

**Toronto General Hospital ANTIBIOGRAM  
Emergency Department  
January 1, 2024 - December 31, 2024**

**All Specimens – % Susceptible**

<div><div>≥80% Susceptible</div><div>70-79% Susceptible</div><div>≤69% Susceptible</div></div>	#	Ampicillin	Amoxicillin-Clavulanic acid	Penicillin	Penicillin IV (meningitis)	Penicillin IV (non-meningitis)	Piperacillin-Tazobactam	Meropenem	Ertapenem	Cloxacillin	Cefazolin	Cephalexin	Ceftriaxone	Ceftriaxone (meningitis)	Ceftriaxone (non-meningitis)	Ceftazidime	Clindamycin	Erythromycin	Doxycycline	Ciprofloxacin	Moxifloxacin	Trimethoprim-Sulfamethoxazole	Nitrofurantoin	Gentamicin	Tobramycin	Amikacin	Vancomycin	Linezolid
	%																											

<b>ALL BACTERIA</b>	2196	—	24	49			72	78	71		33	17	57							42	46		57	72				
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<b>ALL GRAM-NEGATIVE BACTERIA</b>	1341	100	12	54			68	99	86		24		62			71			32	66		62	62	90	81	97		
<i>Escherichia coli</i>	705	53	19	66			73	100	100		29		78			78			57	55		63	98	90	73	97		
<i>Klebsiella pneumoniae</i>	199	15	0	75			72	99	99		46		77			77			0	69		71	20	88	76	96		
<i>Pseudomonas aeruginosa</i>	152	11					88	92								91			78					90	96	93		
<i>Proteus mirabilis</i>	68	5	25	94			97	100	100		32		97			97			0	81		81	3	91	100	100		
<i>Enterobacter cloacae</i>	46	3	0	0			0	100	100		0	0	0			0			93	83		83	33	100	100	100		
<i>Klebsiella oxytoca</i>	36	3	0	86			86	100	100		17		89			89			89	86		91	94	80	100			
<i>Morganella morganii</i>	27	2	0	0			0	96	96		0	0	0			0			63			70	0	81	96	100		
<i>Klebsiella aerogenes</i>	18	1	0	0			0	94	94		0	0	0			0			94			94	17	100	100	100		
<i>Citrobacter freundii</i>	17	1	0	0			0	100	100		0	0	0			0			88			76	94	94	88	100		
<i>Serratia marcescens</i>	17	1	0	0			6	100	100		0	0	0			0			100	88		100	0	100	100	100		
<i>Haemophilus influenzae</i> <sup>^^</sup>	14	1	86																									
<i>Citrobacter koseri</i>	12	1	0	0			0	100	100		0	0	0			0			100			100	50	100	100	100		
<i>Citrobacter braakii</i>	11	1	0	0			0	100	100		0	0	0			0			0	91		100	91	100	100	100		
<i>Stenotrophomonas maltophilia</i> <sup>*</sup>	7	1																			71	100	0					
<i>Acinetobacter baumannii</i> complex	5	0					100	100	0		0	0	100			100			100			100	0	0	100	100		
<i>Providencia rettgeri</i>	5	0	0	0			0	80	80		0	0	0			0			60			100	60	100	100	100		

ALL GRAM-POSITIVE BACTERIA	855	100	41	41	12			78	48	48	36	48	42	50				46	39	59	66		50	88			95	
Coagulase-negative staphylococci	721	84						53	53	53	53	53						67	44	90	100		72	100			100	100
Staphylococcus aureus, all isolates	324	38						83	83	83	83	83	83					83	73	95	58		98	99			100	100
- methicillin-susceptible	270	32						100	100	100	100	100	100					84	77	98	50		98	99			100	100
- methicillin-resistant (MRSA)	54	6						0	0	0	0	0	0					76	50	81	100		96	100			100	100
Enterococcus faecalis, all isolates	257	30	99	99				100												20	82			99			100	100
- vancomycin-susceptible	257	30	99	99				100												20	82			99			100	100
Enterococcus faecium, all isolates	56	7	16	16				16												33	18		10			75	100	
- vancomycin-susceptible	42	5	21	21				21												41	24		6			100	100	
- vancomycin-resistant (VRE)	14	2	0	0				0												8	0		23			0	100	
Viridans group streptococci*	43	5			58									98													100	
Staphylococcus lugdunensis	30	4						90	90	90	90	90	90					90	90	93	100		97	100			100	100
Group A streptococci**	26	3			100															73	71						100	
Streptococcus pneumoniae	26	3				100	100								100	100			100	71			100				100	
Streptococcus anginosus group**	13	2			100									100													100	
Staphylococcus saprophyticus**	9	1																										
Group B streptococci**	7	1			100															86	86						100	
Group C streptococci**	5	1			100															40	40						100	
Group G streptococci**	5	1			100															40	40						100	

