

ANTIBIOTIC PROFILE

January - December 2016

ANTIBIOGRAM Q&A

Clinical Pathology Division
Microbiology Section

Total Patients

GRAM NEGATIVE		Total Isolates	Ampicillin	Amoxicillin/ Clavulanate	Cefazolin	Cefoxitin	Ceftazidime	Cefotaxime	Ceftriaxone	Cefepime	Piperacillin/Taz	Imipenem	Meropenem	Ciprofloxacin	Levofloxacin	Colistin	Amikacin	Gentamicin	Tobramycin	Minocycline	Trimethoprim/ Sulfamethoxazole	Nitrofurantoin Urine Isolates Only	Cephalothin
ORGANISMS	#	% SUSCEPTIBILITY																					
Achromobacter xylosoxidans	32					68							97	10	71		14	0	11	81	87		
Acinetobacter baumannii complex	24					72		8							88			96	100	88	84		
Burkholderia cepacia complex	32					94							58		100					100	100		
Citrobacter freundii	42		3	0	0		77	77	95	79		97	85	85			100	79	85			100	
Citrobacter species	33		77	56	71		94	94	100	97		100	94	94			100	90	90				
Enterobacter cloacae	145		1	1	0		78	77	92	81	95	99	98	98			100	94	95		86		
Enterobacter species	37		9	4	0		82	82	100	79		100	100	100			100	100	100		100		
Escherichia coli	1,834	38	77	20	90		93	93	96	92	99	100	86	86			100	87	88		60		
Klebsiella pneumoniae	359	0	84	31	84		87	87	95	90	99	100	93	96			100	90	89		77		
Klebsiella species not pneumoniae	50	0	79	6	81		87	85	91	82		100	89	91			98	85	85		72		
Proteus mirabilis	148	85	100	10	98		99	99	99	99		100	98	99			100	99	99		88		
Pseudomonas aeruginosa	473					92			96	91	86	97	95	95	92	99	95	97					
Salmonella species not typhi	42	88					98	97					93	93							93		
Serratia species	54		6	0	17		96	96	100	93		100	100	100			100	100	88		95		
Shigella species	73	85					100						96	96							37		
Stenotrophomonas maltophilia	67					40								94						98	98		
Cystic Fibrosis Isolates																							
Achromobacter xylosoxidans (CF)	30					28							73	6	23		18	11		59	64		
Pseudomonas aeruginosa (CF)	295					77			77	77	84	86	76	89	99	69	57	81					
Stenotrophomonas maltophilia (CF)	67					14								71						98	94		

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This data is presented with the aim of guiding the clinician in the selection of initial empirical antimicrobial therapy for infection.

** URINE ISOLATES ONLY: Cephalothin can be used to predict susceptibility to certain oral Cephalosporins.

^ Not recommended for pyelonephritis, even if susceptible

o Organisms that are susceptible to tetracycline are also susceptible to doxycycline and minocycline. However, some organisms that are intermediate or resistant to tetracycline may be susceptible to doxycycline, minocycline, or both.

† Susceptibility data for coagulase negative Staphylococcus is not for treatment purposes, Vancomycin is the therapy of choice.

GRAY shading indicates drug/bug combination not tested. Generally not recommended for therapy.

RED shading indicates intrinsic resistance.

GREEN shading *TOC = Therapy of Choice; no resistance has been reported.

GRAM POSITIVE		Isolates Tested	Ampicillin	Cefotaxime	Cefotaxime Meningitis	Cefotaxime Nonmeningitis	Ceftriaxone Meningitis	Ceftriaxone Nonmeningitis	Clindamycin	Gentamicin	Gentamicin High Level	Levofloxacin	Linezolid	Meropenem	Oxacillin/Nafcillin/ Methicillin	Penicillin	Penicillin Meningitis	Penicillin Nonmeningitis	Streptomycin High Level	Tetracycline	Trimethoprim/ Sulfamethoxazole	Vancomycin	Nitrofurantoin Urine Isolates Only
ORGANISMS	#	% SUSCEPTIBILITY																					
Alpha streptococcus not Streptococcus pneumoniae	96	50	84													36						100	
Coagulase negative staphylococcus†	220							45	69			100		33						85		100	
Enterococcus faecalis	130	100								80	95	100				100			88	18		100	95
Enterococcus species	207	93								80	90					91			83	22		97	94
Staphylococcus aureus	1,586							81				100		57						95	96	100	
Streptococcus agalactiae (Group B Streptococcus)	137							39								TOC*							
Streptococcus anginosus group	154	80	99													87						100	
Streptococcus pneumoniae	192			80	84	83	84	82				100	100	79						80	55	100	
Streptococcus pyogenes (Group A Streptococcus)																TOC*							
Cystic Fibrosis Isolates																							
Staphylococcus aureus (CF)	359							61					99	74						96	96	100	
Staphylococcus aureus, Methicillin Resistant (CF)	93							47					98	0						94	94	100	
Staphylococcus aureus, Methicillin Sensitive (CF)	266							66					100	100						96	97	100	

