



**Northern Light
Health**SM

2021 Antibiograms Table of Contents

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2021 GRAM-NEGATIVE ANTIBIOGRAM, NORTHERN LIGHT HEALTH*

Microbiology Department, Northern Light Laboratory, 207-973-6980

Percent Susceptible

GRAM-NEGATIVE ORGANISMS 2021 DATA % SUSCEPTIBLE (ISOLATES)	Ampicillin	Ampicillin/ Sulbactam	Cefazolin	Cefuroxime ^A	Ceftriaxone	Cefepime	Meropenem	Pip / Tazobactam	Ciprofloxacin ^B	Levofloxacin ^B	Gentamicin	Tobramycin	Trimeth / Sulfa	Aztreonam	Nitrofurantoin
Antibiotic cost ^C	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) (9785)	68%	74%	93%	74%	95%	99%	99.9%	99%	86%	87%	95%	97%	85%	†	
<i>E. coli</i> (Urine) (9262)	68%	74%	94%	74%	95%	97%	99.9%	99%	86%	87%	95%	97%	85%	†	98%
<i>E. coli</i> (Non-urine) ^D (523)	62%	70%	71%	69%	86%	92%	99.8%	98%	80%	81%	92%	95%	80%	†	
<i>Klebsiella pneumonia</i> (1447)	R ^E	82%	91%	78%	93%	98%	99.9%	97%	88%	89%	97%	96%	88%	†	76%
<i>Klebsiella (Enterobacter) aerogenes</i> (179) ^F	R	R	R	R	76%	99%	100%	80%	97%	97%	99%	100%	98%	†	76%
<i>Enterobacter</i> spp. (322)	R	R	R	R	77%	98%	99%	87%	95%	95%	98%	98%	94%	†	66%
<i>Serratia marcescens</i> (160)	R	R	R	R	93%	100%	98%	95%	92%	94%	99%	96%	100%	†	R
<i>Proteus mirabilis</i> (589)	91%	98%	89%	96%	99%	ND	100%	ND	81%	82%	98%	99%	89%	†	R
<i>Citrobacter freundii</i> (258)	R	R	R	R	79%	100%	100%	84%	89%	90%	98%	98%	91%	†	96%
<i>Acinetobacter</i> spp. ^G (40)	R	85%	R	R	R	95%	93%	85%	95%	95%	98%	100%	98%	†	100%
<i>Pseudomonas aeruginosa</i> (non-CF) (556)	R	R	R	R	R	91%	93%	87%	81%	79%	93%	97%	R	83%	R
<i>P. aeruginosa</i> (CF) ^H (30)	R	R	R	R	R	79%	92%	83%	67%	ND	71%	83%	R	75%	R
<i>Haemophilus influenzae</i> (80)	77% ^I														

A: Cefuroxime susceptibility for PO administration reported for 2021. IV susceptibility is higher.
 B: Fluoroquinolone breakpoints were updated (lowered) in 2019, resulting in slightly decreased susceptibility.
 C: Cost/day of typical IV/PO dose of drug at EMMC: \$ = <\$10; \$\$ = <\$30; \$\$\$ = <\$60; \$\$\$\$ = <\$100; \$\$\$\$\$ = >\$100
 D: Non-urine: blood, aerobic/anaerobic/orthopedic, and respiratory specimens
 E: R = Intrinsic resistance expected
 F: Please note, *Enterobacter aerogenes* is now *Klebsiella (Enterobacter) aerogenes* and has been removed from the *Enterobacter* spp. data.
 G: Combined data for all *Acinetobacter* species, including *A. baumannii* complex.
 H: CF = cystic fibrosis patients. Includes flat and mucoid phenotypes. Combined 2020 and 2021 data.
 I: Cefinase disk testing; predicts ampicillin and amoxicillin sensitivity

*All inpatient and outpatient locations associated with NLL, EMMC and surrounding area.
 Blank cell: Insufficient data or no isolates tested against agent

