

THE MEDICAL FOUNDATION
SUSCEPTIBILITY PATTERNS OF COMMON ISOLATES
 January to December 2016

(%) Represents the percent susceptible

(-) Test not performed or antibiotic not indicated for organism

MOST COMMON NONURINE ISOLATES

ORGANISMS COUNTED First isolate per patient per year	MRSA ^{1,2}	<i>Staph aureus</i> , ² not MRSA	<i>Staphylococcus</i> coagulase neg	<i>Enterococcus</i> ^{3,4}	<i>Streptococcus</i> <i>pneumoniae</i> ^{5,6}	<i>Escherichia coli</i>	<i>Pseudomonas</i> <i>aeruginosa</i>	<i>Klebsiella</i> <i>pneumoniae</i>	<i>Enterobacter</i> <i>cloacae</i>	<i>Proteus mirabilis</i>
No. of isolates (7331)	(1707)	(2100)	(296)	(772)	(61)	(809)	(670)	(325)	(251)	(244)
ANTIMICROBIALS	%	%	%	%	%	%	%	%	%	%
AMIKACIN	-	-	-	-	-	99	95	98	98	100
AMPICILLIN	-	-	-	91	-	53	-	-	-	87
AMP/SULBACTAM	-	-	-	-	-	61	-	84	-	94
CEFAZOLIN	-	100	55	-	-	89	-	94	-	94
CEFOXITIN	-	-	-	-	-	-	-	-	-	-
CEFTAZIDIME	-	-	-	-	-	92	95	96	91	96
CEFTRIAXONE	-	-	-	-	100	92	-	96	91	96
CLINDAMYCIN	80	82	64	-	97	-	-	-	-	-
ERYTHROMYCIN	-	65	44	-	80	-	-	-	-	-
GENTAMICIN	-	-	-	-	-	91	93	99	98	91
LEVOFLOXACIN	51	89	68	-	100	79	83	95	100	77
METRONIDAZOLE	-	-	-	-	-	-	-	-	-	-
OXACILLIN	-	100	55	-	-	-	-	-	-	-
PENICILLIN	-	-	-	90	98	-	-	-	-	-
PIP/TAZOBACTAM	-	-	-	-	-	97	91	94	89	100
TETRACYCLINE	95	95	89	-	93	-	-	-	-	-
TOBRAMYCIN	-	-	-	-	-	91	98	97	98	93
TRIMETH/SULFA	96	99	70	-	90	78	-	95	96	80
VANCOMYCIN	100	100	100	90	100	-	-	-	-	-

**SURVEILLANCE
MONITORS**

<i>Salmonella</i> sp. ⁷	<i>Shigella</i> sp. ⁷	<i>B. fragilis</i> Grp ⁸
		(50)
%	%	%
-	-	-
91	84	-
-	-	100
-	-	-
-	-	86
-	-	-
-	-	-
-	-	74
-	-	-
-	-	-
99	95	-
-	-	100
-	-	-
-	-	-
-	-	30
-	-	-
100	38	-
-	-	-

- 45% of all *Staphylococcus aureus* are MRSA.
- 9% of MRSA and 14% of *Staphylococcus aureus* other than MRSA have inducible clindamycin resistance.
- 10% of *Enterococcus* are VRE; 24% of VRE are ampicillin susceptible.
- Synergy with penicillin and high levels of gentamicin or streptomycin is likely for 79% and 80% of *Enterococcus* respectively.
- Streptococcus pneumoniae* susceptibility data are based on blood and pleural fluid isolates only
- ^a Oral penicillin and *Streptococcus pneumoniae*: 35% of all from non-sterile sites are intermediate (25%) or resistant (10%)
- ^b IV penicillin and *Streptococcus pneumoniae*: 5% of all from non-sterile sites are intermediate (3%) or resistant (2%)
- Salmonella* and *Shigella* susceptibility data based on cumulative isolates primarily of fecal origin
- Bacteroides fragilis* group susceptibility data based on 50 random patient isolates
- 18% of Group B Streptococcus from vaginal/rectal sources are susceptible to clindamycin.
- 19% of all patient isolates of *H. influenzae* are beta-lactamase positive



Your Laboratory Experts

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**Susceptibility Patterns
Of Common Organisms**

