

**The University of Texas Medical Branch
Antimicrobial Susceptibility Profile**

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Department of Pathology/Division of Clinical Microbiology

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PREFACE

The purpose of this profile is to report antimicrobial susceptibilities for clinically relevant organisms. This profile was prepared in accordance with CLSI document M39-A3, which recommends reporting of data for \geq 30 isolates of a given species, to achieve statistically valid estimates of % susceptibility value.

Please note that organisms with a minimum of ten (10) isolates tested have been included in this report. However, there may be less relative precision of % susceptibility value where fewer than 30 isolates are reported.

Key:

n = number of isolates tested during the period 1/2016-12/2016.

Not all isolates were tested with each antibiotic.

_ = not tested, testing inappropriate, or testing not necessary

Anti-Infective Pharmacy Information

Anti-infective	Restricted	Dose	\$/day*	Anti-infective	Restricted	Dose	\$/day*
Amikacin	N	7.5 mg/kg Q12h IV	8	Ertapenem	N	1g Q24h IV	86
Amoxicillin-clavulanate	N	500mg Q8h PO	3	Fidaxomicin	Y	200mg Q12h PO	223
Ampicillin-sulbactam	N	3g Q6h IV	13	Gentamicin	N	1.5mg/kg Q8h IV	2
Ampicillin	N	2g Q6h IV	78	Imipenem-Cilastatin	Y	500mg Q6h IV	34
Azithromycin	N	500mg Q24h IV	5	Levofloxacin	N	500mg Q24h PO	1
	N	250mg Q24h PO	2		N	500mg Q24h IV	4
Aztreonam	N	1g Q8h IV	82	Linezolid	Y	600mg Q12h IV	91
Cefazolin	N	1-2g Q8h IV	5		Y	600mg Q12h PO	322
Cefdinir	N	300mg Q12h PO	7	Meropenem	Y	1-2g Q8h IV	23
Cefepime	Y	1-2g Q8h IV	45	Metronidazole	N	500mg Q8h IV	6
Cefotaxime	N	2g Q8h IV	9		N	500mg Q8h PO	2
Ceftaroline	Y	600mg Q12h IV	259	Minocycline	Y	100mg Q12h IV	279
Ceftazidime	Y	2g Q8h IV	25		Y	100mg Q12h PO	1
Ceftriaxone	N	1-2g Q24 IV	3	Moxifloxacin	Y	400mg Q24h IV	12
Cephalexin	N	500mg Q6h PO	1		Y	400mg Q24h PO	3
Ciprofloxacin	Y	400mg Q12h IV	6	Nafcillin	N	2g Q4-6h IV	85
	Y	500mg Q12h PO	1	Nitrofurantoin	N	100mg Q12h PO	4
Clarithromycin	N	500mg Q12h PO	2	Piperacillin-Tazobactam	N	3.375g Q6h IV	32
Clindamycin	Y	600-900mg Q8h IV	23	Polymyxin B	Y	15000units/kg Q12h	21
	Y	300-450mg Q6h PO	5	Tigecycline	Y	50mg Q12h IV	224
Colistin	Y	5mg/kg/day IV	56	Trimethoprim-Sulfamethoxazole	N	5mg/kg Q8h IV	57
	Y	150mg Q12h Inhalation	48		N	2 DS tab Q12h PO	1
Daptomycin	Y	6 mg/kg Q24h IV	323	Tobramycin	N	1.5mg/kg Q8h IV	5
Doxycycline	N	100mg Q12h IV	26		Y	300mg Q12h Inhalation	248
	N	100mg Q12h PO	2	Vancomycin	N	15mg/kg Q12h IV	34

*Estimated cost is subject to change based on UTMB purchase agreements. Cost is based on 70kg adult.

Note: This is not an all inclusive list of available anti-infective agents at UTMB. Please refer to the UTMB online formulary.

