

Toronto General Hospital ANTIBIOGRAM
All Inpatients
January 1, 2017 - December 31, 2017

Blood Isolates – % Susceptible

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

ALL BACTERIA	1433	—	11	25				54	60	56		42	51									66					
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ALL GRAM-NEGATIVE BACTERIA	482	100	12	52				67	97	85		42	60			68					78	66	87	87	99		
<i>Escherichia coli</i>	220	46	25	67				75	99	99		54	77			77					67	59	84	84	100		
<i>Klebsiella pneumoniae</i>	103	21	0	83				83	98	96		75	86			86					87	80	88	86	100		
<i>Pseudomonas aeruginosa</i>	42	9						81	86							88					83		88	98	98		
<i>Enterobacter cloacae</i>	33	7	0	0				0	100	94		0	0			0					100	94	100	97	100		
<i>Serratia marcescens</i>	28	6	0	0				0	100	100		0	0			0					100	100	100	82	100		
<i>Klebsiella oxytoca</i>	16	3	0	81				81	100	100		38	88			88					94	75	94	94	100		
<i>Acinetobacter baumannii</i> complex	9	2						89	100				22								100	100	100	100	100		
<i>Proteus mirabilis</i>	8	2	62	88				100	100	100		33	100			100					88	88	88	88	100		
<i>Stenotrophomonas maltophilia</i> [†]	7	1																			100	100					
<i>Enterobacter aerogenes</i>	6	1	0	0				0	83	83		0	0			0					100	100	100	100	100		
<i>Citrobacter freundii</i>	6	1	0	0				0	100	100		0	0			0					83	83	83	83	100		

ALL GRAM-POSITIVE BACTERIA	951	100	11	11	5			47	41	41	37	41	47				54	40				65				97	
Coagulase-negative staphylococci	586	62						38	38	38	38	38					58	38	87			72				100	100
<i>Staphylococcus aureus</i> , all isolates	131	14						93	93	93	93	93					76	71	96			98				100	99
- methicillin-susceptible	122	13						100	100	100	100	100					77	74	96			98				100	99
- methicillin-resistant (MRSA)	9	1						0	0	0	0	0					67	33	89			100				100	100
<i>Enterococcus faecium</i> , all isolates	74	8	7	7				7																		61	
- vancomycin-susceptible	45	5	11	11				11																		100	
- vancomycin-resistant (VRE)	29	3	0	0				0																		0	100
- vancomycin-susceptible (vanA+)	0	0																									
Viridans group streptococci [*]	56	6											95													100	
<i>Enterococcus faecalis</i> , all isolates	48	5	100	100				100																		100	
- vancomycin-susceptible	48	5	100	100				100																		100	
- vancomycin-resistant (VRE)	0	0																									
<i>Streptococcus pneumoniae</i>	15	2				87	87							87	100		93	73			100					100	
Group B streptococci ^{**}	13	1			100												85	85								100	
Group A streptococci ^{**}	13	1			100												77	77								100	
Group G streptococci ^{**}	7	1			100												86	86								100	
<i>Enterococcus gallinarum</i>	4	0	100	100				100																		25	
<i>Staphylococcus saprophyticus</i> ^{††}	4	0																									

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.

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.
- † S. saprophyticus: Susceptibility testing is not routinely performed. Most urinary tract infections due to this organism respond to nitrofurantoin, trimethoprim/sulfamethoxazole or fluoroquinolones.
- * 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.
- † Maltophilia: Susceptibility to moxifloxacin was predicted based on levofloxacin susceptibility testing results.

Toronto General Hospital ANTIBIOGRAM
All Inpatients and Outpatients
January 1, 2017 - December 31, 2017

