

Evaluating vancomycin susceptibility in *Staphylococcus aureus*

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Dear editor

We read the report by Phillips et al¹ with great interest and would like to discuss it in comparison with our previous published data on the subject.^{2,3}

We have also studied a number of *Staphylococcus aureus* clinical isolates (n=125), comparing different vancomycin susceptibility tests, including microdilution, Etest® (bioMérieux, Marcy-l'Étoile, France), and brain heart infusion vancomycin screening plates.

We found only one isolate with reduced susceptibility with a minimum inhibitory concentration (MIC) =4 mg/L when tested with Etest and 2 mg/L when tested with microdilution.^{2,3} Our results showed a tendency of higher lethality when higher MICs were present, even within the susceptible range,³ as some previous studies have shown.^{4,5}

Concordant to Phillips et al¹ and other authors,^{6,7} we also reported a poor correlation between different tests. Comparing Etest and microdilution (approximating an Etest MIC value between two twofold dilutions up to the highest value), 58% of the isolates had similar MICs, whereas 38% had an MIC by Etest one dilution higher than microdilution. One isolate had an Etest MIC twofold higher and four isolates an Etest MIC onefold lower than microdilution.²

However, in our study, a brain heart infusion screening plate with 2.0 mg/L of vancomycin showed a sensitivity of 100% to detect isolates with an MIC ≥ 2.0 by Etest and 91% to detect an MIC ≥ 2.0 by microdilution, making this test an interesting option for initial screening of *S. aureus* isolates for reduced vancomycin susceptibility. Specificities were 63% and 38%, respectively, which would still make necessary the further testing with an MIC method, but in a much smaller number of isolates.² This approach would be suitable for a large number of laboratories throughout the world where the routine MIC testing of all *S. aureus* isolates is not feasible.

Disclosure

The authors report no conflicts of interest in this communication.

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Authors' reply

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Dear editor

We thank Mimica and Navarini¹ for their comments on our article.² We note with interest their findings consistent with our study regarding the poor correlation between methods for determining vancomycin minimum inhibitory concentration (MIC) also reported elsewhere.³ The need to obtain good susceptibility methods that provide both high sensitivity and high specificity is indeed challenging. We have assessed diagnostic

accuracy for two commonly used susceptibility methods (Etest[®] and Vitek[®]2) measured against the gold standard broth microdilution to give microbiologists and clinicians further insight into the sensitivity and specificity at incremental MICs. Employing two susceptibility methods is likely to become a more common practice when testing vancomycin MIC ≥ 1 and < 2 $\mu\text{g/mL}$ in an effort to more appropriately dose and monitor vancomycin in patients with these infections. Investigators of future laboratory and clinical studies that report MICs using two methods may also consider the reporting of diagnostic accuracy using a combined test approach, which might improve the interpretation of overall sensitivity and specificity.

Disclosure

The authors report no conflicts of interest in this communication.

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