Using this Antibiogram

- This antibiogram provides useful information for the selection of empiric antibiotic treatment when a presumptive diagnosis of infection, with a specific bacterium, is made.
- The numbers represent the percentage of isolates that are susceptible to the antimicrobial. Susceptibility percentage for each organism / antibiotic combination is generated by including the first isolate of that organism encountered on a given patient.
- A lack of data indicates that the organism is intrinsically resistant to the antibiotic, or that insufficient data (< 10 isolates) exists.
- Isolates from certain inpatient floors (ICU, etc.) may be more resistant than isolates on the general medicine floors. Use susceptibility data wisely.
- Review footnotes for valuable information useful in antibiotic selection.
- When patient specific cultures and susceptibilities become available, alteration of drug therapy may be appropriate.
- Pharmacy or microbiology consults are available.

Contact Information

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Footnotes based on CLSI Document M100-32nd Edition

a = Oxacillin-resistant staphylococci are considered resistant to all other beta-lactam class of agents, i.e., penicillins, ß-lactam combination agents, cephems (with the exception of ceftaroline) and carbapenems.

b = Isolates that are sensitive to tetracycline are also considered sensitive to doxycycline and minocycline. However, some organisms that are intermediate or resistant to tetracycline may be susceptible to doxycyline and minocycline or both.

c = The following antimicrobial agents should not be used for bacteria isolated from the CSF: agents administered by oral route only, 1st and 2nd generation cephalosporins and cephamycins, clindamycin, macrolides, tetracyclines, and fluoroquinolones.

d = Susceptibility to azithromycin and clarithromycin can be predicted by testing erythromycin.

e = Strains of Klebsiella spp. and E. coli that produce ESBLs (Extended-Spectrum Beta-lactamases) may be clinically resistant to therapy with penicillins, cephalosporins, or aztreonam, despite apparent in vitro susceptibility to some of these agents.

f = Combination therapy of ampicillin, penicillin, or vancomycin (for susceptible strains only), plus an aminoglycoside, is usually indicated for serious enterococcal infections, such as endocarditis, unless high-level resistance to both gentamicin and streptomycin is documented; such combinations are predicted to result in synergistic killing of the Enterococcus.

g = Not routinely used on organisms from the urinary tract.

h = Recommended for use only against isolates in the urinary tract.

i = Rifampin should not be used alone for antibiotic therapy.

j = *Enterobacter, Klebsiella* (formerly Enterobacter) *aerogenes, Citrobacter,* and *Serratia* may develop resistance during prolonged therapy with third-generation cephalosporins as a result of depression of AmpC- beta lactamase. Therefore, isolates that are initially susceptible may become resistant within three to four days after initiation of therapy. Testing of repeat isolates may be warranted.

Generic Name	Trade Name	Dosage grams / dose	Dosing schedule	Daily drug cost
Penicillins				
Amoxicillin/clavulanate *	Augmentin	0.5	3	$
Ampicillin	Omnipen	0.5	4	$
Ampicillin/sulbactam	Unasyn	1.5	4	$
Nafcillin *		1	6	$$
Penicillin VK		0.5	4	$
Penicillin G Potassium		5 MU	4	$
Piperacillin/tazobactam	Zosyn	3.375	3	$
Cephalosporins				
Cefazolin	Ancef	1	3	$
Cefdinir *	Omnicef	0.3	2	$
Cefoxitin *	Mefoxine	1	4	$$
Cefuroxime *	Zinacef	0.75	3	$
Cefotaxime	Claforan	1	3	$
Ceftazidime	Fortaz	1	3	$
Ceftriaxone	Rocephin	1	1	$
Cefepime	Maxipime	1	3	$
Aminoglycosides				
Amikacin	Amikin	0.5	2	$
Gentamicin	Garamycin	0.08	3	$
Tobramycin *	Nebcin	0.08	3	$
Macrolides				
Erythromycin	Erythrocin	1	4	$
Fluoroquinolones				
Ciprofloxacin	Cipro	0.4	2	$
Levofloxacin	Levaquin	0.5	1	$
Moxifloxacin	Avelox			
Monobactams				
Aztreonam	Azactam	1	3	$$$
Carbapenems				
Ertapenem	Invanz	1	1	$$
Meropenem	Merrem	1	3	$
Others				
Clindamycin	Cleocin	0.6	4	$
Daptomycin *	Cubicin	0.5	1	$$
Linezolid	Zyvox	0.6	2	$$
Nitrofurantoin	Macrobid	0.1	2	$
Rifampin	Rifadin	0.6	1	$$$$$
Doxycycline (Tetracycline)	Vibramycin	0.1	2	$$
Trimethoprim/sulfamethoxazole	Bactrim	1	2	$
Vancomycin	Vancocin	1	2	$$

* Antimicrobial susceptibility not performed on these antibiotics

Cost key:

$= $0-25
$$= $25.01-50
$$$= $50.01-75
$$$$= $75.01-100
$$$$$= ≥$100

2024 ANTIBIOGRAM

Antibiotic Cumulative Summary

2025 Antibiogram Based on 2024 Data

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Lima Memorial HEALTH SYSTEM
Affiliate of ProMedica

