

# 2016 GRAM-NEGATIVE ANTIBIOGRAM, EASTERN MAINE MEDICAL CENTER\*

Steven Mahlen, PhD, D(ABMM), Director, Microbiology, 207-973-6980

Sara Jones, PharmD, Infectious Diseases Clinical Specialist, 207-973-6779 or 207-356-1970 (cell)

## Percent Susceptible

GRAM-NEGATIVE ORGANISMS 2016 DATA % SUSCEPTIBLE (ISOLATES)	Ampicillin	Ampicillin/ Sulbactam	Cefazolin	Cefuroxime	Ceftriaxone	Cefepime	Meropenem	Pip / Tazobactam	Ciprofloxacin	Levofloxacin	Gentamicin	Tobramycin	Trimeth / Sulfa	Aztreonam	Nitrofurantoin
Antibiotic cost <sup>A</sup>	IV: \$\$	IV: \$\$	IV: \$	IV: \$ PO: \$	IV: \$	IV: \$\$	IV: \$\$	IV: \$\$	IV: \$ PO: \$	IV: \$ PO: \$	IV: \$ + MONITORING	IV: \$ + MONITORING	IV: \$\$\$\$ PO: \$	IV: \$\$\$\$	PO: \$
<i>Escherichia coli</i> (All) (1805)	68%	73%	94%	94%	96%	98%	100%	99%	89%	89%	96%	97%	84%		
<i>E. coli</i> (Urine) (1691)	68%	73%	95%	94%	97%	98%	100%	99%	89%	89%	96%	97%	84%		99%
<i>E. coli</i> (Non-urine) <sup>B</sup> (114)	65%	68%	68%	87%	93%	96%	100%	97%	86%	87%	95%	97%	84%		
<i>Klebsiella pneumoniae</i> (381)	R <sup>C</sup>	77%	95%	92%	98%	97%	100%	96%	97%	97%	97%	98%	90%		85% (348)
<i>Enterobacter</i> spp. <sup>D</sup> (142)	R	R	R	R	80%	96%	99% <sup>E</sup>	85%	97%	98%	100%	98%	94%		78% (87)
<i>Serratia marcescens</i> (26) <sup>F</sup>	R	R	R	R	88%	100%	100%	96%	96%	96%	100%	100%	100%		R
<i>Proteus mirabilis</i> (116)	90%	93%	85%	99%	99%		100%		75%	85%	97%	98%	81%		R
<i>Citrobacter freundii</i> (72)	R	R	R	R	86%	98%	100%	92%	96%	96%	97%	97%	93%		97% (60)
<i>Acinetobacter</i> spp. <sup>G</sup> (68)	R	94%	R	R	R	97%	96%	91%	96%	97%	96%	97%	97%		
<i>Pseudomonas aeruginosa</i> (non-CF) (136)	R	R	R	R	R	93%	93%	87%	83%	82%	97%	99%	R	83%	R
<i>P. aeruginosa</i> (CF) <sup>H</sup> (42)	R	R	R	R	R	79%	88%	93%	67%		62%	81%	R	71%	R
<i>Haemophilus influenzae</i> (105)	66% <sup>I</sup>														

A: Cost/day of typical IV/PO dose of drug at EMMC (cost data compiled by S. Jones): \$ = <\$10; \$\$ = <\$30; \$\$\$ = <\$60; \$\$\$\$ = <\$100; \$\$\$\$\$ = >\$100

B: Non-urine: blood, aerobic/anaerobic/orthopedic, and respiratory specimens

C: R = Intrinsic resistance expected

D: Combined data for *Enterobacter aerogenes* and *Enterobacter cloacae*

E: Single isolate (n=1) intermediate to meropenem (non-carbapenemase producer)

F: Less than 30 isolates tested; may not be statistically significant

G: 2013-2016 cumulative data for all *Acinetobacter* species, including *Acinetobacter baumannii* complex

H: CF = cystic fibrosis patients. Includes flat and mucoid phenotypes

I: Cefinase disk testing; predicts ampicillin and amoxicillin sensitivity

\*All inpatient and outpatient locations associated with EMMC  
Blank cell: Insufficient data or no isolates tested against agent

# 2016 GRAM-POSITIVE AND YEAST ANTIBIOGRAM, EASTERN MAINE MEDICAL CENTER

Steven Mahlen, PhD, D(ABMM), Director, Microbiology, 207-973-6980

Sara Jones, PharmD, Infectious Diseases Clinical Specialist, 207-973-6779 or 207-356-1970 (cell)

