Accurate Laboratory Detection of Oxacillin Resistance in *Staphylococcus Aureus*: Challenges and Pitfalls

Sir,

Staphylococcus aureus is a major pathogen linked to both nosocomial and community-associated infections. New community-associated methicillin resistant clones and decreased levels of susceptibility to vancomycin are more recent problems.[1] In this setting, accurate laboratory detection of oxacillin resistance is paramount to ensure appropriate clinical and epidemiological decisions.[2,3] Although there are recommendations from both the Clinical and Laboratory Standards Institute (CLSI) and the European Committee on Antimicrobial Susceptibility Testing (EUCAST), there is also, still, discussion regarding the method of election for routine use by clinical microbiology laboratories.

Pillai *et al.*[4] reported recently in this journal their study addressing this subject, and found suboptimal accuracies for the evaluated phenotypic methods (oxacillin disk diffusion test and oxacillin agar screen test). CLSI and EUCAST include the cefoxitin disk diffusion test in their recommendations for detection of beta-lactam resistance, but Pillai *et al.* did not evaluate specifically this method. We

have previously studied[2,3] the accuracy of both oxacillin and cefoxitin disk diffusion tests, oxacillin agar screening plate and Etest™ using the presence of the *mecA* gene as gold standard, and concluded that, even with the cefoxitin modified breakpoints that were later adopted, there are still major errors with the disk diffusion tests. Etest™ and oxacillin agar plate showed higher accuracy.

Other studies in addition to Pillai's and ours have shown the limitations of relying only on phenotypic tests and some have even advocated the use of molecular methods for all isolates from sterile body fluids. However, another option, in our opinion, since molecular detection is not readily available in most clinical laboratories throughout the world, would be increase the sensitivity (usually with not very significant decrease on specificity) on testing such clinically important isolates by using two methods (example: Oxacillin and cefoxitin disk tests or oxacillin screening plate and cefoxitin disk test) concomitantly.

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