Emergency Department Antibiotic Susceptibility Profile-Percent (%) Susceptible

Gram-Negative Bacilli	Number of Isolates	Penicillins			Cephalosporins					Aminoglycosides			Carbapenem	Fluoroquinolone	Miscellaneous		
		Ampicillin	Ampicillin/Sulbactam	Piperacillin/Tazobactam	Cefazolin	Cefotaxime	Ceftazidime	Ceftriaxone	Cefepime	Amikacin	Gentamicin	Tobramycin	Imipenem	Levofloxacin	Nitrofurantoin ¹	Aztreonam	Trimethoprim/Sulfamethoxazole
<i>Enterobacter cloacae</i> *	20	-	-	80	-	85	85	85	100	100	95	100	100	85	65	84	90
<i>Escherichia coli</i>	454	39	49	94	87	93	92	91	93	100	89	89	100	71	96	93	64
<i>Klebsiella pneumoniae</i>	91	-	82	94	91	92	92	92	92	100	97	93	100	94	51	92	84
<i>Proteus mirabilis</i>	46	89	93	100	96	98	98	98	98	100	91	93	-	87	-	98	85
<i>Pseudomonas aeruginosa</i>	43	-	-	79	-	-	88	-	95	100	93	95	86	77	-	-	-

*Calculated from fewer than the standard recommendation of 30 isolates (See "Preface")

1-Urine isolates only

Gram-Positive Cocci	Number of Isolates	Penicillins		Fluoroquinolone ⁵	Tetracycline	Macrolide	Miscellaneous			
		Ampicillin	Oxacillin	Levofloxacin	Tetracycline	Erythromycin	Rifampin ⁶	Clindamycin	Trimethoprim/Sulfamethoxazole	Vancomycin
Coagulase-Negative Staphylococcus	89	-	45 ³	47	74	38	94	53	64	100
Enterococcus faecalis	56	96	-	-	-	-	-	-	-	95
Staphylococcus aureus	283	-	51 ⁴	57	91	37	99	77	97	100
Streptococcus pyogenes (Group A)*, ²	24	-	-	-	-	63	-	71	-	-

*Calculated from fewer than the standard recommendation of 30 isolates (See "Preface")

2-Only tested for penicillin allergic patients.

3-55% oxacillin (methicillin) resistant

4-49% oxacillin (methicillin) resistant

5-*Staphylococcus* spp. may develop resistance during prolonged therapy with fluoroquinolones.

6-Rx: Rifampin should not be used alone for chemotherapy.

Adult Inpatient Antibiotic Susceptibility Profile-Percent (%) Susceptibility

Gram-Negative Bacilli	Number of Isolates	Penicillins			Cephalosporins				Aminoglycosides			Carbapenem	Fluoroquinolone	Miscellaneous			
		Ampicillin	Ampicillin/Sulbactam	Piperacillin/Tazobactam	Cefazolin	Cefotaxime	Ceftazidime	Ceftriaxone	Cefepime	Amikacin	Gentamicin	Tobramycin	Imipenem	Levofloxacin	Nitrofurantoin ¹	Aztreonam	Trimethoprim/Sulfamethoxazole
<i>Acinetobacter baumannii</i> *	10	-	50	11	-	10	30	10	40	-	-	50	40	40	-	-	40
<i>Enterobacter cloacae</i>	27	-	-	67	-	70	70	67	96	100	93	93	96	96	67	70	89
<i>Escherichia coli</i>	114	41	49	91	78	85	84	84	85	99	88	89	99	55	96	84	64
<i>Klebsiella pneumoniae</i>	55	-	67	80	73	77	76	76	76	98	84	85	91	85	42	76	71
<i>Pseudomonas aeruginosa</i>	60	-	-	87	-	-	85	-	88	100	88	95	75	73	-	-	-

*Calculated from fewer than the standard recommendation of 30 isolates (See "Preface").

