

## ➤ Antimicrobial Stewardship and Laboratory Services



### Find antimicrobial stewardship resources.

- **The Antimicrobial Stewardship Website** — A single source for the latest guidelines, care process models, and other resources. Go to [intermountain.net](http://intermountain.net), and find “**Antimicrobial Stewardship**” in the A-to-Z Index or by typing “[abx/](#)” in the address bar. From the left navigation, select:
  - “Tracking and Reporting” for online antibiograms
  - “Guidelines and Education” for related care process models
- **GermWatch** — The best resource for finding out “what’s going around.” Click on “**GermWatch**” in the A-to-Z Index on [intermountain.net](http://intermountain.net). Scroll down to select “Antibiogram Pocket Cards” under Resources.
- **Formulary** — Go to [intermountain.net](http://intermountain.net), hover over “Clinical,” and click on “Pharmacy” listed under Clinical Support Services. Select “Formulary Resources” within the left navigation.
- **Antibiogram Tool** — Access this online, interactive reporting tool by typing “[antibiogram/](#)” in the address bar of either your Google or Internet Explorer browser.



### Consult with infectious disease experts.

Infectious diseases experts can answer your patient-related questions. Consider a full infectious diseases consult for:

- Home IV antibiotic therapy
- *S. aureus* and Candida bloodstream infections  
**Note:** never bloodstream contaminants
- Endocarditis
- Central nervous system infections
- Resistant organisms
- Herpes simplex virus in children < 60 days old
- Pediatric bone and joint infections
- Non-formulary and these restricted antimicrobials (see formulary):
  - Ceftazidime/avibactam
  - Ceftolozane/tazobactam
  - Isavuconazole
  - Posaconazole
  - Voriconazole

#### Contact information:

##### Infectious Diseases Pharmacists

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##### ID Consult Phone Number

Physician On Call

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**Antibiograms are internal tools for inpatient use only and represent all sample types. Please do not share with commercial vendors.**

**For organisms with less than 30 isolates, interpret cautiously as they may not be accurate.**

# 2018 Antibiogram

## Intermountain Medical Center

Antibiograms help clinicians select empiric antibiotics until organism susceptibility has been determined. Percentages are based on isolates processed in the microbiology lab over the previous one-year period. Determine definitive antibiotic therapy based on the susceptibility profile of the identified organism(s) and the infection site.

Gram-Negative Bacilli % Susceptible																		
# Tests	Species/Organism	Amikacin	Ampicillin/Sulbactam	Aztreonam	Cefazolin	Cefepime	Ceftazidime	Ceftriaxone	Cefuroxime	Ciprofloxacin	Gentamicin	Levofloxacin	Meropenem	Nitrofurantoin (CYSTITIS ONLY)	Piperacillin/Tazobactam	Tetracycline	Tobramycin	Trimethoprim/Sulfamethoxazole
79	<i>Citrobacter freundii</i>	100	0	84	0	96	84	82	0	95	96	95	100	92	94	86	97	89
37	<i>Citrobacter koseri</i> (diversus)	100	0	100	0	100	100	100	0	97	100	100	100	79	100	100	100	100
173	<i>Enterobacter cloacae</i>	100	0	83	0	94	82	82	0	96	99	99	100	25	84	85	99	92
97	<i>Klebsiella aerogenes</i>	100	0	78	0	99	74	77	0	94	98	95	99	17	79	97	98	96
2609	<i>Escherichia coli</i>	99	56	91	83	92	92	92	88	80	91	80	100	97	97	74	91	75
119	<i>Klebsiella oxytoca</i>	100	61	95	42	100	99	95	83	94	98	96	100	76	94	86	98	94
601	<i>Klebsiella pneumoniae</i>	99	81	93	89	94	93	93	85	96	95	98	100	37	97	88	95	88
34	<i>Morganella morganii</i>	100	0	91	0	100	94	100	0	100	91	97	100	0	100	53	97	71
150	<i>Proteus mirabilis</i>	99	85	97	87	97	99	99	97	71	89	75	99	0	99	0	89	74
246	<i>Pseudomonas aeruginosa</i>	98	0	74	0	85	86	0	0	83	89	79	87	0	93	0	98	0

Gram-Positive Cocci % Susceptible															
# Tests	Species/Organism	Ampicillin	Ceftriaxone	Ceftriaxone (Meningitis)	Clindamycin (NOT FOR UTI)	Daptomycin	Levofloxacin (CYSTITIS ONLY)	Linezolid	Nafcillin	Nitrofurantoin (CYSTITIS ONLY)	Penicillin	Penicillin (Oral)	Tetracycline	Trimethoprim/Sulfamethoxazole	Vancomycin
466	<i>Enterococcus faecalis</i>	99	0	0	0	100	79	98	0	100	98		26	0	98
107	<i>Enterococcus faecium</i>	25	0	0	0	85	9	97	0	61	22		19	0	28
1336	<i>Staphylococcus aureus</i>							63							
488	<i>Staphylococcus aureus</i> MRSA	0	0	0	75	99		100	0	100	0	0	95	98	100
837	<i>Staphylococcus aureus</i> MSSA	0	100		86	100		100	100	100	0	0	93	100	100
180	<i>Staphylococcus epidermidis</i>	0	32		59	100		100	32	100	0	0	85	58	100
83	<i>Staphylococcus</i> sp coag neg	0	59		72	100		100	59	94	0	0	94	73	100
41	<i>Streptococcus pneumoniae</i>	89	100	100	87		97	100			89	88	89	74	100

### BASIC COVERAGE TIPS

- Aminoglycoside monotherapy is not recommended to treat any infection except for plague and tularemia.
- Certain organisms, including *Serratia* spp., *Citrobacter* spp., *Enterobacter* spp., and *Klebsiella aerogenes* can become resistant to 3rd-generation cephalosporins (ceftriaxone, cefotaxime, ceftazidime) during treatment for severe infections despite initial in vitro susceptibilities. Consult infectious diseases or antibiotic stewardship if use is desired.
- *Enterococcus* spp. are intrinsically resistant to cephalosporins.
- Fluoroquinolones (e.g., ciprofloxacin, levofloxacin) should not be used to treat any enterococcal infection except uncomplicated cystitis in patients with severe penicillin allergy.

- Beta-lactamase positive *Haemophilus* spp. are resistant to penicillin, ampicillin, and amoxicillin.
- $\beta$ -hemolytic streptococci (Groups A, B, C, G) are universally susceptible to  $\beta$ -lactams (penicillins, cephalosporins) and vancomycin, so routine susceptibility testing is not indicated. Resistance to clindamycin and azithromycin can be present.
- Methicillin-susceptible *Staphylococcus aureus* (MSSA) are resistant to penicillin and ampicillin/amoxicillin. First-line agents are nafcillin/dicloxacillin and cefazolin/cephalexin. Second-line agents include: amoxicillin/clavulanate, ampicillin/sulbactam, cefuroxime, ceftriaxone, cefepime, piperacillin/tazobactam, and carbapenems. *S. aureus* bacteremia in adults must be treated with intravenous antibiotics and infectious diseases should be consulted. Outcomes with  $\beta$ -lactam treatment for MSSA are better than vancomycin. ***S. aureus* in the blood is never a contaminant.**