January-December 2016

Data primarily from the following counties:
 St. Joseph and Elkhart

Form 9720270 (3/17)

**THE MEDICAL FOUNDATION
SUSCEPTIBILITY PATTERNS OF MOST COMMON URINE ISOLATES
January to December 2016**

(%) Represents the percent susceptible

(-) Test not performed or antibiotic not indicated for organism

PATIENT LOCATION	ORGANISMS COUNTED First isolate per patient per year	<i>Escherichia coli</i>	<i>Klebsiella pneumoniae</i>	<i>Enterococcus</i>	<i>Proteus mirabilis</i>	<i>Pseudomonas aeruginosa</i>	<i>Enterobacter cloacae</i>	<i>Citrobacter freundii</i>	<i>Klebsiella oxytoca</i>	<i>Enterobacter aerogenes</i>	<i>Staph aureus</i> not MRSA
OP	No. of isolates (9,842)	(6,514)	(1,149)	(668)	(419)	(314)	(177)	(141)	(134)	(116)	(90)
OP	ANTIMICROBIALS	%	%	%	%	%	%	%	%	%	%
OP	AMPICILLIN	58	-	93	83	-	-	-	-	-	-
OP	AMP/SULBACTAM	65	88	-	93	-	-	-	63	-	-
OP	CEFAZOLIN	92	97	-	96	-	-	-	63	-	99
OP	LEVOFLOXACIN	83	98	74	74	74	97	96	100	99	87
OP	NITROFURANTOIN	97	44	92	-	-	60	96	91	18	100
OP	PENICILLIN	-	-	93	-	-	-	-	-	-	-
OP	TETRACYCLINE	75	84	25	-	-	-	92	-	-	98
OP	TRIMETH/SULFA	80	94	-	81	-	88	86	97	99	100
NH	No. of isolates (421)	(273)	(83)	(51)	(65)	(39)	-	-	-	-	-
NH	AMPICILLIN^	48	-	88	80	-	-	-	-	-	-
NH	AMP/SULBACTAM	56	81	-	88	-	-	-	-	-	-
NH	CEFAZOLIN	85	89	-	98	-	-	-	-	-	-
NH	LEVOFLOXACIN	56	94	45	54	56	-	-	-	-	-
NH	NITROFURANTOIN	92	42	90	-	-	-	-	-	-	-
NH	PENICILLIN	-	-	86	-	-	-	-	-	-	-
NH	TETRACYCLINE	-	-	-	-	-	-	-	-	-	-
NH	TRIMETH/SULFA	70	92	-	69	-	-	-	-	-	-
IP	No. of isolates (5,138)	(3,261)	(590)	(428)	(235)	(207)	(115)	(64)	(68)	(65)	(70)
IP	AMPICILLIN	53	-	86	88	-	-	-	-	-	-
IP	AMP/SULBACTAM	61	88	-	94	-	-	-	68	-	-
IP	CEFAZOLIN	92	97	-	98	-	-	-	69	-	99
IP	LEVOFLOXACIN	83	98	64	69	70	96	94	99	100	84
IP	NITROFURANTOIN	96	47	85	-	-	59	96	96	20	100
IP	PENICILLIN	-	-	85	-	-	-	-	-	-	-
IP	TETRACYCLINE	-	-	23	-	-	-	-	-	-	99
IP	TRIMETH/SULFA	79	95	-	78	-	94	91	97	100	99

OP = Outpatients

NH= Nursing Homes

IP = Inpatients

10% of Nursing Home urine *Enterococcus* are VRE; 14% of VRE are ampicillin susceptible

12% of Nursing Home urine *E. coli* and 5% of *K. pneumoniae* are extended beta-lactamase producers (ESBL)

**SUSCEPTIBILITY TESTING BY
SOURCE GROUP**

Abscess

MRSA (40%)
Staphylococcus aureus (27%)
Escherichia coli (8%)

Blood

Escherichia coli (19%)
Staphylococcus aureus (11%)
Streptococcus viridans group (7%)
Enterococcus sp. (7%)
Klebsiella pneumoniae (6%)
MRSA (6%)

Body Fluids, Sterile

Staphylococcus coag neg (23%)
Staphylococcus aureus (19%)
Escherichia coli (12%)
MRSA (9%)
Enterococcus sp. (8%)