**General Notes:**

- Statistical validity of estimates of percent susceptibility for organisms for which there are fewer than 30 isolates reported is limited. Please take this into consideration when interpreting the reported results.
- Some organisms for which there were only very small numbers have been excluded from this report; however the total number of "ALL BACTERIA", "ALL GRAM-NEGATIVE BACTERIA", and "ALL GRAM-POSITIVE BACTERIA" listed includes these organisms.
- Reported susceptibilities for "ALL BACTERIA", "ALL GRAM-NEGATIVE BACTERIA", and "ALL GRAM-POSITIVE BACTERIA" reflect estimates only based on the weighted average of susceptibilities for all organisms included on this report as well as those that have been excluded, with assumptions made for those drugs for which susceptibilities were not tested.
- Susceptibility to doxycycline was predicted based on tetracycline susceptibility testing results.

**Year-Specific Notes:**

- Only a limited number of coagulase negative staphylococci isolates were tested for susceptibilities. The vast majority of coagulase-negative staphylococci are susceptible to vancomycin. If you have any questions, please contact the
- All specimens exclude surveillance samples.

**Organism-Specific Notes:**

- <sup>^^</sup> H. influenzae and H. parainfluenzae: Susceptibility to ampicillin was determined using beta-lactamase testing. Beta-lactamase-positive isolates are resistant to ampicillin but are generally susceptible to amoxicillin-clavulanic acid and
- <sup>\*\*</sup> Beta-hemolytic streptococci: Susceptibility testing to penicillin is not routinely performed since resistant strains have not been recognized. All isolates are considered susceptible to penicillin.
- <sup>\*</sup> S. saprophyticus: Susceptibility testing is not routinely performed. Most urinary tract infections due to this organism respond to nitrofurantoin, trimethoprim/sulfamethoxazole or fluoroquinolones.
- <sup>\*</sup> Viridans group streptococci: Please note that only a small proportion of these isolates were tested for susceptibilities. Please take this into consideration when interpreting the reported results.
- <sup>†</sup> S. maltophilia: Susceptibility to moxifloxacin was predicted based on levofloxacin susceptibility testing results.
- <sup>††</sup> S. anginosus group: Please note that only a small proportion of these isolates were tested for susceptibilities. Please take this into consideration when interpreting the reported results.

### Blood Isolates – % Susceptible

	#	%
		<div> <div>≥80% Susceptible</div> <div>70-79% Susceptible</div> <div>≤69% Susceptible</div> </div>
		<div> <div>Amoxicillin</div> <div>Amoxicillin-Clavulanic acid</div> <div>Penicillin</div> <div>Penicillin IV (meningitis)</div> <div>Penicillin IV (non-meningitis)</div> <div>Piperacillin-Tazobactam</div> <div>Meropenem</div> <div>Ertapenem</div> <div>Cloxacillin</div> <div>Cefazolin</div> <div>Ceftriaxone</div> <div>Ceftriaxone (meningitis)</div> <div>Ceftriaxone (non-meningitis)</div> <div>Ceftazidime</div> <div>Cilindamycin</div> <div>Erythromycin</div> <div>Doxycycline</div> <div>Ciprofloxacin</div> <div>Moxifloxacin</div> <div>Trimethoprim-Sulfamethoxazole</div> <div>Gentamicin</div> <div>Tobramycin</div> <div>Amikacin</div> <div>Vancomycin</div> <div>Linezolid</div> </div>

[illegible]

ALL GRAM-NEGATIVE BACTERIA	285	100	20	56				69	99	90		44	63			70			65	65	92	92	98		
<i>Escherichia coli</i>	148	52	36	59				69	100	100		50	71			71			49	64	89	90	97		
<i>Klebsiella pneumoniae</i>	58	20	0	83				81	100	100		78	84			84			71	79	95	91	98		
<i>Pseudomonas aeruginosa</i>	24	8						92	95							91			96		91	96	96		
<i>Proteus mirabilis</i>	15	5	20	87				93	100	100		27	93			93			80	60	87	100	100		
<i>Klebsiella oxytoca</i>	9	3	0	100				100	100	100		22	100			100			89	89	100	100	100		
<i>Enterobacter cloacae</i>	8	3	0	0				0	100	100		0	0			0			100		75	100	100	100	
<i>Citrobacter braakii</i>	5	2	0	0				0	100	100		0	0			0			100		100	100	100	100	