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Clinical Pathology Division
Microbiology Section

Inpatients

GRAM NEGATIVE		Isolates Tested	Ampicillin	Augmentin	Cefazolin	Cefoxitin	Ceftazidime	Cefotaxime	Ceftriaxone	Cefepime	Piperacillin / Tazobactam	Imipenem	Meropenem	Ciprofloxacin	Levofloxacin	Colistin	Amikacin	Gentamicin	Tobramycin	Minocycline	Trimethoprim / Sulfamethoxazole	Nitrofurantoin Urine Isolates Only	Cephalothin
ORGANISMS	#	% SUSCEPTIBILITY																					
Burkholderia cepacia complex	29					93						62		100						100	100		
Enterobacter cloacae	64		1	0	0		82	82	97	87	96	100	96	96			100	92	93		87	31	
Escherichia coli	263	37	73	19	84		88	88	94	88	100	100	79	79			100	87	87		58	97	21
Klebsiella pneumoniae	114	0	85	31	83		87	87	92	85	100	100	94	96			100	88	87		79	39	67
Pseudomonas aeruginosa	252					89			95	86	78	97	97	94	93		99	95	98				
Stenotrophomonas maltophilia	52					40								95						98	100		
Cystic Fibrosis Isolates																							
Pseudomonas aeruginosa (CF)	70					56			56	56	74	76	60	67	96	64	60	84					

GRAM POSITIVE		Isolates Tested	Ampicillin	Cefotaxime	Cefotaxime Meningitis	Cefotaxime Nonmeningitis	Ceftriaxone Meningitis	Ceftriaxone Nonmeningitis	Clindamycin	Gentamicin	Gentamicin High Level	Levofloxacin	Linezolid	Meropenem	Oxacillin / Nafcillin / Methicillin	Penicillin	Penicillin Meningitis	Penicillin Nonmeningitis	Streptomycin High Level	Tetracycline	Trimethoprim / Sulfamethoxazole	Vancomycin	Nitrofurantoin Urine Isolates Only
ORGANISMS	#	% SUSCEPTIBILITY																					
Staphylococcus aureus	665							78				100		61						97	97	100	
Coagulase negative staphylococcus†	89							41	50			100		40						89		100	
Enterococcus faecalis	61	100									76	91			100				87			100	
Enterococcus species	66	83									78	77				79			79	19		91	83
Streptococcus anginosus group	104	82	99													90						100	
Alpha streptococcus not streptococcus pneumoniae	57	42	82													27						100	
Streptococcus pneumoniae	120			77	79	80	79	81				100	100	76			48	79		79	52	100	
Streptococcus pyogenes (Group A Streptococcus)															TOC*								

The cumulative susceptibility data report is based on the inclusion of only the first isolate of a given species from an individual patient.

This data is presented with the aim of guiding the clinician in the selection of initial empirical antimicrobial therapy for infection.

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^ Not recommended for pyelonephritis, even if susceptible

o Organisms that are susceptible to tetracycline are also susceptible to doxycycline and minocycline. However, some organisms that are intermediate or resistant to tetracycline may be susceptible to doxycycline, minocycline, or both.

† Susceptibility data for coagulase negative Staphylococcus is not for treatment purposes, Vancomycin is the therapy of choice.

GRAY shading indicates drug/bug combination not tested. Generally not recommended for therapy.

Red shading indicates intrinsic resistance.

*TOC = Therapy of Choice; no resistance has been reported.

The inpatient antibiogram includes both main campus and west campus isolates, but does not include isolates from the pavilion for women. The inpatient antibiogram accounts for 34% of the total antibiogram isolates. The four inpatient areas that comprise the top 45% of inpatient isolates are: WT-OR (19%), WT-PICU (10%), NICU (9%), OR 7th floor CC (7%), and Pulmonary-14th floor (6%).