INPATIENTS Lima Memorial Health System 2024 **% Susceptible**	**Trade Name**	*Enterobacter cloacae complex*[j]	*Escherichia coli*	*Escherichia coli ESBL*[e]	*Klebsiella oxytoca*	*Klebsiella pneumoniae*	*Proteus mirabilis*	*Pseudomonas aeruginosa*	*Serratia marcescens*[j]	*Enterococcus faecalis*[f]	*Enterococcus faecium VRE*	*Enterococcus faecium*	MRSA (*Methicillin-resistant Staphylococcus aureus*)[a]	MSSA (Methicillin-sensitive *Staphylococcus aureus*)
# Isolates		28	273	30	29	79	65	120	19	110	22	17	69	82
Pencillins														
Ampicillin	Omnipen		58	0	0	0	86			100	0	29		
Ampicillin/sulbactam	Unasyn		70	7	76	89	98							
Oxacillin	Bactocil												0	100
Penicillin	BenPen									100	0	29	0	0
Piperacillin/tazobactam	Zosyn	68	99	83	96	96	100	90						
Cephalosporins														
Cefazolin[c]	Ancef	0	95	0	93	100	98	0	0					
Cefotaxime[j]	Claforin													
Ceftazadime[j]	Fortaz	68	97	0	100	100	100	88	100					
Ceftriaxone[j]	Rocephin	68	98	0	100	100	100		100					
Cefepime	Maxipime	96	99	0	100	100	100	89	100					
Aminoglycosides														
Amikacin	Amikin	100	100	93	100	100	100	98	100					
Gentamicin	Garamycin	100	95	70	100	97	100	96	100				97	100
Macrolides														
Erythromycin[c, d, g]	Erythrocin									6	9	0	14	67
Fluoroquinolones														
Ciprofloxacin[c]	Cipro	96	88	7	100	96	86	93	100	78	0	35	38	91
Levofloxacin[c]	Levaquin									78	0	35	38	94
Moxifloxacin	Avelox												54	100
Monobactam														
Aztreonam	Azactam	68	98	23	97	100	100		100					
Carbapenems														
Ertapenem	Invanz	100	100	100	100	100	100		100					
Meropenem	Merrem	100	100	100	100	100	100	98	100					
Others														
Clindamycin[c, g]	Cleocin												59	76
Linezolid	Zyvox									99	91	100	100	100
Nitrofurantoin[h]	Macrobid	18	96	80	90	39	0		0	100	5	29	100	99
Rifampin[i]	Rifadin												100	100
Tetracycline[b, c]										24	5	29	70	88
Trimethoprim/sulfamethox.	Bactrim	86	84	40	93	95	86		100				70	100
Vancomycin	Vancocin									100	0	100	100	100

OUTPATIENTS Lima Memorial Health System 2024 **% Susceptible**	**Trade Name**	*Citrobacter freundii*[i]	*Citrobacter koseri*[i]	*Enterobacter cloacae complex*[j]	*Escherichia coli*	*Escherichia coli ESBL*[e]	*Klebsiella aerogenes*[j]	*Klebsiella oxytoca*	*Klebsiella pneumoniae*	*Morganella morganii*	*Proteus mirabilis*	*Pseudomonas aeruginosa*	*Serratia marcescens*[j]	*Enterococcus faecalis*[f]	MRSA (Methicillin-resistant *Staphylococcus aureus*)[a]	MSSA (Methicillin-sensitive *Staphylococcus aureus*)
# Isolates		20	15	40	1335	52	41	49	234	22	131	109	16	120	78	130
Penicillins																
Ampicillin	Omnipen				61	0		0	0	0	84			100		
Ampicillin/sulbactam	Unasyn				71	38		78	89	18	94					
Oxacillin	Bactocil														0	100
Penicillin	BenPen													100	0	1
Piperacillin/tazobactam	Zosyn	95	100	84	98	96	93	98	97	100	100	97				
Cephalosporins																
Cefazolin[c]	Ancef	0	100	0	97	0	0	90	99	0	95	0	0			
Cefotaxime[j]	Claforin															
Ceftazadime[j]	Fortaz	95	100	88	100	0	93	100	99	95	99	95	100			
Ceftriaxone[j]	Rocephin	95	100	88	100	0	93	100	99	95	98		100			
Cefepime[j]	Maxipime	100	100	100	100	0	100	100	100	100	99	95	100			
Aminoglycosides																
Amikacin	Amikin	100	100	100	100	100	100	100	100	100	100	97	100			
Gentamicin	Garamycin	95	100	100	94	79	100	100	100	91	95	94	100		95	99
Macrolides																
Erythromycin[c, d, g]	Erythrocin													7	18	60
Fluoroquinolones																
Ciprofloxacin[c]	Cipro	89	100	95	89	33	100	100	99	82	94	85	88	92	44	92
Levofloxacin[c]	Levaquin													92	44	92
Moxifloxacin	Avelox														72	99
Monobactams																
Aztreonam	Azactam	95	100	88	100	31	93	100	100	100	100		100			
Carbapenems																
Ertapenem	Invanz	100	100	97	100	100	100	100	100	100	99		100			
Meropenem	Merrem	100	100	100	100	100	100	100	100	100	99	97	100			
Others																
Clindamycin[c, g]	Cleocin														71	76
Linezolid	Zyvox													97	100	100
Nitrofurantoin[h]	Macrobid	95	73	28	97	87	12	90	37	0	0		0	99	99	99
Rifampin[i]	Rifadin														100	100
Tetracycline[b, c]														22	71	95
Trimethoprim/sulfamethox.	Bactrim	89	100	82	84	50	100	94	95	77	85		100		78	97
Vancomycin	Vancocin													100	100	100