and comparators antibiotics were tested against skin and skin structure pathogens collected during 2015-2016 from Europe and North America, including isolates of S. aureus resistant to clindamycin/tetracycline and beta-haemolytic streptococci resistant to macrolides/tetracycline.

Methods: 618 isolates of S. aureus and 313 beta-hemolytic streptococci underwent antibacterial susceptibility testing at IHMA. Susceptibility testing was performed by broth microdilution in accordance with the Clinical and Laboratory and Standards Institute (CLSI) guidelines. Minimum inhibitory concentration (MIC) interpretations were based on CLSI and European Committee on Antimicrobial Susceptibility Testing (EUCAST) criteria.

Results: Iclaprim MIC<sub>50</sub>/MIC<sub>90</sub> for S. aureus resistant to clindamycin/tetracycline and beta-haemolytic streptococci resistant to macrolides/tetracyclines are shown in Table 1.

Conclusion: Iclaprim was active against selective skin and skin structure pathogens collected during 2015-2016 from Europe and North America. Included many isolates that were S. aureus resistant to clindamycin or tetracycline and beta-haemolytic streptococci resistant to macrolides or tetracyclines. MIC<sub>50</sub> were low for all phenotypes, with no other isolates showing higher MIC<sub>50</sub> than iclaprim. Further evaluation of isolates with MIC values >1 mg/L are warranted and likely require molecular characterization of iclaprim’s target enzyme, dihydrofolate reductase.

References
4. CLSI, M100 2017. Wayne, PA 19087-1898 USA.

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Abstract

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Table 1: Iclaprim MIC<sub>50</sub>/MIC<sub>90</sub> for S. aureus resistant to clindamycin/tetracycline and beta-haemolytic streptococci resistant to macrolides/tetracyclines

<table>
<thead>
<tr>
<th>Phenotype</th>
<th>n</th>
<th>MIC&lt;sub&gt;50&lt;/sub&gt;</th>
<th>MIC&lt;sub&gt;90&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. aureus</td>
<td>618</td>
<td>0.03</td>
<td>0.12</td>
</tr>
<tr>
<td>S. aureus CLS-R</td>
<td>106</td>
<td>0.03</td>
<td>0.16</td>
</tr>
<tr>
<td>S. aureus TET-R</td>
<td>48</td>
<td>0.06</td>
<td>&gt;32</td>
</tr>
<tr>
<td>MRSA CLS-R</td>
<td>94</td>
<td>0.03</td>
<td>16</td>
</tr>
<tr>
<td>MRSA TET-R</td>
<td>51</td>
<td>0.06</td>
<td>&gt;32</td>
</tr>
<tr>
<td>MSSA CLS-R</td>
<td>12</td>
<td>0.06</td>
<td>16</td>
</tr>
<tr>
<td>MSSA TET-R</td>
<td>17</td>
<td>0.06</td>
<td>&gt;32</td>
</tr>
<tr>
<td>BHS</td>
<td>313</td>
<td>0.03</td>
<td>0.25</td>
</tr>
<tr>
<td>BHS AZT-R</td>
<td>82</td>
<td>0.06</td>
<td>0.5</td>
</tr>
<tr>
<td>BHS TET-R</td>
<td>121</td>
<td>0.06</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Clinical breakpoints used as per CLSI and EUCAST [4,5].