Technical Bulletin

Antimicrobic Susceptibility Interpretations

TO: Medical Staff and Clients

FROM: Dr. A. Christian Whelen, PhD, M.S., D(ABMM)
V.P. - Technical Director (Microbiology)

Terrie Koyamatsu, M(ASCP)
Manager, DLS Microbiology

Dr. Wesley Kim, MD
Medical Director DLS and QMC West

Dr. Ana Ortega-Lopez, MD
Medical Director QMC Punchbowl, North Hawaii and Molokai

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SUBJECT: **Antimicrobic interpretive guidelines MICs**

The Clinical Laboratory Standards Institute (CLSI) provides guidelines (**CLSI M100 30 ed. 2020**) for in vitro antimicrobial susceptibility testing, including interpretive standards. Recently two new interpretations have been added to the familiar, "susceptible (S), intermediate (I), and resistant (R)" interpretations. These are "nonsusceptible (NS) and susceptible-dose dependent (SDD)". Here are descriptions of key terms:

Breakpoint - minimal inhibitory concentration (MIC) or zone diameter are values that are used to categorize an organism as susceptible, susceptible-dose dependent, intermediate, resistant, or nonsusceptible. These are based on pharmacologically and clinically rich datasets and are considered robust predictors of likely clinical outcome.

Susceptible (S) – Organism with MIC or zone value indicating inhibition at usually achievable antimicrobic concentrations resulting in likely clinical efficacy.

Intermediate (I) - MICs or zone values that approach usually attainable blood and tissue levels, although response rates may be lower than for susceptible isolates, although clinical efficacy may be limited to anatomical sites where the drugs are physiologically concentrated.

Resistant (R) - MIC or zone diameter indicating organism is not inhibited by the usually achievable concentrations of the agent with normal dosage schedules and/or specific microbial resistance mechanisms are likely present resulting in a lack of clinical efficacy.

Nonsusceptible (NS) - used for isolates for which resistance is absent or rare, and does not necessarily mean that the isolate has a resistance mechanism. Isolates that are in the categories of "intermediate" or "resistant" could be called "not susceptible" rather than "nonsusceptible."

Susceptible-Dose Dependant (SDD) – susceptibility is dependant on dosage regimen that results in higher exposure (e.g., higher doses, more frequent doses, or both). The maximum literature-supported regime improves the probability of clinical efficacy.

If a susceptibility test is ordered for which there is no CLSI interpretation, the result will have this comment: "There is not a CLSI interpretation for this antibiotic. Refer to the FDA package insert for susceptibility interpretation criteria"

The purpose of this bulletin is to provide an update and explanation of susceptibility interpretations. It is NOT intended to be specific therapeutic advice because all cases are different and must be evaluated within the context of clinical presentation and other relevant information. Please refer questions to Terrie Koyamatsu, Manager, Microbiology at 589-5196 or Client Services at 589-5101.