[illegible]

**General Notes:**

- Statistical validity of estimates of percent susceptibility for organisms for which there are fewer than 30 isolates reported is limited. Please take this into consideration when interpreting the reported results.
- Some organisms for which there were only very small numbers have been excluded from this report; however the total number of "ALL BACTERIA", "ALL GRAM-NEGATIVE BACTERIA", and "ALL GRAM-POSITIVE BACTERIA" listed includes these organisms.
- Reported susceptibilities for "ALL BACTERIA", "ALL GRAM-NEGATIVE BACTERIA", and "ALL GRAM-POSITIVE BACTERIA" reflect estimates only based on the weighted average of susceptibilities for all organisms included on this report as well as those that have been excluded, with assumptions made for those drugs for which susceptibilities were not tested.
- Susceptibility to doxycycline was predicted based on tetracycline susceptibility testing results.

**Year-Specific Notes:**

- Only a limited number of coagulase negative staphylococci isolates were tested for susceptibilities. The vast majority of coagulase-negative staphylococci are susceptible to vancomycin. If you have any questions, please contact the UHN/MSH Department of Microbiology.

**Organism-Specific Notes:**

\*\* Beta-hemolytic streptococci: Susceptibility testing to penicillin is not routinely performed since resistant strains have not been recognized. All isolates are considered susceptible to penicillin.

\* Viridans group streptococci: Please note that only a small proportion of these isolates were tested for susceptibilities. Please take this into consideration when interpreting the reported results.

\*\* *S. anginosus* group: Please note that only a small proportion of these isolates were tested for susceptibilities. Please take this into consideration when interpreting the reported results.

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**Respiratory Isolates – % Susceptible**

		Ampicillin	Amoxicillin-Clavulanic acid	Penicillin	Penicillin IV (meningitis)	Penicillin IV (non-meningitis)	Piperacillin-Tazobactam	Meropenem	Ertapenem	Cloxacillin	Cefazolin	Ceftriaxone	Cefazidime	Clindamycin	Erythromycin	Doxycycline	Ciprofloxacin	Moxifloxacin	Trimethoprim-Sulfamethoxazole	Gentamicin	Tobramycin	Amikacin	Vancomycin	Linezolid
≥80% Susceptible <span style="color: green;">■</span> 70-79% Susceptible <span style="color: yellow;">■</span> ≤69% Susceptible <span style="color: red;">■</span>																								
#	%																							

<b>ALL BACTERIA</b>	58	—	25	29			82	88	17		17	39							24					
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<b>ALL GRAM-NEGATIVE BACTERIA</b>	46	100	24	28			83	91			35	82				57		12	90	90	80		
<i>Pseudomonas aeruginosa</i>	28	61					78	89				81				67			93	100	89		
<i>Haemophilus influenzae</i> <sup>^^</sup>	11	24	100																				
<i>Klebsiella pneumoniae</i>	2	4	0	100			50	100			100	100				0		100	100				
<i>Moraxella catarrhalis</i> <sup>^</sup>	2	4																					
<i>Stenotrophomonas maltophilia</i> <sup>'</sup>	2	4															50	100					

<b>ALL GRAM-POSITIVE BACTERIA</b>	12	100	31	31	31		77	77	77	46	77	54		77	77			66					
<i>Staphylococcus aureus</i>	6	50					100	100	100	100	100			83	83	100		83				100	100
<i>Streptococcus pneumoniae</i>	3	25			100	100								100	100		100					100	
Coagulase-negative staphylococci	1	8					0	0	0	0	0	0			100	100	100	100				100	100
Group A streptococci <sup>**</sup>	1	8			100									100	100							100	
<i>Mycobacterium avium</i>	1	8																					
<i>Mycobacterium tuberculosis complex</i>	1	8																					

**General Notes:**

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- Susceptibility to doxycycline was predicted based on tetracycline susceptibility testing results.

