

Community Health Network
ANTIMICROBIAL SUSCEPTIBILITY STUDIES

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also available online:



Report Prepared by:
Ma Gertrudes P. Loh, MLS(ASCP)^{CM}
Phong Pham, MLS(ASCP)^{CM}
Jeffrey Whitman, M.D.
Amanda Roy, PharmD, BCIDP
Lisa Winston, M.D.

For Questions Contact:
Microbiology Resident
415-443-1438 (Pager)

Jeffrey Whitman, M.D.
Chief, Microbiology Division
628-206-3595

URINE ISOLATES

JANUARY - DECEMBER 2022

PERCENT OF ISOLATES SUSCEPTIBLE TO ANTIMICROBIAL *

Enteric Urine Isolates	# Tested	AMP	PIPTZ	CZOL	CTAZ	CTRX	CFPM	GENT	TOB	TMSX	CIPR	LEVO	NITRO	ETP
Citrobacter freundii (complex)	17	R	94	R	100	94 ~	100	100	100	94	82	94	100	100
Citrobacter koseri	27	R	100	100	100	100	100	100	100	100	96	100	59	100
Enterobacter cloacae (complex)	42	R	86	R	75	71 ~	100	100	98	81	79	86	26	88
Escherichia coli	1,667	48	98	86 ^	91	88	90	89	89	68	75	80	98	100
ESBL	201		96					66	58	40	23	30	95	100
NON-ESBL	1,488	54	98	96 ^	99	99	100	93	93	71	82	86	99	100
Klebsiella aerogenes	38	R	97	R	97	82 ~	100	97	97	97	100	100	26	100
Klebsiella oxytoca	43	R	98	21	98	93	98	98	95	88	91	98	88	98
Klebsiella pneumoniae	205	R	97	85 ^	87	85	86	94	92	80	82	89	48	98
Morganella morganii	26	R	96	R	89	92	100	73	81	62	69	69	R	100
Proteus mirabilis	211	80	100	93 ^	99	97	98	92	92	83	87	87	R	100

Non-enteric Urine Isolates	# Tested	PIPTZ	CTAZ	CFPM	GENT	TOB	TMSX	CIPR	LEVO	MERO
Acinetobacter baumannii (complex)	5		100	80	80	100	80	80	100	100
Pseudomonas aeruginosa	72	90	92	89	R	99		82	79	94
Stenotrophomonas maltophilia	5		80				100		80 "	

Gram-Positive Urine Isolates	# Tested	AMP	AMCL	NAF	CZOL	CTRX	TMSX	TET	LEVO
Staphylococcus aureus	67	28 #	69	69	69	69	99	91	69
Staphylococcus, coagulase negative	40	20 #	65	65	65	65	73	75	73
Staphylococcus saprophyticus: Uncomplicated UTIs respond to achievable urine levels of 1st gen Cephalosporins, Nitrofurantoin, Trimeth/Sulfa, or Fluoroquinolones.									

* First isolate per patient for the organism. Statistical validity of %susceptible is decreased if fewer than 30 isolates are tested.

^ Cefazolin %susceptible if UTI is uncomplicated.

~ Ceftriaxone is appropriate only for uncomplicated cystitis caused by these organisms.

" Levofloxacin should not be used alone for treatment of *Stenotrophomonas*.

Percent susceptible is determined by MIC and rapid beta-lactamase test only.

Mycobacterium Tuberculosis Complex		
Antimicrobial	(mcg/mL)	%S
Ethambutol	5	100
Isoniazid	0.1	94
Pyrazinamide	100	94
Rifampin	1	100
Streptomycin	1	88

Seventeen isolates (9 respiratory and 8 non-respiratory specimens) were tested by San Francisco Department of Public Health

NOTES:

- Many strains of Enterobacter and Citrobacter produce inducible cephalosporinases. Cephalosporins other than cefepime should be used with caution when treating serious infections caused by these bacteria.
- Escherichia coli*, *Klebsiella pneumoniae*, *Klebsiella oxytoca* and *Proteus mirabilis* are routinely screened for extended spectrum beta-lactamases (ESBL). 12% of isolates tested in 2022 were confirmed ESBL producers (287 patients).
- Campylobacter jejuni/coli* group enteric infections are usually treated with fluoroquinolones or macrolides. Strains resistant to these antimicrobials have been isolated at ZSFG. Resistant *Shigella* strains have been recovered at ZSFG.
- Rapid beta-lactamase (penicillinase) test, which indicates PCN and AMP resistance when positive, is performed on *Haemophilus influenzae*, *Moraxella catarrhalis* and *Neisseria gonorrhoea*. PCN and/or AMP results on table are based upon this beta-lactamase test. Other resistance mechanisms may exist.
- Streptococcus pneumoniae* isolates are tested by MIC method for PCN, 3rd generation cephalosporins and vancomycin susceptibilities. PCN susceptible stains are also susceptible to cephalosporins active against *Streptococcus pneumoniae*.

Penicillin (parenteral)	MIC Interpretation (mcg/mL)		
	Susceptible	Intermediate	Resistant
Nonmeningitis	≤ 2	4	≥ 8
Meningitis	≤ 0.06	-	≥ 0.12

6. Enterococci isolated from all sites are screened for vancomycin and ampicillin resistance.

Incidence of Enterococci Vancomycin and Ampicillin Resistance

Antimicrobial	No. Isolates Tested	No. Resistant Isolates	No. of Patients with Resistant Enterococci (Total No. Patients: 382)
Vancomycin	486	46 ^ (9%)	27 (7%)
Ampicillin	486	51 ^^ (10%)	34 (9%)

^ 16 urines, 15 bloods, 9 wounds/abscesses/aspirates, 6 tissues/bones

^^ 24 urines, 15 bloods, 8 wounds/abscesses/aspirates, 4 tissues/bones

AEROBIC ISOLATES NON-URINE SOURCES
JANUARY - DECEMBER 2022
PERCENT OF ISOLATES SUSCEPTIBLE TO ANTIMICROBIAL *

Enteric Non-urine Isolates	# Tested	AMP	PIPTZ	CZOL	CTAZ	CTRX	CFPM	GENT	TOB	TMSX	CIPR	LEVO	ETP	AZTH
Citrobacter freundii (complex)	15	R	R	R	R	R	100	93	93	87	87	100	100	
Citrobacter koseri	16	R	100	94	100	100	100	100	100	100	100	100	100	
Enterobacter cloacae (complex)	50	R	R	R	R	R	98	100	100	86	88	92	98	
Escherichia coli	236	39	98	59	81	76	79	87	87	58	67	72	100	
ESBL	54		96					63	57	32	19	24	100	
NON-ESBL	184	50	98	76	98	98	100	95	95	66	82	85	100	
Klebsiella aerogenes	25	R	R	R	R	R	100	100	100	92	92	92	100	
Klebsiella oxytoca	36	R	100	25	97	97	97	97	97	89	97	100	100	
Klebsiella pneumoniae	109	R	98	86	91	91	92	95	93	87	87	92	99	
Morganella morganii	26	R	100	R	81	85	100	85	100	65	69	69	100	
Proteus mirabilis	94	81	99	71	97	96	98	94	94	84	87	88	99	
Proteus vulgaris	24	R	100	R	88	50	100	96	96	83	92	92	100	
Salmonella sp.	9	89		R		100				100	67			
Serratia marcescens	31	R	84	R	77	74	100	100	94	100	100	100	100	
Shigella flexneri	41	2		R						22	71	76		72
Shigella sonnei	5	60		R						20	40	40		40

Gram-Positive Non-urine & Misc Isolates	# Tested	PCN	AMP	AMCL	NAF	CZOL	CTRX	ERYT	CLIN	TET	VAN	GENT	TOB	TMSX	LEVO
Staphylococcus aureus	865	22 [#]	22 [#]	67	67	67	67	50	65~	84	100			98	77
Methicillin Resistant	290	R	R	R	R	R	R	13	65~	71	100			97	45
Methicillin Susceptible	570	31 [#]	31 [#]	100	100	100	100	69	65~	90	100			99	93
Staphylococcus lugdunensis	55	42 [#]	42 [#]	80	80	80	80	78	76~	86	100			98	98
Staphylococcus, coagulase negative	407	23 [#]	23 [#]	57	57	57	57	39	67	72	100			74	83
	Staphylococci resistant to Nafcillin (Oxacillin) are resistant to PCN, AMP, AMCL, PIPTZ, Cephems (CZOL, CTAZ, CTRX, CFPM), & Carbapenems.														
Streptococcus pyogenes, Group A	35	100	S		S	S	100	86	71~		100	R	R		
Streptococcus agalactiae, Group B	27	100	S		S	S	100	56	56~		100	R	R		
Streptococcus pneumoniae	37	100	S				100	87	92	87	100	R	R	81	100
Haemophilus influenzae	35		83	S	R	R	S	R	R			R	R	S	S
Moraxella catarrhalis	12	R	11	S	R	R	S		R			R	R	S	S

