

## Quality Management in the Laboratory: Susceptibility Testing For New Antibiotics

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### Problem Statement

With the rise of multi-drug resistant pathogens in patients, susceptibility testing ensures that new antibiotics for multi-drug resistant pathogens are used judiciously. (e.g., for Ceftaroline and Eravacycline)

Susceptibility testing is available from external laboratories, but the long turnaround time and high costs borne by the patient are barriers to timely usage of appropriate antibiotics.

### Project Aim

To perform verification study evaluating the accuracy and reproducibility of antimicrobial susceptibility results of Eravacycline and Ceftaroline, using quality control (QC) and clinical isolates.

### Lessons Learnt

International standards are available for susceptibility testing of new antibiotics.

Laboratory quality measures include standardization of the process and a comparison of performance metrics such as accuracy and reproducibility and comparability with external laboratories.

### Potential Solutions

Recommended QC Isolates

3 replicates for 5 days

Compare to known QC ranges

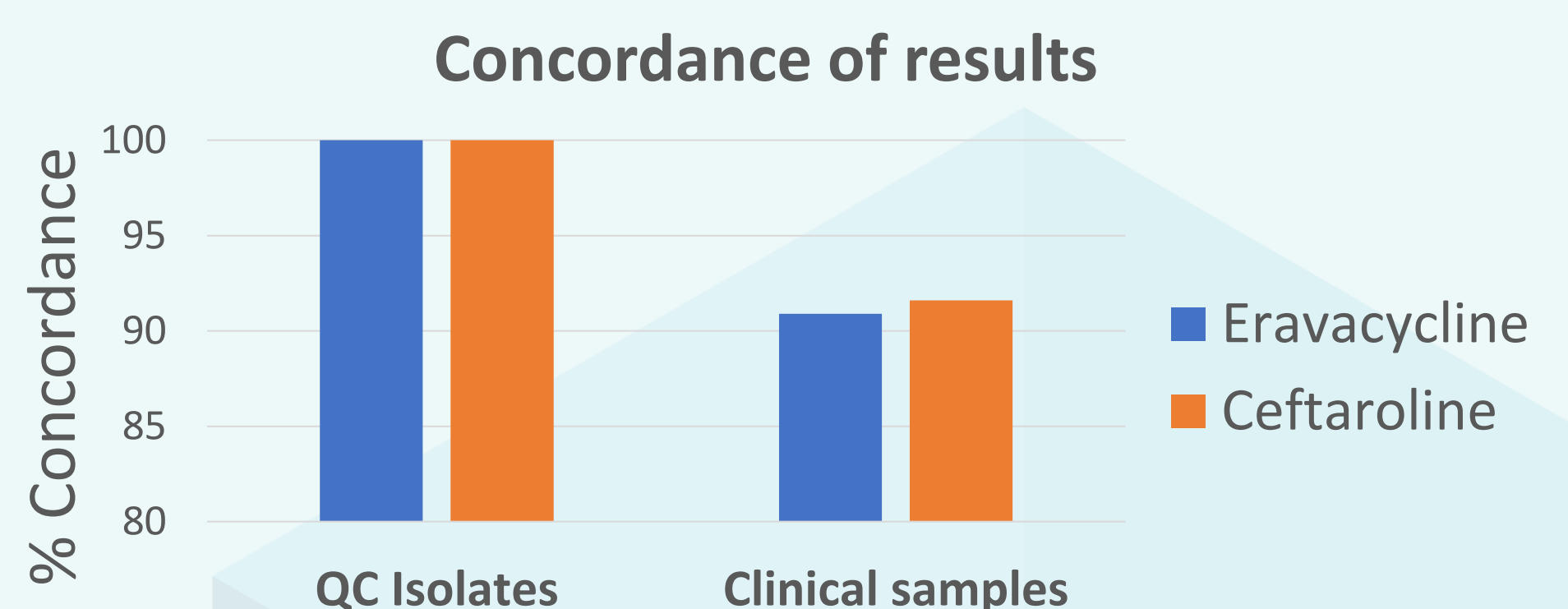
Clinical Isolates

In-house testing & External laboratory testing

Compare results for reproducibility

### Outcomes & Impacts

Local testing for both drugs achieved **100% concordance** with the expected results using QC strains as recommended by the manufacturer. Testing of clinical isolates reached over **90% concordance** to the results obtained from external laboratories.



Susceptibility testing of new antibiotics provides timely, accurate results to inform clinicians regarding efficacy of new antibiotics in patients.