



Northern Light
HealthSM

2020 Antibiograms Table of Contents

| | |
|--|---|
| 2020 Gram-Negative Antibiogram for Northern Light Health (All NL associated inpatient & outpatient facilities) | 2 |
| 2020 Gram-Positive and Yeast Antibiogram for Northern Light Health | 3 |
| 2020 Gram-Negative Antibiogram for Northern Light Eastern Maine Medical Center | 4 |
| 2020 Gram-Positive Antibiogram for Northern Light Eastern Maine Medical Center | 5 |
| 2020 Gram-Negative Antibiogram for Northern Light Mercy Hospital | 6 |
| 2020 Gram-Positive Antibiogram for Northern Light Mercy Hospital | 7 |

2020 GRAM-NEGATIVE ANTIBIOGRAM, NORTHERN LIGHT HEALTH*

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

Percent Susceptible

| GRAM-NEGATIVE ORGANISMS 2020 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) (8555) | 67% | 74% | 93% | 79% | 95% | 97% | 100% | 99% | 85% | 86% | 94% | 96% | 84% | † | |
| <i>E. coli</i> (Urine) (8159) | 67% | 74% | 94% | 79% | 95% | 97% | 100% | 99% | 85% | 86% | 94% | 96% | 85% | † | 98% |
| <i>E. coli</i> (Non-urine) ^D (396) | 62% | 71% | 75% | 77% | 90% | 97% | 100% | 99% | 82% | 83% | 93% | 95% | 79% | † | |
| <i>Klebsiella pneumonia</i> (1245) | R ^E | 85% | 92% | 83% | 94% | 95% | 99.9% | 97% | 89% | 92% | 97% | 95% | 87% | † | 78% |
| <i>Enterobacter</i> spp. ^F (410) | R | R | R | R | 80% | 98% | 100% | 86% | 97% | 98% | 99% | 98% | 93% | † | 77% |
| <i>Serratia marcescens</i> (125) | R | R | R | R | 91% | 98% | 100% | 92% | 90% | 90% | 100% | 94% | 100% | † | R |
| <i>Proteus mirabilis</i> (488) | 90% | 98% | 89% | 97% | 99% | ND | 100% | ND | 76% | 76% | 97% | 99% | 85% | † | R |
| <i>Citrobacter freundii</i> (218) | R | R | R | R | 74% | 98% | 100% | 81% | 91% | 91% | 97% | 96% | 88% | † | 96% |
| <i>Acinetobacter</i> spp. ^G (40) | R | 93% | R | R | R | 92% | 95% | 80% | 95% | 97% | 92% | 95% | 90% | † | |
| <i>Pseudomonas aeruginosa</i> (non-CF) (540) | R | R | R | R | R | 96% | 93% | 91% | 75% | 75% | 96% | 97% | R | 87% | R |
| <i>Haemophilus influenzae</i> (80) | 67% ^I | | | | | | | | | | | | | | |

A: Cefuroxime susceptibility for PO administration reported for 2020. 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: Combined data for *Enterobacter aerogenes* and *Enterobacter cloacae*
 G: Combined data for all *Acinetobacter* species, including *A. 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 NLL, EMMC and surrounding area.
 Blank cell: Insufficient data or no isolates tested against agent

2020 GRAM-POSITIVE AND YEAST ANTIBIOGRAM, NORTHERN LIGHT HEALTH*

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

Percent Susceptible

| GRAM-POSITIVE ORGANISMS 2020 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) (2448) | R ^C | R | 65% ^D | | 79% | 93% | ‡ | ‡ | 100% | 98% | 99.9% | 99.9% |
| <i>Staphylococcus aureus</i> (MSSA) (1600) | R ^C | R | 100% | | 81% | 94% | ‡ | ‡ | 100% | 99% | 99.9% | 100% |
| <i>Staphylococcus aureus</i> (MRSA) (848) | R ^C | R | 0% | | 73% | 93% | ‡ | ‡ | 100% | 96% | 99.8% | 99.8% |
| <i>Staphylococcus</i> sp.(coagulase neg.) (442) ^E | R | R | 57% | | 60% | 88% | ‡ | ‡ | 100% | 72% | 100% | 100% |
| <i>Staphylococcus lugdunensis</i> (118) | | | 100% | | 91% | 97% | ‡ | ‡ | 100% | 100% | 100% | 100% |
| <i>Enterococcus faecalis</i> (118) | | 100% | R | R | R | | ‡ | 86% ^F | 99% | R | 100% | 97% |
| <i>Enterococcus faecium</i> (40) ^G | | 20% | R | R | R | | R | 96% ^F | 45% | R | 100% | 93% |
| Viridans group streptococci (79) ^H | 90% | | | 100% | 87% | | 97% | | 100% | | 100% | 100% |
| <i>Streptococcus pneumoniae</i> (95) | ----- ^I | | | ----- ^I | 94% | 94% | 99% | R | 100% | 93% | 100% | |
| <i>S. pneumoniae</i> , Meningitis (95) | 79% | | | 90% | | | | | | | | |
| <i>S. pneumoniae</i> , Non-meningitis (95) | 100% | | | 100% | | | | | | | | |