* First isolate per patient for the organism. Statistical validity of %susceptible is decreased if fewer than 30 isolates are tested.

~ Clindamycin %susceptible is determined by MIC and inducible clindamycin resistance test.

^ Levofloxacin should not be used alone for treatment of *Stenotrophomonas*.

Penicillin %susceptible is determined by MIC and rapid beta-lactamase test. Additional penicillin zone edge test performed on sterile sites only.

Non-enteric Non-urine Isolates	# Tested	PIPTZ	CTAZ	CFPM	GENT	TOB	TMSX	CIPR	LEVO	MERO
Acinetobacter baumannii (complex)	10		90	90	90	90	80	90	90	90
Pseudomonas aeruginosa	107	88	89	86	R	98		87	88	94
Stenotrophomonas maltophilia	34		44				100		100	

Abbrev	Antimicrobial	Abbrev	Antimicrobial
AMCL	Amoxicillin/ clavulanate	GENT	Gentamicin
AMP	Ampicillin	LEVO	Levofloxacin
AZTH	Azithromycin	MERO	Meropenem
CFPM	Cefepime	NAF	Nafcillin
CIPR	Ciprofloxacin	NITRO	Nitrofurantoin
CLIN	Clindamycin	PCN	Penicillin G
CTAZ	Ceftazidime	PIPTZ	Piperacillin/tazobactam
CTRX	Ceftriaxone	TET	Tetracycline
CZOL	Cefazolin	TMSX	Trimethoprim/ sulfa
ERYT	Erythromycin	TOB	Tobramycin
ETP	Ertapenem	VAN	Vancomycin

ANAEROBIC BACTERIA

Routine antimicrobial susceptibility testing is not performed because empirical therapy and appropriate surgical treatment are usually sufficient, and because infections are frequently due to multiple bacteria, not all of which may be cultured. In special circumstances, e.g., brain abscess, endocarditis, joint infection, recurrent bacteremia, testing is available upon approval by the Microbiology Resident (pager: 415 443-1438)

Rapid beta-lactamase test is performed on Gram-negative anaerobic bacteria, e.g., Bacteroides and Fusobacteria.

2020 - 2022 Laguna Honda Hospital Gram-Negative Organisms

LHH: Non-urine Isolates	# Tested	CZOL	CTRX	CFPM	PIPTZ	TOB	TMSX	CIPR	ETP	MERO
Escherichia coli	43	61	72	72	98	84	74	44	100	100
ESBL	12				92	67	58	25	100	100
NON-ESBL	31	84	100	100	100	90	81	52	100	100
Klebsiella pneumoniae	29	83	90	93	97	90	59	76	100	100
Proteus mirabilis	59	61	92	93	100	75	53	44	100	100
Pseudomonas aeruginosa	36			94	92	100		75	R	78
LHH: Urine Isolates	# Tested	CZOL	CTRX	CFPM	PIPTZ	TOB	TMSX	CIPR	ETP	NITRO
Escherichia coli	230	73 ^	74	78	97	85	74	55	100	96
ESBL	65				94	62	62	22	99	86
NON-ESBL	180	97 ^	99	100	99	94	79	64	100	100
Klebsiella pneumoniae	72	89 ^	89	93	99	93	81	88	100	58
Proteus mirabilis	137	94 ^	96	98	100	80	67	53	100	R
Pseudomonas aeruginosa	52			85	81	100		75	R	

^ Cefazolin %susceptible if UTI is uncomplicated.