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Clinical Pathology Division
Microbiology Section

Outpatients

GRAM NEGATIVE		Isolates Tested	Ampicillin	Augmentin	Cefazolin	Cefoxitin	Ceftazidime	Cefotaxime	Ceftriaxone	Cefepime	Piperacillin/ Tazobactam	Imipenem	Meropenem	Ciprofloxacin	Levofloxacin	Colistin	Amikacin	Gentamicin	Tobramycin	Minocycline	Trimethoprim/ Sulfamethoxazole	Nitrofurantoin Urine Isolates Only [▲]	Cephalothin ^{**}
ORGANISMS	#	% SUSCEPTIBILITY																					
Enterobacter cloacae	25			0	0		77	74	91	77		100	100	100			100	87	91		74	33	
Escherichia coli	274	36	68	23	82		85	85	93	87	100	100	77	77			100	85	85		51	94	24
Klebsiella pneumoniae	67	0	71	31	75		77	78	96	87	100	100	89	89			100	85	84		58	22	65
Pseudomonas aeruginosa	72					92				92	94		94	91	90		98	86	95				
Cystic Fibrosis Isolates																							
Pseudomonas aeruginosa (CF)	206					79				79	80	84	87	80	91	100	69	56	81				
Stenotrophomonas maltophilia (CF)	47					16									73					98	95		

GRAM POSITIVE		Isolates Tested	Ampicillin	Clindamycin	Gentamicin	Gentamicin High Level	Levofloxacin	Linezolid	Oxacillin	Penicillin	Streptomycin High Level	Tetracycline [○]	Trimethoprim/ Sulfamethoxazole	Vancomycin	Nitrofurantoin
ORGANISMS	#	% SUSCEPTIBILITY													
Enterococcus species	30	93			97	89				93	83			100	93
Staphylococcus aureus	122		79				100	66				98	95	100	
Cystic Fibrosis Isolates															
Staphylococcus aureus (CF)	332		62				100	75				95	97	100	
Staphylococcus aureus, Methicillin Resistant (CF)	83		49				100					93	95	100	
Staphylococcus aureus, Methicillin Sensitive (CF)	249		67				100	100				96	98	100	

The outpatient antibiogram includes all of the outpatient clinics, and accounts for 20% of the total patient isolates. The three clinics that account for 52% of the outpatient isolates are: Pulmonary medicine- including CF (36%), urology clinic (12%), and special needs primary care clinic (5%).

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○ Organisms that are susceptible to tetracycline are also susceptible to doxycycline and minocycline. However, some organisms that are intermediate or resistant to tetracycline may be susceptible to doxycycline, minocycline, or both.

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ANTIBIOGRAM Q&A

Clinical Pathology Division
Microbiology Section

EC

GRAM NEGATIVE																			
	# Isolates	Ampicillin	Augmentin	Cefazolin	Cefoxitin	Ceftazidime	Cefotaxime	Ceftriaxone	Cefepime	Piperacillin/Taz	Imipenem	Meropenem	Ciprofloxacin	Levofloxacin	Amikacin	Gentamicin	Tobramycin	Trimethoprim/ Sulfamethoxazole	
ORGANISMS	#	% SUSCEPTIBILITY																	
Enterobacter cloacae	39	0	0	0		69	68	84	74	90	98	100	100	100	98	98	84		
Escherichia coli	1,187	39	79	20	93		95	95	98	94	97	100	90	90	100	88	88	63	
Klebsiella pneumoniae	154	0	86	33	86		89	88	95	93	97	100	93	97	99	92	90	81	
Proteus mirabilis	96	85	100	7	99		100	100	100	100		100	99	99	100	98	98	90	
Pseudomonas aeruginosa	130					98			98	98		98	95	98	100	98	98		
Salmonella species not typhi	31	87					97	96					91	91				91	
Shigella species	59	85					100						95	95				37	

Nitrofurantoin Urine Isolates Only	Cephalothin
47	
97	35
36	74
0	83

GRAM POSITIVE																					
	# Isolates	Ampicillin	Cefotaxime	Cefotaxime Meningitis	Cefotaxime Nonmeningitis	Ceftriaxone Meningitis	Ceftriaxone Nonmeningitis	Clindamycin	Gentamicin	Gentamicin High Level	Levofloxacin	Linezolid	Meropenem	Oxacillin/Nafcillin/ Methicillin	Penicillin	Penicillin Meningitis	Penicillin Nonmeningitis	Streptomycin High Level	Tetracycline	Trimethoprim/ Sulfamethoxazole	Vancomycin
ORGANISMS	#	% SUSCEPTIBILITY																			
Staphylococcus aureus	773							85				100		52					95	96	100
Coagulase negative staphylococcus†	45							58	88			100		54					77		100
Enterococcus faecalis	43	100								83	100				100				93	15	100
Enterococcus species	99	98								78	97				98				85	23	100
Streptococcus anginosus group	43	76	100												83						100
Streptococcus pneumoniae	51			85	94	92	94	84			100	100	85			62	89		85	68	100
Streptococcus pyogenes (Group A Streptococcus)															TOC*						

Nitrofurantoin Urine Isolates Only
99

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The EC antibiogram includes both the main campus and west campus emergency centers. The EC antibiogram accounts for 42% of total patient antibiogram isolates. The main campus emergency center accounts for 66% of total EC isolates, and the west campus EC accounts for 34% of total EC isolates.

