**ABSTRACT**

Background: CLSI (β-lactam) disk diffusion (DD) methods have no routine zone for the old or new cephalosporins (β-lactam agents) against β-lactamase producing pathogens for susceptibility testing. The new PEN-susceptible MIC breakpoint of ≤0.06 μg/ml was recently approved by CLSI. Against BHS, the PEN MIC test (susceptible breakpoint at ≤0.06 μg/ml) was shown to be equally accurate (92.2% absolute categorical agreement). The MIC/DD zone diameter correlation for the seven β-lactam agents tested showed an acceptable performance and potential DD criteria use (PEN susceptibility within 96% of DD zone diameter). CLSI should re-establish simple, cost effective DD criteria for these prevalent pathogens.

Methods: MATERIALS AND METHODS

Susceptibility Testing: A collection of 50 β-lactam agents tested, but not evenly distributed according to non-meningitis, oral penicillin susceptibility to penicillin. The MIC/DD zone diameter correlations for the seven β-lactam agents (range to 2 μg/ml), ceftazidime (range to 2 μg/ml) and piperacillin (range to 4 μg/ml) were all tested. The MICs of β-lactam agents tested showed an acceptable performance with the tested lower disk concentration for PEN, cefotaxime and ceftriaxone, which generally performing better than current CLSI recommended disk drug contents. Accuracy ranges varied from 92.8 to 98.7% (Table 3).

Conclusions: The MIC/DD zone diameter correlation for the seven β-lactam agents tested showed an acceptable performance and potential DD criteria use (PEN susceptibility within 96% of DD zone diameter). CLSI should re-establish simple, cost effective DD criteria for these prevalent pathogens.

**REFERENCES**


**ACKNOWLEDGEMENTS**

The authors would like to thank Molecular Diagnostics, Sparks, MD, USA, for the in vitro testing. Merrick Group Ltd., Merseyside, UK, and TREK Diagnostics, Cleveland, OH, USA for support and CLSI for the in vivo testing. CLSI would like to acknowledge and EID-IDSA 2009 pilot study was approved by the Institutional Review Board at Georgia State University, Atlanta, GA for the in vivo testing.