Comparable Performance of Commercial Fosfomycin Agar Dilution Panel vs. In-House Agar Dilution of *Escherichia coli* Isolates

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Background: Fosfomycin is useful for treatment of multidrug resistant (MDR) gram-negative infections. The intravenous formulation is available in Europe though not yet in the US; if approved, testing requests may increase. Agar dilution is one of the CLSI and EUCAST recommended reference testing methods.. Commercial AD Fosfomycin 0.25-256 (FosAD) panels (Liofilchem, Waltham, MA) are pre-made CE-cleared devices available as RUO in the US. We compared FosAD to AD for *E. coli*, applying CLSI and EUCAST breakpoints.

Methods: 102 clinical *E. coli* isolates were tested by FosAD and AD with glucose-6-phosphate using the same inoculum. Isolates were not selected for MDR. CLSI methodology was followed for AD.. MIC ranges were0.25-256 and 0.25-128 mcg/mL for FosAD and AD, respectively. Appropriate quality control (QC) was run. Isolates with lack of essential agreement (EA) or multiple skipped wells by either method were repeated.

Results: FosAD and AD MICs spanned 0.25-128 and ≤0.25-128 mcg/mL, respectively. MIC50/90 were 1/2 and 0.5/2 mcg/mL, respectively. MICs of 2 isolates were 128 mcg/mL by both methods (intermediate, CLSI; resistant, EUCAST). 4 isolates with skipped wells on initial testing (3 by FosAD only; 1 by both) no longer skipped on repeat (n=3), with concordant MICs. Categorical agreement (CA) was 100% by CLSI and EUCAST. EA was 96/97 (99.0%); the single discrepant isolate resolved on repeat. QC was within range.

Conclusion: FosAD panels are commercially available pre-made RUO 12-well panel kits covering 11 two-fold dilutions (0.25-256 mcg/mL) with 1 growth-control well. The panel performed well with 100% CA and 99% EA but should be challenged with more MDR strains not-susceptible to fosfomycin. FosAD MICs trended slightly higher than AD. The Liofilchem FosAD panel was easy to use and read. It is a convenient alternative to in-house agar dilution and the reference testing method suggested by both CLSI and EUCAST.

Figure.

Figure. Fosfomycin Agar Dilution Panel (Liofilchem; black) vs. Agar Dilution (grey), prior to repeat testing of discrepants