Adult Antibiogram – Milton S. Hershey Medical Center – 2016 Data

A joint effort of the Clinical Microbiology Laboratory and the Antimicrobial Stewardship Program

To access in Cerner PowerChart: *Use "Links" dropdown menu and choose "Infectious Diseases Resources"*

Purpose: To report susceptibilities of common bacteria and yeast isolates from January to December of 2016.

Contents: Inpatient and outpatient data for Gram-positive and Gram-negative bacteria, and data for *Candida* species.

What data are included: As per national recommendations, the data reflect the first isolate for any patient, at any site, during the time period of this antibiogram, and only bacteria with at least 30 isolates are shown.

How to use: Percent susceptibility is shown for selected bug–drug combinations. A blank box can mean that a particular drug is inappropriate for that organism, or that a simpler drug in that class usually can be used.

Please note: Although antibiograms can guide empiric therapy before microbiological data are available, quality care and good stewardship require considering additional clinical information and may require an Infectious Diseases consult.

Selected Recent Data (by year):

Methicillin (Oxacillin)-Resistant *Staph aureus* (MRSA)

2015: 33% of inpatient isolates and 31% of outpatient isolates
2016: 33% of inpatient isolates and 30% of outpatient isolates

Methicillin (Oxacillin)-Resistant Coagulase-Negative Staphylococci (MRCNS)

2015: 50% of inpatient isolates and 29% of outpatient isolates
2016: 54% of inpatient isolates and 30% of outpatient isolates

Vancomycin-Resistant *Enterococcus* (VRE)

2015: 25% of inpatient isolates and 8% of outpatient isolates; ≤ 6% of *E. faecalis* but ≥ 68% of *E. faecium*
2016: 22% of inpatient isolates and 8% of outpatient isolates; ≤ 7% of *E. faecalis* but ≥ 63% of *E. faecium*

For questions, please contact:

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Hershey Medical Center Antibiogram for Gram-Positives, Jan – Dec 2016 (Inpatient at top and Outpatient at bottom)

Gram-Positives January – December, 2016

% Susceptible
(A blank box can mean that drug is inappropriate for that bacteria or that a simpler drug in that class usually can be used)

Common Gram-Positive Organisms	# Isolates Tested (not all tested for each drug)	Penicillins and Cephalosporins					Carba-penems	Macrolides		Fluoroquinolones			Amino-glycosides		Others (in alphabetical order)									
		Penicillin	Ampicillin	Amoxicillin / Clavulanate	Oxacillin	Ceftriaxone	Meropenem	Azithromycin	Erythromycin	Ciprofloxacin	Moxifloxacin	Levofloxacin	Gentamicin (Do not use alone)	Gentamicin Synergy	Chloramphenicol	Clindamycin	Daptomycin	Linezolid	Nitrofurantoin (for urine infections)	Quinupristin / Dalfopristin	Rifampin (Do not use alone)	Tetracycline	Trimethoprim / Sulfamethoxazole	Vancomycin
INPATIENT																								
Staph aureus (total)	687	6	0	67	67	67			48	66	80	70	98			70	99	100	100	100	99	94	99	100
Staph aureus (MRSA only)	224	0	0	0	0	0			9	25	51	26	98			52	99	100	*	100	99	92	98	100
Staph aureus (MSSA only)	463	9	0	100	100	100			66	86	94	91	98			79	99	100	*	100	100	95	100	100
Staph coag. neg.	400	13	0	46	46	46			42	59	71	60	82			61	100	100	*	99	99	86	65	100
Strep pneumoniae	37	76**		97		97**	95	51	51			100			100	89						81	86	100
Viridans Strep group	69	81	84			99	98	65	55			93			97	92						64		100
Enterococcus faecalis	338	100	100						8	63		72		70			100	96	99			20		93
Enterococcus faecium	122	17	17							10		12		92			89	93	40			19		37
OUTPATIENT * **																								
Staph aureus (total)	920	6	0	70	70	70			48	70	87	74	98			74	100	100	100	100	99	93	99	100
Staph aureus (MRSA only)	278	0	0	0	0	0			16	33	68	35	96			71	100	100	*	100	99	94	98	100
Staph aureus (MSSA only)	642	8	0	100	100	100			62	86	96	91	98			75	100	100	100	100	99	93	99	100
Staph coag. neg.	145	30	0	70	70	70			58	80	88	81	97			76	100	100	*	100	98	90	84	100
Strep pneumoniae	37	73**		97		95**	81	69	69			97			100	97						89	89	100
Enterococcus faecalis	372	99	100							72		82		81			100	98	99			22		96
Enterococcus faecium	26*	12*	23*							8*		8*		96*			85*	96*	36*			8*		31*

Footnotes:

* Fewer than 30 isolates tested, so results are not considered statistically reliable.

** The Penicillin-Resistant *Streptococcus pneumoniae* (PRSP) rates shown above (24% for inpatients and 27% for outpatients) used the "meningitis" breakpoints, which are very conservative. However, most *S. pneumoniae* outside the central nervous system (such as in the respiratory tract) are treatable with penicillin. If the higher "non-meningitis" breakpoints are used, only 3% of our *S. pneumoniae* would be resistant to penicillin and just 0% would be resistant to ceftriaxone (as combined inpatient and outpatient data).