Respiratory Isolates – % Susceptible

#	%	Ampicillin	Amoxicillin-Clavulanic acid	Penicillin	Penicillin IV (meningitis)	Penicillin IV (non-meningitis)	Piperacillin-Tazobactam	Meropenem	Ertapenem	Cloxacillin	Cefazolin	Ceftriaxone	Ceftriaxone (meningitis)	Ceftriaxone (non-meningitis)	Ceftazidime	Clindamycin	Erythromycin	Doxycycline	Ciprofloxacin	Moxifloxacin	Trimethoprim-Sulfamethoxazole	Gentamicin	Tobramycin	Amikacin	Vancomycin	Linezolid
ALL BACTERIA	755	—	10	21			75	86	46			50									54					
ALL GRAM-NEGATIVE BACTERIA	523	100	13	29			71	92	33			36			69				73		39	81	88	92		
<i>Pseudomonas aeruginosa</i>	214	41					80	83							84				77			76	90	86		
<i>Haemophilus influenzae</i> ^{^^}	74	14	73																							
<i>Escherichia coli</i>	52	10	21	46			56	96	96			65		65					56		40	75	71	100		
<i>Klebsiella pneumoniae</i>	45	9	0	84			82	100	100			84		84					91		82	89	87	100		
<i>Stenotrophomonas maltophilia</i> [†]	34	7																	79	91						
<i>Serratia marcescens</i>	27	5	0	0			0	100	100			0		0					93		96	100	96	100		
<i>Enterobacter cloacae</i>	24	5	0	0			0	96	70			0		0					96		79	96	96	100		
<i>Klebsiella oxytoca</i>	11	2	0	82			73	100	100			91		91					100		100	100	91	100		
<i>Moraxella catarrhalis</i> [^]	11	2																								
<i>Proteus mirabilis</i>	8	2	62	100			100	100	100			100		100					88		88	100	100	100		
<i>Enterobacter aerogenes</i>	8	2	0	0			0	100	100			0		0					100		100	100	100	100		
<i>Acinetobacter baumannii</i> complex	6	1					83	100				17		100					100		100	83	100	100		
ALL GRAM-POSITIVE BACTERIA	232	100	3	3	3		82	75	75	72	75	79			69	64					87				93	
<i>Staphylococcus aureus</i> , all isolates	189	81					88	88	88	88	88				73	69	95				95				100	100
- methicillin-susceptible	166	72					100	100	100	100	100				76	75	97				97				100	100
- methicillin-resistant (MRSA)	23	10					0	0	0	0	0				52	26	83				83				100	96
<i>Streptococcus pneumoniae</i>	22	9			20	100							60	100	91	73			100						100	
<i>Mycobacterium tuberculosis</i> complex	17	7																								
Viridans group streptococci [*]	4	2		75								100													100	

General Notes:

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- 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:

- Susceptibility for ceftazidime are not available for Gram-negative isolates from non-sterile site specimens for the current year.

Organism-Specific Notes:

- [^] *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 infections.
- ^{^^} *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.
- ^{*} 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. maltophilia*: Susceptibility to moxifloxacin was predicted based on levofloxacin susceptibility testing results.

Toronto General Hospital ANTIBIOGRAM

All Inpatients

January 1, 2017 - December 31, 2017

All Urine Isolates – % Susceptible

	#	%	Ampicillin		Amoxicillin-Clavulanic acid		Penicillin		Piperacillin-Tazobactam		Meropenem		Ertapenem		Cloxacillin		Cefazolin		Cephalexin		Ceftriaxone		Ceftazidime		Doxycycline		Ciprofloxacin		Trimethoprim-Sulfamethoxazole		Nitrofurantoin		Gentamicin		Tobramycin		Amikacin		Vancomycin		Linezolid							
			#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%								
ALL BACTERIA	952	—	31	61			72	74	66						39	47			9	71	48	69																										
ALL GRAM-NEGATIVE BACTERIA	697	100	15	55			69	99	88						51	63	71		75	63	63	88	87	99																								
<i>Escherichia coli</i>	348	50	24	68			76	100	99						59	79	79		63	61	97	84	84	100																								
<i>Klebsiella pneumoniae</i>	131	19	0	80			80	98	98						82	85	85		84	74	36	89	87	99																								
<i>Pseudomonas aeruginosa</i>	66	9					91	97									92		89			98	100	98																								
<i>Enterobacter cloacae</i>	29	4	0	0			0	100	86						0	0	0		93	93	55	97	93	97																								
<i>Proteus mirabilis</i>	29	4	66	90			97	100	97						97	97	97		83	66	0	86	83	100																								
<i>Klebsiella oxytoca</i>	21	3	0	86			86	100	100						86	90	90		100	86	90	95	95	100																								
<i>Morganella morganii</i>	17	2	0	0			0	100	100						0	0	0		76	82	6	94	94	100																								
<i>Serratia marcescens</i>	16	2	0	0			0	100	100						0	0	0		94	100	0	100	88	100																								
<i>Enterobacter aerogenes</i>	11	2	0	0			0	100	100						0	0	0		91	100	27	100	100	100																								
<i>Citrobacter freundii</i>	10	1	0	0			0	100	100						0	0	0		90	90	100	100	100	100																								
<i>Citrobacter koseri</i>	6	1	0	0			0	100	100						0	0	0		100	100	83	100	100	100																								
<i>Acinetobacter baumannii</i> complex	5	1					80	80							0	40	60	0	80	80	0	80	80	75																								
ALL GRAM-POSITIVE BACTERIA	255	100	75	75			80	5	5	5	5	5	5					33	59	6	84																											
<i>Enterococcus faecalis</i> , all isolates	182	71	99	99			99											24	79		99																											
- vancomycin-susceptible	182	71	99	99			99											24	79		99																											
- vancomycin-resistant (VRE)	0	0																																														
<i>Enterococcus faecium</i> , all isolates	48	19	11	11			11											46	5		21																											
- vancomycin-susceptible	36	14	14	14			14											56	6		28																											
- vancomycin-resistant (VRE)	12	5	0	0			0											17	0		0																											
- vancomycin-susceptible (vanA+)	0	0																																														
<i>Staphylococcus aureus</i> , all isolates	16	6					81	81	81	81	81	81						100		100	100																											
- methicillin-susceptible	13	5					100	100	100	100	100	100						100		100	100																											
- methicillin-resistant (MRSA)	3	1					0	0	0	0	0	0						100		100	100																											
<i>Enterococcus</i> species	4	2	100	100			100											0	100		100																											
<i>Enterococcus gallinarum</i>	3	1	67	67			67											33	0		67																											

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

Year-Specific Notes:

- Susceptibility for cefazolin are not available for Gram-negative isolates from non-sterile site specimens for the current year.

