

# Princess Margaret Hospital ANTIBIOGRAM

## All Inpatients and Outpatients

### January 1, 2018 - December 31, 2018

#### Blood Isolates – % Susceptible

	#	%	Antibiotics																					
			Ampicillin	Amoxicillin-Clavulanic acid	Penicillin	Piperacillin-Tazobactam	Meropenem	Ertapenem	Cloxacillin	Cefazolin	Ceftriaxone	Ceftazidime	Clindamycin	Erythromycin	Doxycycline	Ciprofloxacin	Moxifloxacin	Trimethoprim-Sulfamethoxazole	Gentamicin	Tobramycin	Amikacin	Vancomycin	Linezolid	
<b>ALL BACTERIA</b>	476	—	5	17		45	51	46		32	56						63							
<b>ALL GRAM-NEGATIVE BACTERIA</b>	149	100	7	46		69	97	75		30	61	64				61	65	84	82	98				
<i>Escherichia coli</i>	54	36	17	56		69	98	98		35	74	74				48	50	76	72	98				
<i>Klebsiella pneumoniae</i>	39	26	0	74		82	95	95		67	82	82				72	77	87	85	97				
<i>Stenotrophomonas maltophilia</i>	14	9															100	100						
<i>Pseudomonas aeruginosa</i>	12	8				92	92					92				83			83	92	100			
<i>Enterobacter cloacae</i>	9	6	0	0		0	100	89		0	0	0				89		89	89	100				
<i>Klebsiella oxytoca</i>	7	5	0	100		100	100	100		0	100	100				100		100	100	100				
<b>ALL GRAM-POSITIVE BACTERIA</b>	327	100	4	4	2	35	32	32	31	32	53			55	34							62	95	
Coagulase-negative staphylococci	190	58				40	40	40	40	40				60	33	87						67	100	100
Viridans group streptococci*	71	22									97												100	
<i>Staphylococcus aureus</i> , all isolates	27	8				89	89	89	89	89				74	70	100						100	100	100
- methicillin-susceptible	24	7				100	100	100	100	100				75	75	100						100	100	100
- methicillin-resistant (MRSA)	3	1				0	0	0	0	0				67	33	100						100	100	100
<i>Enterococcus faecium</i> , all isolates	24	7	0	0		0																	46	
- vancomycin-susceptible	11	3	0	0		0																	100	
- vancomycin-resistant (VRE)	13	4	0	0		0																	0	100
- vancomycin-susceptible (vanA+)	0	0																						
<i>Enterococcus faecalis</i> , all isolates	7	2	100	100		100																	100	
- vancomycin-susceptible	7	2	100	100		100																	100	
- vancomycin-resistant (VRE)	0	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

#### Organism-Specific Notes:

- \* 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.

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**Respiratory 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	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
<b>ALL BACTERIA</b>	58	—	34	36			79	83	28		26	70									56					
<b>ALL GRAM-NEGATIVE BACTERIA</b>	37	100	43	46			85	91	3			63		73					47		35	92	100	92		
<i>Haemophilus influenzae</i> <sup>^^</sup>	17	46	94																							
<i>Pseudomonas aeruginosa</i>	11	30					64	73						64					64			91	100	91		
<i>Stenotrophomonas maltophilia</i> <sup>†</sup>	5	14																			80	100				
<i>Moraxella catarrhalis</i> <sup>^</sup>	3	8																								
<i>Enterobacter cloacae</i>	1	3	0	0			0	100	100		0	0			0					100		100	100	100	100	
<b>ALL GRAM-POSITIVE BACTERIA</b>	21	100	19	19	19		71	71	71	52	71	81				63	47				80				90	
<i>Staphylococcus aureus</i> , all isolates	11	52					91	91	91	91	91					73	64	100			100				100	100
- methicillin-susceptible	10	48					100	100	100	100	100					70	70	100			100				100	100
- methicillin-resistant (MRSA)	1	5					0	0	0	0	0					100	0	100			100				100	100
<i>Streptococcus pneumoniae</i>	4	19				100	100						100	100		100	50			100					100	
<i>Enterococcus faecium</i> , all isolates	2	10	0	0			0																		50	
- vancomycin-susceptible	1	5	0	0			0																		100	
- vancomycin-resistant (VRE)	1	5	0	0			0																		0	100
- vancomycin-susceptible (vanA+)	0	0																								
Viridans group streptococci <sup>*</sup>	2	10		0								100														100
Coagulase-negative staphylococci	1	5					100	100	100	100	100					0	0	100			100				100	100
<i>Mycobacterium tuberculosis complex</i>	1	5																								

**General Notes:**

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- 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.

**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 infections.
- <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> 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.