2021 GRAM-POSITIVE AND YEAST ANTIBIOGRAM, NORTHERN LIGHT HEALTH*

Microbiology Department, Northern Light Laboratory, 207-973-6980

Percent Susceptible

GRAM-POSITIVE ORGANISMS 2021 Data % Susceptible (Isolates)	Penicillin	Ampicillin	Oxacillin	Ceftriaxone	Clindamycin	Tetracycline	Levofloxacin	Gentamicin	Vancomycin	Trimeth/ Sulfa	Linezolid	Daptomycin
Antibiotic cost ^A	IV: \$\$ PO: \$	IV: \$\$	IV: \$\$\$	IV: \$	IV: \$\$ PO: \$	IV: \$\$ ^B PO: \$	IV: \$ PO: \$	IV: \$ + MONITORING	IV: \$ + MONITORING	IV: \$\$\$ PO: \$	IV: \$\$\$ PO: \$	IV: \$\$
<i>Staphylococcus aureus</i> (all isolates) (2581)	R ^C	R	66% ^D		76%	92%	‡	‡	100%	98%	99.9%	100%
<i>Staphylococcus aureus</i> (MSSA) (1698)	R	R	100%		78%	92%	‡	‡	100%	99%	99.9%	100%
<i>Staphylococcus aureus</i> (MRSA) (883)	R	R	0%		71%	93%	‡	‡	100%	96%	100%	100%
<i>Staphylococcus</i> sp.(coagulase neg.) (602) ^E	R	R	55%		61%	88%	‡	‡	100%	67%	100%	100%
<i>Staphylococcus lugdunensis</i> (155)			100%		91%	95%	‡	‡	100%	100%	100%	100%
<i>Enterococcus faecalis</i> (131)		100%	R	R	R		‡	86% ^F	95%	R	100%	100%
<i>Enterococcus faecium</i> (50) ^G		18%	R	R	R		R	97% ^F	40%	R	100%	100%
Viridans group streptococci (94) ^H	87%			97%	84%		93%		100%		100%	100%
<i>Streptococcus pneumoniae</i> (75)	----- ^I			----- ^I	90%	91%	99%	R	100%	90%	100%	
<i>S. pneumoniae</i> , Meningitis (75)	88%			96%								
<i>S. pneumoniae</i> , Non-meningitis (75)	99%			99%								

Yeast (<i>Candida</i> spp.) 2016-2021 Cumulative Data % Susceptible	Fluconazole	Voriconazole	Micafungin
Antibiotic cost:	PO: \$ IV: \$	PO: \$ IV: \$\$	IV: \$\$\$
<i>Candida albicans</i> (138)	94%	95%	99%
<i>C. glabrata</i> (54)	89% ^J	K	100%
<i>C. parapsilosis</i> (44)	96%	96%	98%

*All inpatient and outpatient locations associated with NLL, EMMC and surrounding area.
 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: \$ = <\$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 NLL = 34%
 E: Includes all coagulase negative staphylococci except *Staphylococcus lugdunensis*
 F: High-level gentamicin (synergy)
 G: 2019, 2021 Cumulative data
 H: 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.

2021 GRAM-NEGATIVE ANTIBIOGRAM, NORTHERN LIGHT EASTERN MAINE MEDICAL CENTER

Microbiology Department, Northern Light Laboratory, 207-973-6980

Percent Susceptible

GRAM-NEGATIVE ORGANISMS 2021 DATA % SUSCEPTIBLE (ISOLATES)	Ampicillin	Ampicillin/ Sulbactam	Cefazolin	Cefuroxime ^A	Ceftriaxone	Cefepime	Meropenem	Pip / Tazobactam	Ciprofloxacin ^B	Levofloxacin ^B	Gentamicin	Tobramycin	Trimeth / Sulfa	Aztreonam	Nitrofurantoin
Antibiotic cost ^C	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) (1150)	65%	71%	88%	69%	92%	95%	100%	99%	82%	82%	95%	97%	82%	†	
<i>E. coli</i> (Urine) (1014)	66%	71%	91%	69%	93%	96%	100%	99%	82%	83%	95%	97%	83%	†	99%
<i>E. coli</i> (Non-urine) ^D (136)	58%	69%	66%	67%	87%	90%	100%	100%	78%	78%	95%	98%	78%	†	
<i>Klebsiella pneumonia</i> (223)	R ^E	76%	84%	71%	88%	88%	100%	94%	83%	87%	95%	95%	83%	†	71%
<i>Klebsiella (Enterobacter) aerogenes</i> (34) ^F	R	R	R	R	71%	97%	100%	76%	88%	88%	100%	100%	100%	†	67%
<i>Enterobacter</i> spp. (80)	R	R	R	R	76%	90%	100%	85%	99%	99%	99%	99%	94%		69%
<i>Serratia marcescens</i> (42)	R	R	R	R	93%	100%	98%	95%	93%	96%	98%	95%	100%	†	R
<i>Proteus mirabilis</i> (113)	87%	96%	73%	94%	99%	ND	100%	ND	78%	78%	98%	99%	87%	†	R
<i>Citrobacter freundii</i> (43)	R	R	R	R	72%	100%	100%	72%	86%	86%	100%	98%	96%	†	100%
<i>Pseudomonas aeruginosa</i> (non-CF) (127)	R	R	R	R	R	82%	96%	79%	86%	85%	93%	98%	R	79%	R
<i>P. aeruginosa</i> (CF) ^G (30)	R	R	R	R	R	79%	92%	83%	67%	ND	71%	83%	R	75%	R