*** Outpatient numbers and data include Pediatric isolates.

Comments:

– The Methicillin (Oxacillin)-Resistant *Staphylococcus aureus* (MRSA) rate was 33% for inpatients and 30% for outpatients.

– The Methicillin (Oxacillin)-Resistant Coagulase-Negative Staphylococci (MRCNS) rate was 54% for inpatients and 30% for outpatients.

– The Vancomycin-Resistant *Enterococcus* (VRE) rate was 22% for inpatients (7% of *E. faecalis* and 63% of *E. faecium*) and 8% for outpatients (4% of *E. faecalis* and 69% of *E. faecium*).

Hershey Medical Center Antibiogram for Gram-Negatives, Jan – Dec 2016 (Inpatient at top and Outpatient at bottom)

Gram-Negatives January – December, 2016

% Susceptible
(A blank box can mean that drug is inappropriate for that bacteria or that a simpler drug in that class usually can be used)

		Penicillins and Cephalosporins					β-lactam / β-lactamase Inhibitor Combinations				Carbapenems		Fluoroquinolones			Aminoglycosides			Others		
Common Gram-Negative Organisms	**# Isolates Tested (not all tested for each drug)**	Ampicillin	Cefazolin	Ceftriaxone	Ceftazidime	Cefepime	Amoxicillin / Clavulanate	Ampicillin / Sulbactam	Piperacillin / Tazobactam	Ticarcillin / Clavulanate	Meropenem	Ertapenem	Ciprofloxacin	Moxifloxacin	Levofloxacin	Gentamicin	Tobramycin	Amikacin	Nitrofurantoin (for urine infections)	Tetracycline	Trimethoprim / Sulfamethoxazole
INPATIENT																					
Escherichia coli	801	53	80	89	89	89	81	58	97		100	100	74	72	75	90	91	99	97	74	78
Klebsiella pneumoniae	374	0	82	87	87	87	84	74	87		94	93	86	86	86	95	88	99	45	82	82
Proteus mirabilis	148	78	89	98	98	98	96	87	99		99	99	65	61	71	91	91	99	0	0	76
Enterobacter cloacae	112	0	0	84	87	96	0	0	91		100	97	96	99	98	98	98	100	*	87	95
Enterobacter aerogenes	55	0	0	73	69	100	0	0	75		100	100	100	100	100	100	100	100	*	85	98
Serratia marcescens	55	0	0	91	87	100	0	0	85		100	100	91	98	98	96	87	95	*	2	100
Pseudomonas aeruginosa	300				87	86			94 **		92		81		80	87	95	98			
Citrobacter freundii	48	0	0	73	77	96	0	0	94		100	100	85	*	88	88	88	100	*	81	77
Morganella morganii	35	0	0	89	74	97	0	6	91		100	100	71	*	77	83	94	100	*	0	69
Stenotrophomonas maltophilia	43				56					44					88						95
OUTPATIENT * **																					
Escherichia coli	2311	59	89	95	96	96	88	65	98		100	100	85	76	86	94	95	100	98	79	81
Klebsiella pneumoniae	436	0	94	96	96	96	93	82	94		99	98	94	92	96	98	96	99	47	83	90
Proteus mirabilis	209	83	94	100	100	100	99	93	100		100	100	80	*	83	94	94	100	0	0	83
Enterobacter cloacae	84	0	0	85	85	94	0	0	90		100	100	90	*	94	96	94	100	13	83	87
Enterobacter aerogenes	49	0	0	92	90	98	0	0	92		100	96	98	*	98	100	100	100	20	96	98
Serratia marcescens	62	0	0	90	89	100	0	0	89		100	97	92	93	97	97	92	97	*	8	90
Pseudomonas aeruginosa	268				94	92			97**		94		82		79	85	98	99			
Citrobacter freundii	57	0	0	84	86	100	0	0	96		100	98	89	*	93	93	95	100	93	89	86
Morganella morganii	32	0	0	91	88	100	0	3	97		97	97	78	*	81	94	97	100	*	0	66
Stenotrophomonas maltophilia	57				51					46					88						98

Footnotes:

* Fewer than 30 isolates tested, so results are not considered statistically reliable.

** These rates of *Pseudomonas aeruginosa* susceptibility to piperacillin/tazobactam used the FDA-approved breakpoint of 64 ug/ml, but the evolving nature of Microbiology has led national Infectious Diseases experts to consider *Pseudomonas* with an MIC of 32 or 64 ug/ml for pip/tazo to be intermediate (or dose-dependent) susceptible; thus, maximal dosing should be used.

*** Outpatient numbers and data include Pediatric isolates.

HMC Antibiogram for *Candida* species, Jan – Dec 2016

Yeast January – December, 2016	# Isolates Tested	% Susceptible				
		Azoles			Other	
***Candida* Species**		Fluconazole *	Itraconazole *	Voriconazole *	Caspofungin	Flucytosine
C. albicans	75	88	96	93	100	96
C. glabrata	49	84	43		80	100
C. dubliniensis	3	100	100	100	100	100
C. krusei	3		100	100	33	0
C. lusitaniae	9	100	100	100	100	89
C. parapsilosis	17	82	100	81	100	88
C. tropicalis	14	93	93	93	100	100
Candida spp. (other)	2	100	100	100	100	100

Footnotes:

* Numbers shown include "Susceptible" + "Susceptible-Dose Dependent."

Comments:

– Data for species with fewer than 30 isolates are presented for information purposes only and should not be considered statistically reliable.