## Percent Susceptible

GRAM-POSITIVE ORGANISMS 2016 Data % Susceptible (Isolates)	Penicillin	Ampicillin	Oxacillin	Ceftriaxone	Clindamycin	Tetracycline	Levofloxacin	Gentamicin	Vancomycin	Trimeth/ Sulfa	Linezolid	Daptomycin
Antibiotic cost <sup>A</sup>	IV: \$\$ PO: \$	IV: \$\$	IV: \$\$\$\$	IV: \$	IV: \$\$ PO: \$	IV: \$\$ <sup>B</sup> PO: \$	IV: \$ PO: \$	IV: \$ + MONITORING	IV: \$ + MONITORING	IV: \$\$\$\$ PO: \$	IV: \$\$\$\$ PO: \$\$	IV: \$\$\$\$
<i>Staphylococcus aureus</i> (all isolates) (702)	R <sup>C</sup>	R	61%		78%	97%	‡	‡	100%	99%	99.9%	100%
Methicillin-resistant <i>S. aureus</i> (39%) <sup>D</sup> (274)	R	R	R	R	75%	97%	‡	‡	100%	99%	100%	100%
Methicillin-susceptible <i>S. aureus</i> (428)	R	R	100%		80%	97%	‡	‡	100%	99%	99.8%	100%
<i>Staphylococcus</i> sp.(coagulase neg.) (189) <sup>E</sup>	R	R	56%		74%	92%	‡	‡	100%	69%	100%	100%
<i>Staphylococcus lugdunensis</i> (43)			100%		93%	98%	‡	‡	100%	100%	100%	100%
<i>Enterococcus faecalis</i> (56)		100%	R	R	R		‡	84% <sup>G</sup>	100%	R	100%	100%
<i>Enterococcus faecium</i> (24) <sup>F</sup>		13%	R	R	R		R	100% <sup>G</sup>	33%	R	100%	100%
Viridans group streptococci (86) <sup>H</sup>	70%			96%	87%		100%		100%		100%	100%
<i>Streptococcus pneumoniae</i> (69)	----- <sup>I</sup>			----- <sup>I</sup>	84%	81%	100%	R	100%	89%	100%	
<i>S. pneumoniae</i> , Meningitis (69)	65%			88%								
<i>S. pneumoniae</i> , Non-meningitis (69)	99%			99%								

Yeast ( <i>Candida</i> spp.) 2008-2016 Cumulative Data % Susceptible	Fluconazole	Voriconazole	Micafungin
Antibiotic cost:	PO: \$ IV: \$	PO: \$\$\$ IV: \$\$\$\$	IV: \$\$\$\$
<i>Candida albicans</i> (104)	97%	97%	99%
<i>C. glabrata</i> (40)	90% <sup>J</sup>	90% <sup>K</sup>	98%
<i>C. parapsilosis</i> (32) <sup>F</sup>	97%	100%	97%

Blank cell: Insufficient data or no isolates tested against agent

‡: Not recommended for empiric use; consult Infectious Disease pharmacist before use

A: Cost/day of typical IV/PO dose of drug at EMMC (cost data compiled by S. Jones): \$ = <\$10; \$\$ = <\$30; \$\$\$ = <\$60; \$\$\$\$ = <\$100; \$\$\$\$\$ = >\$100

B: Cost data based on doxycycline cost

C: R = Intrinsic resistance expected

D: Methicillin-resistant *Staphylococcus aureus* (MRSA) prevalence at EMMC = 39%

E: Includes all coagulase negative staphylococci except *Staphylococcus lugdunensis*

F: Less than 30 isolates tested; may not be statistically significant

G: High-level gentamicin (synergy)

H: 2013-2016 cumulative data. Includes alpha streptococci: *S. mitis/oralis*, viridans group, *S. salivarius*, *S. mutans*, *S. anginosus* group, etc.

I: Breakpoints differ for penicillin and ceftriaxone based on diagnosis. Penicillin and ceftriaxone meningitis applies to susceptibility of *S. pneumoniae* for patients with meningitis; penicillin and ceftriaxone non-meningitis applies to susceptibility of *S. pneumoniae* for patients who do not have meningitis.

J: Susceptibility is dose dependent (SDD) for all non-resistant *C. glabrata* isolates tested with fluconazole; dependent on achieving maximal possible drug levels in the blood.

K: Current data are insufficient to demonstrate a correlation between susceptibility testing and clinical outcome for *C. glabrata* and voriconazole. Data represents % of wild-type strains (i.e., strains without mutations or acquired resistance).