**Toronto General Hospital ANTIBIOGRAM
All Inpatients
January 1, 2017 - December 31, 2017**

All Non-Urine Isolates – % Susceptible

	#	%	Ampicillin	Amoxicillin-Clavulanic acid	Penicillin	Penicillin IV (meningitis)	Penicillin IV (non-meningitis)	Piperacillin-Tazobactam	Meropenem	Ertapenem	Cloxacillin	Ceftazolin	Ceftriaxone	Ceftriaxone (meningitis)	Ceftriaxone (non-meningitis)	Ceftazidime	Clindamycin	Erythromycin	Doxycycline	Ciprofloxacin	Moxifloxacin	Trimethoprim-Sulfamethoxazole	Gentamicin	Tobramycin	Amikacin	Vancomycin	Linezolid
ALL BACTERIA	2226	–	12	24			61	68	51			49									62						
ALL GRAM-NEGATIVE BACTERIA	996	100	13	39			67	96	56			46			69						78	55	88	89	97		
<i>Pseudomonas aeruginosa</i>	252	25					82	89							88						82		83	94	92		
<i>Escherichia coli</i>	201	20	26	63			69	98	98			72			72						62	53	84	82	99		
<i>Klebsiella pneumoniae</i>	144	14	0	86			86	99	98			89			89						89	81	91	88	100		
<i>Haemophilus influenzae</i> ^{^^}	84	8	71																								
<i>Enterobacter cloacae</i>	76	8	0	0			0	99	83			0			0						99	93	99	97	100		
<i>Serratia marcescens</i>	54	5	0	0			0	98	100			0			0						96	98	100	93	100		
<i>Klebsiella oxytoca</i>	42	4	0	79			76	100	100			83			83						95	88	95	93	100		
<i>Stenotrophomonas maltophilia</i>	39	4																			90						
<i>Proteus mirabilis</i>	22	2	73	95			100	100	100			100			100						91	82	86	86	100		
<i>Moraxella catarrhalis</i> [^]	19	2																									
<i>Enterobacter aerogenes</i>	16	2	0	0			0	94	94			0			0						94	100	100	100	100		
<i>Acinetobacter baumannii</i> complex	13	1					85	100				23			85						100	100	92	100	100		
<i>Citrobacter freundii</i>	10	1	0	0			0	100	100			0			0						89	78	89	89	100		
<i>Citrobacter braakii</i>	8	1	0	0			0	100	88			0			0						88	88	88	88	100		
<i>Morganella morganii</i>	6	1	0	0			0	100	100			0			0						67	50	83	83	100		
<i>Burkholderia cepacia</i>	6	1					67															50					
ALL GRAM-POSITIVE BACTERIA	1230	100	11	11	2		56	47	47	45	47	52									54	41			95		
Coagulase-negative staphylococci	541	44					41	41	41	41	41										60	36	92		100	100	
<i>Staphylococcus aureus</i> , all isolates	379	31					86	86	86	86	86										74	67	95		100	99	
- methicillin-susceptible	326	27					100	100	100	100	100										77	74	96		100	99	
- methicillin-resistant (MRSA)	53	4					0	0	0	0	0										57	26	91		100	98	
<i>Enterococcus faecium</i> , all isolates	105	9	13	13			13																		61		
- vancomycin-susceptible	65	5	21	21			21																		98		
- vancomycin-resistant (VRE)	40	3	0	0			0																		0	100	
- vancomycin-susceptible (vanA+)	0	0																									
<i>Enterococcus faecalis</i> , all isolates	92	7	99	99			99																		100		
- vancomycin-susceptible	92	7	99	99			99																		100		
- vancomycin-resistant (VRE)	0	0																									
Viridans group streptococci [*]	62	5										98													100		
<i>Streptococcus pneumoniae</i>	23	2				74	74						67	100			87	70				100			100		
Group B streptococci ^{**}	12	1			100												75	67							100		
<i>Mycobacterium tuberculosis</i> complex	10	1																									
<i>Enterococcus gallinarum</i>	6	0	67	67			67																		33		

General Notes:
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 > Susceptibility to doxycycline was predicted based on tetracycline susceptibility testing results.

Year-Specific Notes:
 > Susceptibility for ceftazolin are not available for Gram-negative isolates from non-sterile site specimens for the current year.

Organism-Specific Notes:
 ^ 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 infections.
 ^^ 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.
 ** 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.
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 † S. maltophilia: Susceptibility to moxifloxacin was predicted based on levofloxacin susceptibility testing results.