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ANTIBIOTIC PROFILE

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ANTIBIOGRAM Q&A

Clinical Pathology Division
Microbiology Section

Neonatology

GRAM NEGATIVE																	
ORGANISM	#	Ampicillin	Augmentin	Cefazolin	Cefoxitin	Cefotaxime	Ceftriaxone	Cefepime	Piperacillin / Tazobactam	Imipenem	Meropenem	Ciprofloxacin	Levofloxacin	Amikacin	Gentamicin	Tobramycin	Trimethoprim / Sulfamethoxazole
Escherichia coli	33	17	61	10	78	81	81	89	86	100	100	72	72	97	81	83	53

Nitrofurantoin Urine Isolates Only [^]	Cephalothin ^{**}
100	

GRAM POSITIVE								
ORGANISMS	#	Clindamycin	Gentamicin	Linezolid	Oxacillin / Nafcillin / Methicillin	Tetracycline	Trimethoprim / Sulfamethoxazole	Vancomycin
Coagulase negative staphylococcus [†]	35	24	53	100	5	81		100
Staphylococcus aureus	73	76		100	67	79	97	100

The NICU antibiogram is comprised of isolates from the level 2 and level 3 newborn centers as well as the newborn center at the pavilion for women. The NICU antibiogram accounts for 4% of total patient isolates. 58% of NICU isolates come from level 3, 25% of NICU isolates come from level 2, and 16% of NICU isolates come from the pavilion NICU.

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Texas Children's
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ANTIBIOTIC PROFILE

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ANTIBIOGRAM Q&A

Clinical Pathology Division
Microbiology Section

Pavilion ObGyn

GRAM NEGATIVE		Isolates Tested	Ampicillin	Augmentin	Cefazolin	Cefoxitin	Cefotaxime	Ceftriaxone	Cefepime	Piperacillin / Tazobactam	Imipenem	Meropenem	Ciprofloxacin	Levofloxacin	Amikacin	Gentamicin	Tobramycin	Trimethoprim / Sulfamethoxazole	Nitrofurantoin Urine Isolates Only [^]	Cephalothin ^{**}
ORGANISM	#	% SUSCEPTIBILITY																		
Escherichia coli	77	42	85	19	90	92	92	96	95	100	89	89	100	90	90	88	62	97	32	

GRAM POSITIVE		Isolates Tested	Clindamycin	Linezolid	Oxacillin / Nafcillin / Methicillin	Tetracycline ^o	Trimethoprim / Sulfamethoxazole	Vancomycin	Penicillin
ORGANISMS	#	% SUSCEPTIBILITY							
Staphylococcus aureus	27	63	100	52	92	96	100		
Streptococcus agalactiae (Group B Streptococcus)	122	38							TOC*

The pavilion OBGYN antibiogram does **not** include the Pavilion NICU patients; isolates from the non-NICU pavilion patients account for only 4% of the total patient isolates. 59% of pavilion patient isolates come from the woman's assessment center, 13% come from women's specialty, and 8% of isolates come from labor and delivery.

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Texas Children's
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ANTIBIOGRAM Q&A

Q: What is an antibiogram?

A: An antibiogram is a summary of *microbial* susceptibility data for a given patient population *summarized in a manner that can readily aid physicians in selecting initial empiric antimicrobial therapy.*

Q: Why is the Antibiogram only available for the prior year?

A: *Typically 12 months of accumulated data are required to achieve an appropriate level of statistical significance. Hence the presentation of the prior year is common practice.*

Q: Why are some organisms not represented in the data?

A: Not all drug/bug combinations are presented in an antibiogram because a minimum of thirty patient isolates are required to provide reliable indication of susceptibility.

Q: If a patient has multiple isolates throughout a year, are all of them included in the antibiogram data?

A: No, only the first isolate of a species from an individual patient is included to ensure that the antibiogram most closely represents the likelihood of an organism being susceptible to a given drug on first presentation.

For questions or additional information, please contact:

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