A: Cefuroxime susceptibility for PO administration reported for 2021. IV susceptibility is higher.
 B: Fluoroquinolone breakpoints were updated (lowered) in 2019, resulting in slightly decreased susceptibility.
 C: Cost/day of typical IV/PO dose of drug at EMMC: \$ = <\$10; \$\$ = <\$30; \$\$\$ = <\$60; \$\$\$\$ = <\$100; \$\$\$\$\$ = >\$100
 D: Non-urine: blood, aerobic/anaerobic/orthopedic, and respiratory specimens
 E: R = Intrinsic resistance expected
 F: Please note, *Enterobacter aerogenes* is now *Klebsiella (Enterobacter) aerogenes* and has been removed from the *Enterobacter* spp. data.
 G: CF = cystic fibrosis patients. Includes flat and mucoid phenotypes

Blank cell: Insufficient data or no isolates tested against agent

2021 GRAM-POSITIVE ANTIBIOGRAM, NORTHERN LIGHT EASTERN MAINE MEDICAL CENTER Microbiology Department, Northern Light Laboratory, 207-973-6980

Percent Susceptible

GRAM-POSITIVE ORGANISMS 2021 Data % Susceptible (Isolates)	Penicillin	Ampicillin	Oxacillin	Ceftriaxone	Clindamycin	Tetracycline	Levofloxacin	Gentamicin	Vancomycin	Trimeth/ Sulfa	Linezolid	Daptomycin
Antibiotic cost ^A	IV: \$\$ PO: \$	IV: \$\$	IV: \$\$\$\$	IV: \$	IV: \$\$ PO: \$	IV: \$\$ ^B PO: \$	IV: \$ PO: \$	IV: \$ + MONITORING	IV: \$ + MONITORING	IV: \$\$\$\$ PO: \$	IV: \$\$\$ PO: \$	IV: \$\$
<i>Staphylococcus aureus</i> (all isolates) (606)	R ^C	R	65% ^D		73%	95%	‡	‡	100%	99%	99%	100%
<i>Staphylococcus aureus</i> (MSSA) (395)	R	R	100%		76%	96%	‡	‡	100%	99%	99%	100%
<i>Staphylococcus aureus</i> (MRSA) (211)	R	R	0%		67%	94%	‡	‡	100%	98%	100%	100%
<i>Staphylococcus</i> sp.(coagulase neg.) (145) ^E	R	R	46%		53%	83%	‡	‡	100%	65%	100%	100%
<i>Staphylococcus lugdunensis</i> (56) ^F			100%		91%	96%	‡	‡	100%	100%	100%	100%
<i>Enterococcus faecalis</i> (55)		100%	R	R	R		‡	82% ^G	96%	R	100%	100%
<i>Enterococcus faecium</i> (56) ^H		14%	R	R	R		R	100% ^G	43%	R	100%	96%
Viridans group streptococci (39) ^I	95%			97%	45%		91%		100%		100%	100%
<i>Streptococcus pneumoniae</i> (57) ^H	----- ^J			----- ^J	90%	90%	97%	R	100%	94%	100%	
<i>S. pneumoniae</i> , Meningitis (57) ^H	75%			91%								
<i>S. pneumoniae</i> , Non-meningitis (57) ^H	98%			98%								

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: \$ = <\$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 = 35%
E: Includes all coagulase negative staphylococci except *Staphylococcus lugdunensis*
F: 2019-2021 Cumulative data
G: High-level gentamicin (synergy)
H: 2020, 2021 Cumulative data
I: Includes alpha streptococci: *S. mitis/oralis*, viridans group, *S. salivarius*, *S. mutans*, *S. anginosus* group, etc.
J: 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.