1-Urine isolates only

Gram-Positive Cocci	Number of Isolates	Penicillins				Cephalosporins				Fluoroquinolone ¹⁰	Tetracycline	Macrolide	Miscellaneous		
		Ampicillin	Oxacillin	Penicillin-CSF ⁵	Penicillin-Non-CSF ⁵	Cefotaxime-CSF ⁵	Cefotaxime-Non-CSF ⁵	Ceftriaxone-CSF ⁵	Ceftriaxone-Non-CSF ⁵	Levofloxacin	Tetracycline	Erythromycin	Rifampin ¹¹	Clindamycin	Trimethoprim/Sulfamethoxazole
Coagulase-Negative Staphylococcus	221	-	44 ³	-	-	-	-	-	48	82	37	92	54	60	100
<i>Enterococcus faecalis</i>	279	95	-	-	-	-	-	-	-	-	-	-	-	-	93
<i>Enterococcus faecium</i>	85	18	-	-	-	-	-	-	-	-	-	-	-	-	44
<i>Staphylococcus aureus</i>	1034	-	50 ⁴	-	-	-	-	-	55	90	39	98	73	89	100
<i>Streptococcus agalactiae</i> (Group B) ²	33	-	-	-	-	-	-	-	-	-	58	-	48	-	-
<i>Streptococcus pneumoniae</i> *	23	-	-	68 ⁶	91 ⁷	82 ⁸	100	77 ⁹	100	100	-	64	-	82	100
<i>Streptococcus pyogenes</i> (Group A) ²	35	-	-	-	-	-	-	-	-	-	69	-	71	-	-

*Calculated from fewer than the standard recommendation of 30 isolates (See "Preface").

2-Only tested for penicillin allergic patients.

3-56% oxacillin (methicillin) resistant

4-50% oxacillin (methicillin) resistant

5-Interpretive criteria for susceptibility of *S. pneumoniae* to penicillin and cephalosporins are different for CSF and non-CSF isolates.

6-27% intermediate; 5% resistant

7-9% intermediate

8-18% intermediate

9-23% intermediate

10-*Staphylococcus* spp. may develop resistance during prolonged therapy with fluoroquinolones.

11- Rx: Rifampin should not be used alone for chemotherapy.

Adult Intensive Care Units Antibiotic Susceptibility Profile-Percent (%) Susceptible

Gram-Negative Bacilli	Number of Isolates	Penicillins			Cephalosporins					Aminoglycosides			Carbapenem	Fluoroquinolone	Miscellaneous		
		Ampicillin	Ampicillin/Sulbactam	Piperacillin/Tazobactam	Cefazolin	Cefotaxime	Ceftazidime	Ceftriaxone	Cefepime	Amikacin	Gentamicin	Tobramycin	Imipenem	Levofloxacin	Nitrofurantoin ¹	Aztreonam	Trimethoprim/Sulfamethoxazole
Enterobacter cloacae*	23	-	-	61	-	65	65	61	96	100	91	91	96	96	65	65	87
Escherichia coli	90	41	49	89	79	87	84	86	87	99	86	88	99	54	94	86	61
Klebsiella pneumoniae	46	-	63	76	70	74	74	74	74	98	80	83	91	87	41	74	70
Pseudomonas aeruginosa	52	-	-	85	-	-	84	-	87	100	88	94	73	75	-	-	-

*Calculated from fewer than the standard recommendation of 30 isolates (See "Preface")

1-Urine isolates only

Gram-Positive Cocci	Number of Isolates	Penicillins		Fluoroquinolone ⁴	Tetracycline	Macrolide	Miscellaneous			
		Ampicillin	Oxacillin	Levofloxacin	Tetracycline	Erythromycin	Rifampin ⁵	Clindamycin	Trimethoprim/Sulfamethoxazole	Vancomycin
Coagulase-Negative Staphylococcus	36	-	38 ²	33	88	38	88	58	46	100
Enterococcus faecalis	41	93	-	-	-	-	-	-	-	98
Staphylococcus aureus	114	-	60 ³	62	94	50	98	80	96	100

2-62% oxacillin (methicillin) resistant

3-40% oxacillin (methicillin) resistant

4-*Staphylococcus* spp. may develop resistance during prolonged therapy with fluoroquinolones

5-Rx: Rifampin should not be used alone for chemotherapy.

