Closing the Gap on Moxifloxacin Breakpoints for *Stenotrophomonas maltophilia*

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Background

- Moxifloxacin has in vitro activity against Enterobacterales and *Stenotrophomonas maltophilia*
- There are currently no established moxifloxacin breakpoints for treatment of *S. maltophilia*
- The Clinical and Laboratory Standards Institute has established interpretive criteria including minimum inhibitory concentration (MIC) breakpoints for levofloxacin (S ≤ 2 µg/mL) against *S. maltophilia*
- The US Food and Drug Administration and European Committee on Antimicrobial Susceptibility Testing provide moxifloxacin breakpoints for Enterobacterales with susceptible MICs represented at ≤ 2 µg/mL and ≤ 0.25 µg/mL, respectively.

Objective

Determine moxifloxacin MIC distribution against *S. maltophilia* strains recovered from clinical specimens

Methods

- Clinical *S. maltophilia* isolates from patients with suspected infection during calendar year 2018 and 2019 were processed in the microbiology lab of Wake Forest Baptist Medical Center
- *S. maltophilia* colonies were identified by matrix-assisted laser desorption/ionization – time of flight (MALDI-TOF) following incubation
- Moxifloxacin susceptibility testing was performed for these clinical isolates by gradient diffusion strip methodologies according to the manufacturer's instructions
- Appropriate quality control was performed each day of testing
- Results were displayed as MIC (µg/mL) without interpretation
- $MIC_{50/90}$ and susceptibility rates at candidate breakpoints were calculated

Results

Figure 1. Moxifloxacin MIC Distribution Against All *S. maltophilia* Isolates

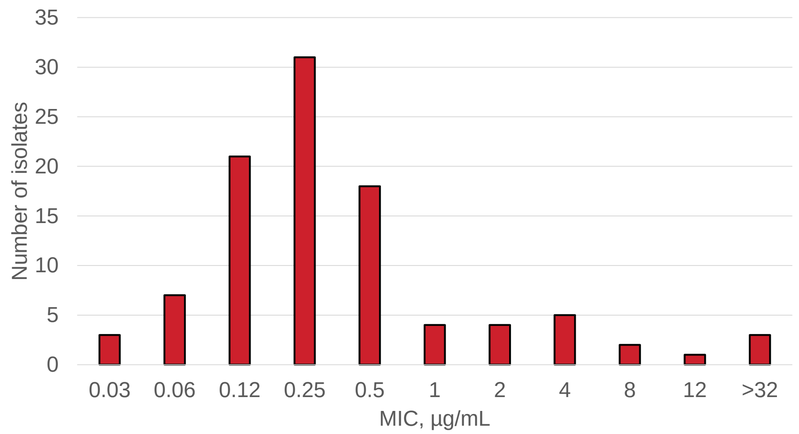

Table 1. Susceptibility Rates of *S. maltophilia* to Moxifloxacin at Candidate Breakpoints

Breakpoint (µg/mL)	Percent Susceptible		
	All (n=211)	2018 (n=112)	2019 (n=99)
≤ 0.25	69%	75%	63%
≤ 1	88%	90%	85%
≤ 2	93%	97%	89%

Results (cont.)

- 211 isolates were tested (112 from 2018; 99 from 2019)
- Moxifloxacin MIC_{50} for all isolates was 0.25 µg/mL
- Moxifloxacin MIC_{90} for all isolates was 2 µg/mL
- Moxifloxacin MICs ranged from 0.006 µg/mL to > 64 µg/mL
- Percent susceptibilities at candidate MICs, including established moxifloxacin breakpoints against Enterobacterales and established levofloxacin breakpoints against *S. maltophilia* are represented in **Table 1**.

Conclusions

- This study represents one of the largest collections of *S. maltophilia* with moxifloxacin MIC data in the United States
- Using the CLSI breakpoint for levofloxacin in *S. maltophilia* the overall susceptibility rate is 93%
- These MIC data highlight the importance of performing susceptibility testing to this agent by the microbiology laboratory and the critical need for moxifloxacin breakpoints for *S.maltophilia*

References

- Clinical and Laboratory Standards Institute (CLSI). *Performance Standards for Antimicrobial Susceptibility Tests*. 30th ed. CLSI standard M02. Wayne, PA: Clinical and Laboratory Standards Institute; 2020.
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