| Yeast (<i>Candida</i> spp.) 2016-2020 Cumulative Data % Susceptible | Fluconazole | Voriconazole | Micafungin |
|--|------------------|--------------------|------------|
| Antibiotic cost: | PO: \$ IV: \$ | PO: \$ IV: \$\$ | IV: \$\$\$ |
| <i>Candida albicans</i> (129) | 92% | 93% | 99% |
| <i>C. glabrata</i> (55) | 92% ^J | K | 100% |
| <i>C. parapsilosis</i> (44) | 98% | 100% | 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 = 35%
E: Includes all coagulase negative staphylococci except *Staphylococcus lugdunensis*
F: High-level gentamicin (synergy)
G: 2019, 2020 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.

2020 GRAM-NEGATIVE ANTIBIOGRAM, NORTHERN LIGHT EASTERN MAINE MEDICAL CENTER

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

Percent Susceptible

| GRAM-NEGATIVE ORGANISMS 2020 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) (1028) | 64% | 73% | 89% | 73% | 93% | 98% | 100% | 99% | 81% | 82% | 94% | 97% | 80% | ‡ | |
| <i>E. coli</i> (Urine) (924) | 64% | 73% | 94% | 73% | 94% | 98% | 100% | 99% | 81% | 82% | 93% | 96% | 81% | ‡ | 99% |
| <i>E. coli</i> (Non-urine) ^D (104) | 62% | 71% | 64% | 73% | 89% | 99% | 100% | 100% | 79% | 80% | 96% | 99% | 74% | ‡ | |
| <i>Klebsiella pneumoniae</i> (211) | R ^E | 83% | 85% | 79% | 90% | 90% | 100% | 96% | 86% | 91% | 97% | 95% | 84% | ‡ | 76% |
| <i>Enterobacter</i> spp. ^F (66) | R | R | R | R | 83% | 99% | 100% | 89% | 98% | 100% | 100% | 98% | 92% | ‡ | 71% |
| <i>Serratia marcescens</i> (37) | R | R | R | R | 92% | 100% | 100% | 95% | 87% | 87% | 100% | 92% | 100% | ‡ | R |
| <i>Proteus mirabilis</i> (91) | 88% | 98% | 82% | 97% | 99% | ND | 100% | ND | 76% | 76% | 95% | 98% | 87% | ‡ | R |
| <i>Citrobacter freundii</i> (38) | R | R | R | R | 74% | 100% | 100% | 76% | 90% | 90% | 95% | 90% | 79% | ‡ | 97% |
| <i>Pseudomonas aeruginosa</i> (non-CF) (107) | R | R | R | R | R | 94% | 92% | 87% | 81% | 79% | 100% | 98% | R | 85% | R |

A: Cefuroxime susceptibility for PO administration reported for 2020. 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: Combined data for *Enterobacter aerogenes* and *Enterobacter cloacae*
 G: CF = cystic fibrosis patients. Includes flat and mucoid phenotypes

Blank cell: Insufficient data or no isolates tested against agent

2020 GRAM-POSITIVE ANTIBIOGRAM, NORTHERN LIGHT EASTERN MAINE MEDICAL CENTER

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

Percent Susceptible

| GRAM-POSITIVE ORGANISMS 2020 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) (556) | R ^C | R | 59% ^D | | 73% | 94% | ‡ | ‡ | 100% | 98% | 99% | 99.8% |
| <i>Staphylococcus aureus</i> (MSSA) (229) | R ^C | R | 100% | | 80% | 93% | ‡ | ‡ | 100% | 99% | 100% | 100% |
| <i>Staphylococcus aureus</i> (MRSA) (327) | R ^C | R | 0% | | 62% | 94% | ‡ | ‡ | 100% | 97% | 99% | 99.7% |
| <i>Staphylococcus</i> sp.(coagulase neg.) (117) ^E | R | R | 50% | | 54% | 90% | ‡ | ‡ | 100% | 69% | 100% | 100% |
| <i>Staphylococcus lugdunensis</i> (58) ^F | | | 100% | | 95% | 98% | ‡ | ‡ | 100% | 100% | 100% | 100% |
| <i>Enterococcus faecalis</i> (48) | | 100% | R | R | R | | ‡ | 81% ^G | 100% | R | 100% | 97% |
| <i>Enterococcus faecium</i> (31) ^H | | 10% | R | R | R | | R | 100% ^G | 38% | R | 100% | 92% |
| Viridans group streptococci (34) ^I | 91% | | | 94% | 79% | | 92% | | 100% | | 97% | 97% |
| <i>Streptococcus pneumoniae</i> (39) | ----- ^J | | | ----- ^J | 90% | 87% | 98% | R | 100% | 97% | 97% | |
| <i>S. pneumoniae</i> , Meningitis (39) | 63% | | | 85% | | | | | | | | |
| <i>S. pneumoniae</i> , Non-meningitis (39) | 100% | | | 100% | | | | | | | | |