Adult Outpatient Antibiotic Susceptibility Profile-Percent (%) Susceptible

Gram Negative-Bacilli	Number of Isolates	Penicillins			Cephalosporins					Aminoglycosides			Carbapenem	Fluoroquinolone	Miscellaneous		
		Ampicillin	Ampicillin/Sulbactam	Piperacillin/Tazobactam	Cefazolin	Cefotaxime	Ceftazidime	Ceftriaxone	Cefepime	Amikacin	Gentamicin	Tobramycin	Imipenem	Levofloxacin	Nitrofurantoin ¹	Aztreonam	Trimethoprim/Sulfamethoxazole
<i>Acinetobacter baumannii</i> *	24	-	88	76	-	50	67	8	83	-	92	100	92	88	-	-	83
<i>Citrobacter freundii</i>	35	-	-	94	-	94	94	94	100	100	100	100	100	100	97	94	91
<i>Citrobacter koseri</i>	63	-	-	100	98	100	100	98	100	100	100	100	98	100	92	100	98
<i>Enterobacter aerogenes</i>	65	-	-	91	-	97	89	91	100	100	100	100	100	100	32	95	100
<i>Enterobacter cloacae</i>	71	-	-	89	-	89	90	89	97	100	96	97	99	92	56	89	87
<i>Escherichia coli</i>	2783	51	59	97	92	95	95	95	95	100	91	92	100	79	97	95	71
<i>Klebsiella oxytoca</i>	47	-	55	89	70	98	98	98	98	100	96	96	100	96	96	91	81
<i>Klebsiella pneumoniae</i>	516	-	85	95	92	93	94	93	94	100	95	95	100	97	52	94	88
<i>Morganella morganii</i> *	27	-	-	100	-	95	96	100	100	100	74	96	-	91	-	100	70
<i>Proteus mirabilis</i>	220	85	91	100	96	98	98	98	98	100	92	94	-	91	-	98	84
<i>Pseudomonas aeruginosa</i>	172	-	-	89	-	-	93	-	94	98	95	98	89	78	-	-	-
<i>Serratia marcescens</i> *	28	-	-	100	-	96	96	96	100	100	96	82	100	100	-	96	93

*Calculated from fewer than the standard recommendation of 30 isolates (See "Preface").

1-Urine isolates only

Gram-Negative Bacilli	Number of Isolates	Penicillins		Fluoroquinolone ⁵	Tetracycline	Macrolide	Miscellaneous			
		Ampicillin	Oxacillin	Levofloxacin	Tetracycline	Erythromycin	Rifampin ⁶	Clindamycin	Trimethoprim/Sulfamethoxazole	Vancomycin
Coagulase-Negative Staphylococci	81	-	46 ³	55	80	44	100	74	60	100
<i>Enterococcus faecalis</i>	71	99	-	-	-	-	-	-	-	99
<i>Staphylococcus aureus</i>	517	-	62 ⁴	63	91	44	99	78	94	100
<i>Streptococcus agalactiae</i> (Group B) ²	72	-	-	-	-	51	-	49	-	-

2-Only tested for penicillin allergic patients.

3-54% oxacillin (methicillin) resistant

4-38% oxacillin (methicillin) resistant

5-*Staphylococcus* spp. may develop resistance during prolonged therapy with fluoroquinolones.

6-Rx: Rifampin should not be used alone for chemotherapy.