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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	Penicillin	Piperacillin-Tazobactam	Meropenem	Ertapenem	Cloxacillin	Cefazolin	Cephalexin	Ceftriaxone	Ceftazidime	Doxycycline	Ciprofloxacin	Trimethoprim-Sulfamethoxazole	Nitrofurantoin	Gentamicin	Tobramycin	Amikacin	Vancomycin	Linezolid
<b>ALL BACTERIA</b>	577	–	30	64	77	78	74		4	56	59		10	72	59	73					
<b>ALL GRAM-NEGATIVE BACTERIA</b>	429	100	19	64	76	100	93			70	74	79		78	73	68	93	92	100		
<i>Escherichia coli</i>	247	58	28	75	85	100	100		0	85	89	89		69	71	96	91	90	100		
<i>Klebsiella pneumoniae</i>	67	16	0	84	87	100	100		0	88	90	90		94	82	25	93	93	100		
<i>Enterobacter cloacae</i>	24	6	0	0	0	100	96		0	0	0	0		100	96	46	100	100	100		
<i>Pseudomonas aeruginosa</i>	21	5			100	95						100		86			95	100	100		
<i>Klebsiella oxytoca</i>	19	4	0	100	100	100	100			84	100	100		95	95	79	100	100	100		
<i>Proteus mirabilis</i>	14	3	79	100	100	100	100			100	100	100		86	79	7	93	100	100		
<i>Morganella morganii</i>	10	2	0	0	0	100	100		0	0	0	0		70	70	0	90	80	100		
<i>Citrobacter koseri</i>	10	2	0	0	0	100	100		0	0	0	0		90	100	70	100	100	100		
<i>Serratia marcescens</i>	5	1	0	0	0	100	100		0	0	0	0		100	100	0	100	100	100		
<i>Citrobacter freundii</i>	5	1	0	0	0	100	100		0	0	0	0		60	60	100	80	80	100		
<b>ALL GRAM-POSITIVE BACTERIA</b>	148	100	63	63	1	78	17	17	15	17	17	17		41	53	16	85			92	99
<i>Enterococcus faecalis</i> , all isolates	88	59	100	100	100									31	83		98			100	100
- vancomycin-susceptible	88	59	100	100	100									31	83		98			100	100
- vancomycin-resistant (VRE)	0	0																			
<i>Enterococcus faecium</i> , all isolates	31	21	3	3	3									26	3		36			68	100
- vancomycin-susceptible	21	14	5	5	5									29	5		48			100	100
- vancomycin-resistant (VRE)	10	7	0	0	0									20	0		10			0	100
- vancomycin-susceptible (vanA+)	0	0																			
<i>Staphylococcus aureus</i> , all isolates	23	16			91	91	91	91	91	91				95	100	100				100	100
- methicillin-susceptible	21	14			100	100	100	100	100	100				95	100	100				100	100
- methicillin-resistant (MRSA)	2	1			0	0	0	0	0	0				100	100	100				100	100
<i>Staphylococcus saprophyticus</i> **	2	1																			
Group B streptococci**	1	1			100																
<i>Enterococcus species</i>	1	1	100	100	100								0	0		100				100	
<i>Enterococcus casseliflavus</i>	1	1	100	100	100								100	100		100				100	
Group C streptococci**	1	1			100																

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

**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.

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**All Non-Urine Isolates – % Susceptible**

	#	%	Antibiotics																								
			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
<b>ALL BACTERIA</b>	<b>891</b>	<b>—</b>	<b>8</b>	<b>17</b>			<b>61</b>	<b>67</b>	<b>54</b>		<b>41</b>	<b>62</b>									<b>67</b>						
<b>ALL GRAM-NEGATIVE BACTERIA</b>	<b>312</b>	<b>100</b>	<b>14</b>	<b>41</b>			<b>72</b>	<b>96</b>	<b>55</b>		<b>20</b>	<b>52</b>			<b>72</b>				<b>72</b>		<b>56</b>	<b>90</b>	<b>90</b>	<b>99</b>			
<i>Pseudomonas aeruginosa</i>	77	25					77	91							90				87			92	96	97			
<i>Escherichia coli</i>	70	22	24	61			73	99	99		38	80			80				80		57	81	79	99			
<i>Klebsiella pneumoniae</i>	54	17	0	75			81	94	94		64	81			81				81		77	92	91	100			
<i>Haemophilus influenzae</i> <sup>^^</sup>	25	8	80																								
<i>Stenotrophomonas maltophilia</i> <sup>†</sup>	22	7																			95	100					
<i>Enterobacter cloacae</i>	17	5	0	0			0	100	94		0	0			0				94		94	94	94	100			
<i>Klebsiella oxytoca</i>	12	4	0	100			100	100	100		0	100			100				92		92	100	100	100			
<i>Serratia marcescens</i>	7	2	0	0			0	100	100		0	0			0				100		100	100	86	100			
<i>Proteus mirabilis</i>	7	2	86	100			100	100	100			100			100				86		71	86	86	100			
<i>Acinetobacter baumannii</i> complex	7	2					86	100				29			86				86		86	100	100	100			
<i>Moraxella catarrhalis</i> <sup>^</sup>	5	2																									
<i>Citrobacter koseri</i>	5	2	0	0			0	100	100		0	0			0						100	100	100	100			
<b>ALL GRAM-POSITIVE BACTERIA</b>	<b>579</b>	<b>100</b>	<b>4</b>	<b>4</b>	<b>2</b>		<b>56</b>	<b>53</b>	<b>53</b>	<b>51</b>	<b>53</b>	<b>66</b>							<b>63</b>	<b>49</b>					<b>97</b>		
<i>Staphylococcus aureus</i> , all isolates	220	38					93	93	93	93	93				78	72	97				98			100	100		
- methicillin-susceptible	204	35					100	100	100	100	100				78	75	97				99			100	100		
- methicillin-resistant (MRSA)	16	3					0	0	0	0	0				80	33	100				88			100	100		
Coagulase-negative staphylococci	219	38					43	43	43	43	43				60	36	86				67			100	100		
Viridans group streptococci <sup>*</sup>	78	13										97												100			
<i>Enterococcus faecium</i> , all isolates	35	6	6	6			6																	57			
- vancomycin-susceptible	20	3	10	10			10																	100			
- vancomycin-resistant (VRE)	15	3	0	0			0																	0	92		
- vancomycin-susceptible (vanA+)	0	0																									
<i>Enterococcus faecalis</i> , all isolates	13	2	100	100			100																	100			
- vancomycin-susceptible	13	2	100	100			100																	100			
- vancomycin-resistant (VRE)	0	0																									
<i>Streptococcus pneumoniae</i>	7	1					86	100							100	100			100	57		100			100		

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