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 = 41%
E: Includes all coagulase negative staphylococci except *Staphylococcus lugdunensis*
F: 2018-2020 Cumulative data
G: High-level gentamicin (synergy)
H: 2019, 2020 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.

2020 GRAM-NEGATIVE ANTIBIOGRAM, NORTHERN LIGHT MERCY

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

Percent Susceptible

| GRAM-NEGATIVE ORGANISMS 2020 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) (1272) | 68% | 73% | 93% | 82% | 95% | 97% | 100% | 99.4% | 88% | 89% | 93% | 95% | 84% | †† | |
| <i>E. coli</i> (Urine) (1215) | 68% | 73% | 94% | 82% | 95% | 97% | 100% | 99.5% | 88% | 89% | 93% | 95% | 84% | †† | 99% |
| <i>E. coli</i> (Non-urine) ^D (57) | 61% | 67% | 70% | 82% | 95% | 97% | 100% | 98% | 88% | 89% | 90% | 91% | 81% | †† | |
| <i>Klebsiella pneumonia</i> (166) | R ^E | 85% | 93% | 82% | 93% | 94% | 100% | 98% | 90% | 94% | 97% | 96% | 90% | †† | 82% |
| <i>Enterobacter</i> spp. ^F (74) | R | R | R | R | 77% | 100% | 100% | 87% | 97% | 100% | 100% | 100% | 96% | †† | 82% |
| <i>Serratia marcescens</i> ^G (34) | R | R | R | R | 97% | 100% | 100% | 88% | 82% | 100%(14) ^G | 100% | 97% | 100% | †† | R |
| <i>Proteus mirabilis</i> (63) | 84% | 95% | 82% | 95% | 100% | | 100% | | 84% | 84% | 98% | 100% | 90% | †† | R |
| <i>Citrobacter freundii</i> ^G (59) | R | R | R | R | 76% | 97% | 100% | 86% | 83% | 79%(33) ^G | 93% | 93% | 81% | †† | 91% |
| <i>Pseudomonas aeruginosa</i> (66) | R | R | R | R | R | 100% | 98% | 95% | 80% | 82% | 100% | 100% | R | 94% | 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: Combined data for *Enterobacter aerogenes* and *Enterobacter cloacae*
 G: Data for 2019 and 2020 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.

2020 GRAM-POSITIVE ANTIBIOGRAM, NORTHERN LIGHT MERCY

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

Percent Susceptible

| GRAM-POSITIVE ORGANISMS 2020 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) (424) | R ^C | R | 73% ^D | | 81% | 89% | ‡ | ‡ | 100% | 98% | 100% | 100% |
| <i>Staphylococcus aureus</i> (MSSA) (308) | R | R | 100% | | 84% | 91% | ‡ | ‡ | 100% | 99% | 100% | 100% |
| <i>Staphylococcus aureus</i> (MRSA) (116) | R | R | 0% | | 72% | 85% | ‡ | ‡ | 100% | 95% | 100% | 100% |
| <i>Staphylococcus</i> sp.(coagulase neg.) (60) ^E | R | R | 50% | | 57% (21) | 85% | ‡ | ‡ | 100% | 80% | 100% | 100% |
| <i>Staphylococcus lugdunensis</i> (30) | | | 100% | | 96% | 96% | ‡ | ‡ | 100% | 100% | 100% | 100% |
| <i>Streptococcus pneumoniae</i> (32) ^F | ----- ^G | | | ----- ^G | 84% | 81% | 94% | R | 100% | 87% | 100% | |
| <i>S. pneumoniae</i> , Meningitis (32) | 78% | | | 91% | | | | | | | | |
| <i>S.pneumoniae</i> , Non-Meningitis (32) | 97% | | | 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: \$ = <\$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 = 27%

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

F: 2018 thru 2020 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.