MCHS 2023 Cumulative Antibiogram

For providers who prescribe antimicrobials please review your newly published 2023 antibiogram and take note of the messages below from your Antimicrobial Stewardship Program.

General Information:

1. The 2023 Cumulative Antibiograms were developed utilizing isolates from all across Marshfield Clinic Health System
   a. Inpatient sites include Marshfield, Ladysmith, Neillsville, Rice Lake, Eau Claire, Park Falls, Minocqua, Weston, River Region, and Beaver Dam
   b. This year you will be able to access three versions of your antibiogram. Inpatient, Outpatient, and Inpatient/Outpatient combined. Clinically there are no significant differences in antimicrobial susceptibility across inpatient and outpatient isolates.
2. An antibiogram summarizes the susceptibility patterns of the most commonly encountered bacterial pathogens to guide empiric treatment/prophylaxis choices.
3. An isolate is included in the antibiogram if it is the first isolate of a given species, recovered from a single patient, regardless of specimen source or susceptibility profile.
   a. A minimum of 30 isolates in a calendar year are required for a species to be included
4. The percentage found in the antibiogram represents the percentage SUSCEPTIBLE. Those determined to be NON-SUSCEPTIBLE will include RESISTANT isolates and INTERMEDIATE/SUSCEPTIBLE DOSE DEPENDENT designations
5. A multidisciplinary team including infectious diseases pharmacists and physicians, PhD microbiologists, and others with expertise in the field review and publish the data in accordance with Clinical Laboratory Standards Institute (CLSI) guidance
6. Your MCHS Infectious Diseases Guidelines take into account the cumulative antibiogram year to year so that their recommendations are specific to the bacteria you will be encountering as a provider

Common Antibiogram misconceptions:

1. A higher percentage susceptible does not mean an antimicrobial is more effective. For example:
   a. E. coli susceptibility is 98% to nitrofurantoin and 88% to ciprofloxacin. Choosing nitrofurantoin may be appropriate for cystitis, but would not for pyelonephritis despite its higher percentage susceptibility since it remains in the collecting system and would not penetrate the kidneys
2. If an isolate is less than 90% susceptible, that does not preclude its empiric use
   a. Providers should consider the risks and benefits of each therapy as well as past culture history for an individual patient
3. If the antibiotic is not listed for a particular pathogen, this does not mean it is intrinsically resistant
   i. The platform used for antibiotic sensitivities is limited in its range of antibiotic-bacteria combinations. For example, Enterococcus spp. may be considered susceptible to daptomycin despite our antibiogram lacking this data

At A Glance | Important 2023 antibiogram notes

STAPHYLOCOCCUS AUREUS (SA)

MRSA vs. MSSA

3 IN 4 SA isolates are methicillin-sensitive (MSSA)

TMP/SMX and Doxycycline

SA isolates are 90% susceptible to tetracycline and 96% susceptible to TMP/SMX

Clindamycin

SA isolates are 78% susceptible to clindamycin

ENTEROCOCCUS FAECALIS

Ampicillin

E. faecalis is 100% ampicillin susceptible

EXTENDED-SPECTRUM β-LACTAMASE (ESBL)

2-5%

The ESBL rate in E. coli, K. pneumoniae, and P. mirabilis is between 2-5%

ENTEROCOCCUS FAECIUM

VRE

1 in 2 E. *faecium* isolates are vancomycin-resistant (VRE)

Linezolid

Nearly 100% of E. *faecium* isolates are linezolid susceptible

Daptomycin

Nearly all will be susceptible at a dose of 8-12 mg/kg daily though not directly tested

β-HEMOLYTIC STREPTOCOCCI (GROUP A, B, C, AND G)

Penicillin

Penicillin susceptibility is 100%

Clindamycin and Azithromycin

β-hemolytic Streptococci are moderately susceptible to clindamycin and azithromycin with the exception of Group B Strep which are ~55% susceptible.

Cefazolin

Cefazolin is generally safe and effective in the setting of penicillin allergy

PSEUDOMONAS AERUGINOSA (PA)

Anti-Pseudomonal β-lactams

Cefepime, piperacillin-tazobactam, and meropenem are equivalent in activity vs. PA at 94%

Double-Coverage

With 94% of all PA isolates being susceptible to cefepime, piperacillin-tazobactam, and meropenem, double-coverage is not routinely needed

Fluoroquinolones

PA is 90% susceptible to ciprofloxacin and 84% susceptible to levofloxacin

STREPTOCOCCUS PNEUMONIAE (SP)

High-dose Amoxicillin

High-dose amoxicillin will treat >97% of all non CSF SP isolates

Azithromycin

Azithromycin susceptibility is poor (65%)

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