Pediatric Inpatient Antibiotic Susceptibility Profile-Percent (%) Susceptible

Gram-Negative Bacilli	Number of Isolates	Penicillins			Cephalosporins					Aminoglycosides			Carbapenem	Fluoroquinolone	Miscellaneous		
		Ampicillin	Ampicillin/Sulbactam	Piperacillin/Tazobactam	Cefazolin	Cefotaxime	Ceftazidime	Ceftriaxone	Cefepime	Amikacin	Gentamicin	Tobramycin	Imipenem	Levofloxacin	Nitrofurantoin ¹	Aztreonam	Trimethoprim/Sulfamethoxazole
Escherichia coli	86	42	50	95	92	94	94	94	94	100	91	88	100	90	100	94	67
Klebsiella pneumoniae*	17	-	76	88	82	82	82	82	82	100	82	82	100	94	-	82	88
Pseudomonas aeruginosa*	17	-	-	76	-	-	88	-	100	100	94	94	88	94	-	-	-

*Calculated from fewer than the standard recommendation of 30 isolates (See "Preface")

1-Urine isolates only

Gram-Positive Cocci	Number of Isolates	Penicillin	Fluoroquinolone ³	Tetracycline	Macrolide	Miscellaneous			
		Oxacillin	Levofloxacin	Tetracycline	Erythromycin	Rifampin ⁴	Clindamycin	Trimethoprim/Sulfamethoxazole	Vancomycin
Staphylococcus aureus	80	53 ²	64	99	46	100	89	99	100

2-47% oxacillin (methicillin) resistant

3-*Staphylococcus* spp. may develop resistance during prolonged therapy with fluoroquinolones.

4-Rx: Rifampin should not be used alone for chemotherapy.

Pediatric Outpatient Antibiotic Susceptibility Profile-Percent (%) Susceptible

Gram-Negative Bacilli	Number of Isolates	Penicillins			Cephalosporins					Aminoglycosides			Carbapenem	Fluoroquinolone	Miscellaneous	
		Ampicillin	Ampicillin/Sulbactam	Piperacillin/Tazobactam	Cefazolin	Cefotaxime	Ceftazidime	Ceftriaxone	Cefepime	Amikacin	Gentamicin	Tobramycin	Imipenem	Levofloxacin	Nitrofurantoin ¹	Aztreonam
<i>Escherichia coli</i>	493	49	59	97	93	95	95	95	96	100	93	93	100	99	96	67
<i>Klebsiella pneumoniae</i>	41	-	85	98	95	98	98	98	98	100	100	100	100	49	98	93
<i>Proteus mirabilis</i>	44	91	95	100	98	100	100	100	100	100	100	-	100	-	100	86
<i>Pseudomonas aeruginosa</i>	51	-	-	96	-	-	96	-	94	100	98	98	96	90	-	-
<i>Salmonella species*</i>	17	100	-	-	-	100	-	100	-	-	-	-	100	-	-	100
<i>Shigella sonnei</i>	104	93	-	-	-	100	-	100	-	-	-	-	100	-	-	15

*Calculated from fewer than the standard recommendation of 30 isolates (See "Preface")

1-Urine isolates only

Gram-Positive Cocci	Number of Isolates	Penicillins			Cephalosporins					Fluoroquinolone ¹¹	Tetracycline	Macrolide	Miscellaneous		
		Ampicillin	Oxacillin	Penicillin-CSF ⁴	Penicillin_Non-CSF ⁴	Cefotaxime-CSF ⁴	Cefotaxime-Non-CSF ⁴	Ceftriaxone-CSF ⁴	Ceftriaxone-Non-CSF ⁴	Levofloxacin	Tetracycline	Erythromycin	Rifampin ¹²	Clindamycin	Trimethoprim/Sulfamethoxazole
<i>Enterococcus faecalis*</i>	29	93	-	-	-	-	-	-	-	-	-	-	-	-	100
<i>Staphylococcus aureus</i>	595	-	69 ³	-	-	-	-	-	78	86	48	100	87	97	100
<i>Streptococcus pneumoniae</i>	165	-	-	75 ⁵	63 ⁶	80 ⁷	96 ⁸	62 ⁹	97 ¹⁰	99	-	35	84	-	100
<i>Streptococcus pyogenes (Group A)</i> ²	42	-	-	-	-	-	-	-	-	-	94	-	94	-	-

*Calculated from fewer than the standard recommendation of 30 isolates (See "Preface").

