



Technical Bulletin Update #1

New Testing for Carbapenemase Genes Improves Inpatient Management

TO: Medical Staff and Clients

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SUBJECT: NAAT (PCR) assay provides results that can help with isolation decisions

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

Carbapenemase 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 screened for possible non-susceptibility to meropenem. Isolates that are meropenem screen positive will be tested for the presence of the 5 most common carbapenemase gene sequences (*blaKPC*, *blaNDM*, *blaVIM*, *blaOXA-48*, and *blaIMP*) associated with carbapenem-non-susceptibility. Isolates that are meropenem screen negative do not meet manufacturer criteria for PCR testing because they are NOT carbapenemase producers. Meropenem screen negative isolates will be disclosed in a results comment.

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 baumannii*, 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 carbapenemases, 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 carbapenemases that have been identified. Furthermore, there are other resistance mechanisms, especially in *P. aeruginosa* and *A. baumannii* 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.