Lower Respiratory

Pseudomonas aeruginosa (26%)
Staphylococcus aureus (19%)
MRSA (12%)
Streptococcus pneumoniae (7%)
Klebsiella pneumoniae (5%)

Tissue

Staphylococcus coag neg (18%)
Staphylococcus aureus (18%)
Enterococcus sp. (16%)
MRSA (12%)

Wound/skin

Staphylococcus aureus (30%)
MRSA (21%)
Enteric Gram-neg rods (17%)
Enterococcus sp. (11%)
Pseudomonas aeruginosa (7%)

Urine

Escherichia coli (62%)
Klebsiella pneumoniae (11%)
Enterococcus sp. (7%)
Proteus mirabilis (4%)
Pseudomonas aeruginosa (3%)

**Routine Antimicrobial Reporting
Aerobic Organisms**

GRAM-NEGATIVE	PRIMARY	SECONDARY (when resistant to primary)	GRAM-POSITIVE	PRIMARY	SECONDARY (when resistant to primary)
<i>Enterobacteriaceae</i> (non-urine)	ampicillin amp/sulbactam cefazolin levofloxacin gentamicin pip/tazobactam tobramycin trimeth/sulfa	cefotetan/cefodoxin or ceftazidime	<i>Enterococcus</i> sp.	ampicillin penicillin	Report vancomycin on isolates from normally sterile sites and from other sites when ampicillin and penicillin are both resistant. Report vancomycin whenever vancomycin is resistant. Report gentamicin and streptomycin synergy results on CSF and blood isolates only. Report nitrofurantoin and tetracycline on urines.
	Report amikacin, if tobramycin is resistant.		<i>Staphylococcus</i> sp.	cefazolin clindamycin^ oxacillin penicillin vancomycin	tetracycline trimeth/sulfa
	Report meropenem, if non-susceptible, and if 3 rd generation cephalosporins are resistant.				^Isolates routinely screened for inducible clindamycin resistance. <i>S. aureus</i> predictably susceptible to trimeth/sulfa. Report tetracycline and trimeth/sulfa if MRSA Report rifampin if MRSA on request only. Report levofloxacin on request only. Test and report daptomycin on request only.
<i>Enterobacteriaceae</i> (Urine)	ampicillin amp/sulbactam cefazolin levofloxacin gentamicin nitrofurantoin tobramycin trimeth/sulfa	ceftazidime	<i>Streptococcus pneumoniae</i>	Sterile body sites ceftriaxone penicillin	Non-sterile sites ceftriaxone erythromycin penicillin tetracycline trimeth/sulfa
	Report meropenem, if non-susceptible, and if 3 rd generation cephalosporins are resistant				Report vancomycin, whenever isolate is resistant to both penicillin and ceftriaxone. Report levofloxacin if non-susceptible or on request only.
<i>Pseudomonas aeruginosa</i> (All sites)	ceftazidime levofloxacin gentamicin tobramycin pip/tazobactam	amikacin	<i>Streptococcus</i> sp.	Sterile body sites ceftriaxone erythromycin penicillin vancomycin	Non-sterile sites*
	Report meropenem, if non-susceptible, and if only one primary or secondary drug is susceptible.				All Beta-hemolytic streptococci predictably susceptible to penicillin. *Susceptibility testing performed on request only.
<i>Salmonella</i> sp./ <i>Shigella</i> sp.	ampicillin levofloxacin trimeth/sulfa				
	Report chloramphenicol on request only. MIC information for stool isolates on request only.				
<i>Haemophilus influenzae</i>	Predictably susceptible to: cefotaxime ceftriaxone cefuroxime tetracycline		Group B <i>Streptococcus</i> (Vagina/rectum)	clindamycin erythromycin penicillin	MIC information on request only if patient is both pregnant and allergic to penicillin. Cefazolin information predictable based on penicillin. Vancomycin reported on request only.
	MIC information for isolates from normally sterile body sites on request only. MIC information for Beta-lactamase positive isolates from other sites on request only.		<i>Streptococcus anginosus</i> Group	Predictably susceptible to: ceftriaxone penicillin vancomycin	Susceptibility testing performed on request only.
	Isolates saved for additional susceptibility testing if indicated for the following sources:				
Blood cultures	One week from date of final report				
CSF	One week from date of final report				
Non-urine	One week from date of final report				
Urine	One week from date of final report				