2021 GRAM-NEGATIVE ANTIBIOGRAM, NORTHERN LIGHT MERCY

Microbiology Department, Northern Light Laboratory, 207-973-6980

Percent Susceptible

GRAM-NEGATIVE ORGANISMS 2021 DATA % SUSCEPTIBLE (ISOLATES)	Ampicillin	Ampicillin/ Sulbactam	Cefazolin	Cefuroxime ^A	Ceftriaxone	Cefepime	Meropenem	Pip / Tazobactam	Ciprofloxacin ^B	Levofloxacin ^B	Gentamicin	Tobramycin	Trimeth / Sulfa	Aztreonam	Nitrofurantoin
Antibiotic cost ^C	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) (1329)	67%	73%	92%	72%	94%	96%	100%	100%	86%	87%	94%	96%	85%	†	
<i>E. coli</i> (Urine) (1263)	68%	73%	93%	72%	94%	97%	100%	100%	86%	87%	94%	96%	85%	†	98%
<i>E. coli</i> (Non-urine) ^D (66)	64%	67%	68%	72%	89%	91%	100%	100%	82%	84%	88%	94%	80%	†	
<i>Klebsiella pneumonia</i> (184)	R ^E	82%	92%	80%	95%	94%	100%	98%	93%	94%	98%	96%	88%	†	76%
<i>Klebsiella (Enterobacter) aerogenes</i> (30) ^F	R	R	R	R	86%	96%	100%	93%	100%	100%	100%	100%	96%		82%
<i>Enterobacter</i> spp. (41)	R	R	R	R	83%	100%	98%	93%	97%	97%	95%	95%	95%	†	53%
<i>Serratia marcescens</i> ^G (37)	R	R	R	R	97%	100%	100%	97%	90%	95%	100%	100%	100%	†	R
<i>Proteus mirabilis</i> (57)	89%	98%	91%	98%	98%		100%		86%	88%	95%	100%	93%	†	R
<i>Citrobacter freundii</i> ^G (47)	R	R	R	R	77%	98%	100%	91%	88%	89%	98%	96%	96%	†	95%
<i>Pseudomonas aeruginosa</i> (86)	R	R	R	R	R	95%	93%	84%	74%	73%	95%	100%	R	79%	R

A: Cefuroxime susceptibility for PO administration reported for 2019. IV susceptibility is higher.
 B: Updated fluoroquinolone breakpoints used.
 C: Cost/day of typical IV/PO dose of drug at EMMC: \$ = <\$10; \$\$ = <\$30; \$\$\$ = <\$60; \$\$\$\$ = <\$100; \$\$\$\$\$ = >\$100
 D: Non-urine: blood, aerobic/anaerobic/orthopedic, and respiratory specimens
 E: R = Intrinsic resistance expected
 F: Please note, *Enterobacter aerogenes* is now *Klebsiella (Enterobacter) aerogenes* and has been removed from the *Enterobacter* spp. data.
 G: Data for 2020 and 2021 was combined to reach the minimum number of isolates.

Blank cell: Insufficient data or no isolates tested against agent
 Unless otherwise specified, the number of isolates tested is in parenthesis after the organism name. A number in parenthesis after a percentage indicates the number of strains tested for the particular bug-drug combination.

2021 GRAM-POSITIVE ANTIBIOGRAM, NORTHERN LIGHT MERCY

Microbiology Department, Northern Light Laboratory, 207-973-6980

Percent Susceptible

GRAM-POSITIVE ORGANISMS 2021 Data % Susceptible (Isolates)	Penicillin	Ampicillin	Oxacillin	Ceftriaxone	Clindamycin	Tetracycline	Levofloxacin	Gentamicin	Vancomycin	Trimeth/ Sulfa	Linezolid	Daptomycin
Antibiotic cost ^A	IV: \$\$ PO: \$	IV: \$\$	IV: \$\$\$\$	IV: \$	IV: \$\$ PO: \$	IV: \$\$ ^B PO: \$	IV: \$ PO: \$	IV: \$ + MONITORING	IV: \$ + MONITORING	IV: \$\$\$\$ PO: \$	IV: \$\$\$ PO: \$	IV: \$\$
<i>Staphylococcus aureus</i> (all isolates) (362)	R ^C	R	67% ^D		74%	84%	‡	‡	100%	96%	100%	100%
<i>Staphylococcus aureus</i> (MSSA) (242)	R	R	100%		78%	85%	‡	‡	100%	98%	100%	100%
<i>Staphylococcus aureus</i> (MRSA) (120)	R	R	0%		66%	82%	‡	‡	100%	93%	100%	100%
<i>Staphylococcus</i> sp.(coagulase neg.) (57) ^E	R	R	54%		64%	79%	‡	‡	100%	66%	100%	100%
<i>Staphylococcus lugdunensis</i> (30)			100%		96%	93%	‡	‡	100%	100%	100%	100%
<i>Streptococcus pneumoniae</i> (31) ^F	----- ^G			----- ^G	86%	79%	96%	R	100%	86%	100%	
<i>S. pneumoniae</i> , Meningitis (31)	79%			86%								
<i>S.pneumoniae</i> , Non-Meningitis (31)	97%			97%								

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A: Cost/day of typical IV/PO dose of drug at EMMC: \$ = <\$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 = 33%
E: Includes all coagulase negative staphylococci except *Staphylococcus lugdunensis*
F: 2019 thru 2021 Cumulative data
G: 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.