Technical Bulletin

New Testing for Carbapenamase Genes Improves Inpatient Management

TO: Medical Staff and Clients

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SUBJECT: Addition of a NAAT (PCR) assay provides results that help make isolation decisions

Effective February 6, 2023, Diagnostic Laboratory Services, Inc. (DLS) will begin testing certain bacterial isolates from inpatients that show multi-drug resistance for the presence of carbapenamase genes by a nucleic acid amplification test (NAAT).

Carbapenamase genes can be transmitted among bacteria leading to a rapid spread of dangerous antibiotic resistance, which makes organisms that harbor them particularly troublesome in hospitals.

Pseudomonas aeruginosa isolated from inpatients that show resistance to imipenem and extended spectrum cephalosporins will be automatically tested for the presence of the 5 most common carbapenamase gene sequences (*bla*KPC, *bla*NDM, *bla*VIM, *bla*OXA-48, and *bla*IMP) associated with carbapenem-non-susceptibility.

Isolates from outpatients that meet testing criteria will be sent to Department of Health State Laboratories for public health surveillance purposes.

If testing is desired for Enterobacterales, *Acinetobacter baumanii*, or *P. aeruginosa* isolates not meeting above criteria, contact Client Services at 808-589-5101 to order and complete an Advance Beneficiary Notice (ABN) form.

Detection of any of these target sequences (positive result) indicates potential resistance to beta-lactams with limited or no activity against bacteria producing carbapenamases, so those antimicrobics should be used with caution.

Although a negative result indicates the organism cannot produce the most common transmissible carbapenemases, it cannot be interpreted as "susceptible" to beta-lactams including carbapenems. There are other, less frequent carbapenamases that have been identified. Furthermore, there are other resistance mechanisms, especially in *P. aeruginosa* and *A. baumanii* that confer non-susceptibility. **Conventional susceptibility testing must still be performed.**

Specimen collection information is available at the DLS Test Directory website: https://til.dlslab.com/.

Refer any questions to Terrie Koyamatsu, Manager - DLS Microbiology Laboratory at 808-589-5196, or DLS Client Services at 808-589-5101.