2-Only tested for penicillin allergic patients.

3-31% oxacillin (methicillin) resistant

4-Interpretive criteria for susceptibility of *S. pneumoniae* to penicillin and cephalosporins are different for CSF and non-CSF isolates.

5-25% intermediate

6-37% intermediate

7-20% intermediate

8-4% intermediate

9-38% intermediate

10-3% intermediate

11-*Staphylococcus* spp. may develop resistance during prolonged therapy with fluoroquinolones.

12- Rx: Rifampin should not be used alone for chemotherapy.

TDCJ Inpatient Antibiotic Susceptibility Profile-Percent (%) Susceptible

Gram-Negative Bacilli	Number of Isolates	Penicillin			Cephalosporins					Carbapenem	Aminoglycosides			Fluoroquinolone	Miscellaneous		
		Ampicillin	Ampicillin/Sulbactam	Piperacillin/Tazobactam	Cefazolin	Cefotaxime	Ceftazidime	Ceftriaxone	Cefepime	Imipenem	Amikacin	Gentamicin	Tobramycin	Levofloxacin	Nitrofurantoin ¹	Aztreonam	Trimethoprim/Sulfamethoxazole
<i>Escherichia coli</i>	49	47	57	96	92	94	94	94	94	100	100	88	84	73	94	94	63
<i>Klebsiella pneumoniae</i>	46	-	72	78	72	75	76	76	76	100	100	76	76	87	50	76	57
<i>Proteus mirabilis</i> *	23	48	61	100	65	77	78	78	78	-	100	96	96	52	-	78	39
<i>Pseudomonas aeruginosa</i>	38	-	-	61	-	-	79	-	87	71	95	84	95	66	-	-	-

*Calculated from fewer than the standard recommendation of 30 isolates (See "Preface")

1-Urine isolates only

Gram Positive-Cocci	Number of Isolates	Penicillins		Fluoroquinolone ³	Tetracycline	Macrolide	Miscellaneous			
		Ampicillin	Oxacillin	Levofloxacin	Tetracycline	Erythromycin	Rifampin ⁴	Clindamycin	Trimethoprim/Sulfamethoxazole	Vancomycin
Coagulase-Negative Staphylococci*	23	-	33 ²	40	73	33	80	47	27	100
<i>Enterococcus faecalis</i>	51	94	-	-	-	-	-	-	-	84
<i>Enterococcus faecium</i> *	15	13	-	-	-	-	-	-	-	33
<i>Staphylococcus aureus</i>	195	-	41	42	85	35	92	66	59	100

*Calculated from fewer than the standard recommendation of 30 isolates (See "Preface").

2-67% oxacillin (methicillin) resistant

3-*Staphylococcus* spp. may develop resistance during prolonged therapy with fluoroquinolones.

4- Rx: Rifampin should not be used alone for chemotherapy.

***Mycobacterium tuberculosis* Antibiotic Susceptibility Profile-Percent (%) Susceptible¹**

<i>Mycobacterium tuberculosis</i>	Number of Isolates	Isoniazid (low)	Isoniazid (high) ²	Ethambutol	Rifampin
	30	93	0 ³	100	100

1-Includes all inpatient and outpatient data

2-Testing at high-level isoniazid is performed only on isolates that exhibit low-level resistance to isoniazid (n=2).

3-Calculated from fewer than the standard recommendation of 30 isolates (See "Preface").