**Organism-Specific Notes:**

- <sup>^</sup> *M. catarrhalis*: Susceptibility testing is not routinely performed. Most isolates are resistant to ampicillin and amoxicillin but are generally susceptible to other antibiotics commonly used for respiratory
- <sup>^^</sup> *H. influenzae* and *H. parainfluenzae*: Susceptibility to ampicillin was determined using beta-lactamase testing. Beta-lactamase-positive isolates are resistant to ampicillin but are generally susceptible to amoxicillin-clavulanic acid and cefuroxime.
- <sup>\*\*</sup> Beta-hemolytic streptococci: Susceptibility testing to penicillin is not routinely performed since resistant strains have not been recognized. All isolates are considered susceptible to penicillin.
- <sup>'</sup> *S. maltophilia*: Susceptibility to moxifloxacin was predicted based on levofloxacin susceptibility testing results.

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**Urine Isolates – % Susceptible**

≥80% Susceptible <span style="color: green;">■</span> 70-79% Susceptible <span style="color: yellow;">■</span> ≤69% Susceptible <span style="color: red;">■</span>		#	%	Ampicillin	Amoxicillin-Clavulanic acid	Piperacillin-Tazobactam	Meropenem	Ertapenem	Cloxacillin	Cefazolin	Cephalexin	Ceftriaxone	Ceftazidime	Doxycycline	Ciprofloxacin	Trimethoprim-Sulfamethoxazole	Nitrofurantoin	Gentamicin	Tobramycin	Amikacin	Vancomycin	Linezolid
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<b>ALL BACTERIA</b>	1343	—	20	62	72	77	73		9	3	53		31	64	51	72						
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<b>ALL GRAM-NEGATIVE BACTERIA</b>	1019	100	3	58	68	99	93		8		67	72	31	64	64	69	90	48	95		
<i>Escherichia coli</i>	609	60	2	67	75	100	100		10		80	80	50	55	63	98	90	35	95		
<i>Klebsiella pneumoniae</i>	156	15	0	72	70	99	97		0		75	75	0	69	66	22	85	35	92		
<i>Pseudomonas aeruginosa</i>	61	6			85	85							90		74		87	93	95		
<i>Proteus mirabilis</i>	51	5	40	96	98	100	100		50		98	98	0	86	88	4	94	100	100		
<i>Enterobacter cloacae</i>	32	3	0	0	0	100	100		0	0	0	0		91	91	44	100	100	100		
<i>Klebsiella oxytoca</i>	27	3	0	85	85	100	100		0		89	89		89	85	96	93	0	100		
<i>Morganella morganii</i>	20	2	0	0	0	95	95		0	0	0	0		60	65	0	75	95	100		
<i>Citrobacter freundii</i>	14	1	0	0	0	100	100		0	0	0	0		93	71	93	93	93	100		
<i>Citrobacter koseri</i>	12	1	0	0	0	100	100		0	0	0	0		100	100	50	100	100	100		
<i>Klebsiella aerogenes</i>	12	1	0	0	0	100	100		0	0	0	0		92	92	25	100	100	100		
<i>Serratia marcescens</i>	11	1	0	0	9	100	100		0	0	0	0		100	91	100	0	100	100	100	
<i>Providencia rettgeri</i>	5	0	0	0	0	80	80		0	0	0	0		60	100	60	100	100	100		

<b>ALL GRAM-POSITIVE BACTERIA</b>	324	100	73	73	84	11	11	11	11	11	11		30	63	11	83					93
<i>Enterococcus faecalis</i> , all isolates	231	71	100	100	100								21	82		99				100	100
- vancomycin-susceptible	230	71	100	100	100								21	82		99				100	100
- vancomycin-resistant (VRE)	1	0	100	100	100								0	0	0	0				0	100
<i>Enterococcus faecium</i> , all isolates	50	15	18	18	18								32	18		12				72	100
- vancomycin-susceptible	36	11	25	25	25								42	25		8				100	100
- vancomycin-resistant (VRE)	14	4	0	0	0								7	0		21				0	100
<i>Staphylococcus aureus</i> , all isolates	35	11			89	89	89	89	89	89			97	11	100	97				100	100
- methicillin-susceptible	31	10			100	100	100	100	100	100			100	0	100	97				100	100
- methicillin-resistant (MRSA)	4	1			0	0	0	0	0	0			75	100	100	100				100	100
<i>Staphylococcus saprophyticus</i>	8	2																			
<i>Staphylococcus lugdunensis</i>	7	2			86	86	86	86	86	86			100		100	100				100	100

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- Susceptibility to doxycycline was predicted based on tetracycline susceptibility testing results.

**Organism-Specific Notes:**

" *S. saprophyticus*: Susceptibility testing is not routinely performed. Most urinary tract infections due to this organism respond to nitrofurantoin, trimethoprim/sulfamethoxazole or