Antimicrobial Susceptibility Testing (AST)

Antimicrobial susceptibility testing remains a valuable diagnostic tool for the veterinary practitioner in determining the most effective treatment for bacterial infections. When submitting a specimen for culture and susceptibility testing, it is important to provide treatment history with specific antibiotics previously used, and any clinical history that may affect the patient's normal bacterial flora.

We have many antibiotics and panels of antibiotics available for diagnostic testing (see documents listed below on the DCPAH website). The panel chosen to be reported will vary depending on the type and growth requirements of the bacterial pathogen isolated, the animal species of origin, and the method that will allow the most rapid turnaround time. Please mark clearly on the submittal form if requesting a particular antimicrobial agent or testing method.

We follow Clinical Laboratory Standards Institute (CLSI, formerly NCCLS) guidelines for antimicrobial susceptibility testing and reporting of antibiotics based on animal species, when available. The source of data for interpretive guidelines (animal species or human clinical breakpoints) and the resistance breakpoints are listed in the document below: “Resistance Breakpoints for Antimicrobials Used in Animals” (http://dcpah.msu.edu/Sections/Bacteriology/WEBCD.BACT.REF.011.pdf).

While it is our policy to report only antibiotics approved for use in the animal species being tested, the responsibility for appropriate and effective treatment lies solely with the clinician.

**Use of Antimicrobial Susceptibility Results**

- Use of Antimicrobial Susceptibility Data to Guide Therapy
- Resistance Breakpoints for Antimicrobials Used in Animals

**Bacterial Susceptibility Profiles**

The Bacteriology Section at the Diagnostic Center for Population and Animal Health (DCPAH) runs thousands of AST panels annually. Cumulative AST data at a particular institution over a defined time period may be summarized to provide guidance in the selection of empirical antimicrobial therapy for infections and is reported as the percentage of organisms susceptible.

Cumulative AST profiles* for bacteria isolated from dog and cat specimens submitted for culture at the DCPAH in 2013 are now available. Equine and bovine pathogen AST profiles will become available in the near future.

- Dog and Cat Gram-Negative Isolates 2013
- Dog and Cat Gram-Positive Isolates 2013
- Dog and Cat Isolates 2013 (Pocket-Size)

*Profiles are determined by following recommendations made by the Clinical and Laboratory Standards Institute (CLSI) Analysis and Presentation of Cumulative Antimicrobial Susceptibility Test Data; Approved Guideline – Third Edition (M39-A3, 2009), where possible. Percentages based on less than 30 isolates are noted and specimens submitted to the DCPAH are not always collected at initial infection, nor can this status be determined from submittal records. The cumulative data may still provide valuable insight to our clients.

**Routine DCPAH Antimicrobial Panels**

- Antibiotic panels for susceptibility testing on tissue isolates from dogs, cats, and other small animals
- Antibiotic panels for susceptibility testing on urine isolates from dogs, cats, and other small animals
- Antibiotic panels for susceptibility testing on isolates from horses

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Antibiotic panels for susceptibility testing on isolates from ruminant species

Antibiotic panels for susceptibility testing on isolates from swine and avian species