

Danbury Hospital 2009 Cumulative Antibigram **Jessica Dodge, M.D., Director of Microbiology Laboratory**

Danbury Hospital Laboratory is pleased to announce the completion of the cumulative antibiogram for the year 2009. The cumulative antibiogram is an annually generated report that reflects the percentage of bacterial isolates that are susceptible to antimicrobial agents routinely tested in the Clinical Microbiology section of the Laboratory. Antibiograms provide clinicians and public health officials with trends of antimicrobial susceptibility at the local, regional, and national levels. One of the primary aims of the antibiogram is to guide clinicians in the selection of empiric antimicrobial therapy for infections. It should be used as a general guide to empiric antimicrobial therapy only until specific antimicrobial susceptibility test results on a given patient's isolate become available.

Increasing bacterial antibiotic resistance is a current and worrisome problem throughout the world. Clinicians and local Infection Control personnel use antibiogram data to monitor resistance trends and design measures to control outbreaks of resistant species. Antibiograms help in developing quality improvement initiatives and forming infection control policies and procedures.

Additionally, the data can be used by the Pharmacy to identify the need for new antimicrobials for the formulary, determine when some antibiotics are no longer effective, and monitor prescribing patterns. This also encourages physicians to use less expensive but still effective agents and thus decreases pharmaceutical costs.

Data Presentation

- The culture susceptibility test reports on the bacterial isolates are stored in the primary data system (e.g. LIS or susceptibility testing instrument).
- The data is generated annually and then interpreted.
- The data reports only the percent susceptible and does not include percent intermediate in the statistics.
- The data is presented in separate subgroups in the report (e.g. gram positive vs. gram negative, inpatient vs. outpatient, and antibiotics tested on urine).
- A multidisciplinary approach, including review by physicians, infection control personnel and pharmacists was done prior to publication. We would like to extend a special thanks to Dr. John Stratidis in the Infectious Disease Department for his expertise and dedication to this project.

The following is an example of cumulative susceptibility data for methicillin resistant *Staphylococcus aureus* and interpretation of the data:

Danbury Hospital Inpatient Gram Positive Cumulative Antibioqram 2009

	Staphylococcus MRSA
No. of isolates	209
	% Susceptibility
Amox/clavulanate	0
Amp/sulbactam	0
Ampicillin	—
Azithromycin	—
Cefaclor	—
Cefazolin	0
Cefepime	—
Cefotaxime	—
Ceftriaxone	0
Cefuroxime	—
Chloramphenicol	94
Clindamycin ¹	15
Daptomycin	100
Erythromycin	7
Gentamicin	95
Imipenem	0
Levofloxacin	11
Linezolid	100
Meropenem	—
Moxifloxacin)	28
Nitrofurantoin(urine)	100
Oxacillin	0
Penicillin	0
Rifampin	99
Synercid	100
Tetracycline	93
Trimethoprim/sulfa	96
Vancomycin	100

- Total number of isolates of methicillin resistant *Staphylococcus aureus* in Danbury Hospital in year 2009 was 209. Only one isolate per patient was counted.
- 100% susceptibility was seen with linezolid, synercid, vancomycin and daptomycin.
- In urine specimens 100% susceptibility was seen with nitrofurantoin.
- (—) Indicates that these drugs are not tested or indicated for methicillin resistant *Staphylococcus aureus* infection.
- ¹All methicillin resistant *Staphylococcus aureus* isolates reported as clindamycin susceptible were also susceptible to erythromycin.

Comparison Between 2008 and 2009 Antibioqram:

For the 2009 Outpatient Gram Positive Antibioqram, the following bacterial isolates showed more than a 15% decrease in susceptibility to the following antibiotics compared to 2008 isolates:

<u><i>Staphylococcus lugdunensis</i></u>	<u>% decrease in susceptibility</u>
Erythromycin	16
<u><i>Enterococcus faecium</i></u>	
Nitrofurantoin (urine)	51
Tetracycline	38
Vancomycin	19

For the 2009 Inpatient Gram Positive Antibigram, the following bacterial isolates showed more than a 15% decrease in susceptibility to the following antibiotics compared to 2008 isolates:

<u><i>Enterococcus faecium</i></u>	<u>% decrease in susceptibility</u>
Tetracycline	44

For the 2009 Outpatient Gram Negative Antibigram, the following bacterial isolates showed more than a 15% decrease in susceptibility to the following antibiotics compared to 2008 isolates:

<u><i>Citrobacter freundii</i></u>	<u>% decrease in susceptibility</u>
Amoxicillin/clavulanate	24

For the 2009 Inpatient Gram Negative Antibigram, the following bacterial isolates showed more than a 15% decrease in susceptibility to the following antibiotics compared to 2008 isolates:

<u><i>Acinetobacter baumannii</i></u>	<u>% decrease in susceptibility</u>
Cefotaxime	18
Levofloxacin	20

<u><i>Citrobacter freundii</i></u>	<u>% decrease in susceptibility</u>
Trimethoprim/sulfamethoxazole	20

<u><i>Enterobacter aerogenes</i></u>	<u>% decrease in susceptibility</u>
Ampicillin/sulbactam	16
Cefotetan	17
Ceftriaxone	17

<u><i>Morganella morganii</i></u>	<u>% decrease in susceptibility</u>
Amoxicillin/clavulanate	25

<u><i>Pseudomonas aeruginosa</i></u>	<u>% decrease in susceptibility</u>
Gentamicin	16

<u><i>Serratia marcescens</i></u>	<u>% decrease in susceptibility</u>
Gatifloxacin	20

Access to the Antibigram:

The 2009 cumulative antibiogram is available on Danbury Hospital's main intranet webpage <http://dhsintra/> in the Clinical Assistance section under Blood/Body Fluid Exposure, Isolation / IC Information. To obtain hard copies of the antibiograms, please call Client Service Representative, Sandra Smith at 203-739-7800.

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