

HNELHD Cumulative Antibigrams 2024: HNE Commentary

Disclaimer: The following reflects passively collected samples submitted to NSW Health Pathology. It gives indicative data around susceptibilities. It is not a surrogate or replacement for individualised drug-susceptibility testing and should be only used in conjunction with infectious diseases or clinical microbiology advice.

Full methods and commentary are in the appendix.

Contents:

- Hunter New England Cumulative
- John Hunter Hospital
- Calvary Mater Hospital
- Maitland Hospital
- Armidale Hospital
- Belmont Hospital
- Tamworth Hospital
- Taree (Manning) Base Hospital

Antibiogram key:

	> 90% of isolates susceptible
	70-90% of isolates susceptible
	< 70% of isolates susceptible
	Not tested, not clinically effective, intrinsically resistant, or no data available from OrgTRx
	Typically restricted or non-first line antibiotic

HNELHD Cumulative Antibigrams 2024: HNE: Blood

	Ampicillin		Amoxicillin and Clavulanic acid		Benzylpenicillin		Cefazolin		Flucloxacillin		Gentamicin		Sulfamethoxazole and trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftioxone		Ciprofloxacin		Meropenem		Piperacillin and Tazobactam		Tobramycin		Vancomycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n
Gram-negative																																
Escherichia coli	53	652	76	645			59	648			94	652	81	652	99	647	95	232	93	544	91	650	90	651	100	650	95	641	94	649		
Klebsiella pneumoniae	0	132	94	132			85	131			99	132	96	132	100	131	100	66	99	105	98	132	99	130	100	131	90	129	99	132		
Pseudomonas aeruginosa															97	98			96	99			89	99	95	99	91	98	97	99		
Proteus mirabilis	92	52	98	44			79	47			94	52	94	52	98	52			100	43	100	52	100	52	100	50	100	52	98	52		
Klebsiella oxytoca	0	42	90	41			10	42			100	41	100	42	100	42			100	35	93	42	100	42	100	42	88	41	100	42		
Enterobacter cloacae complex											95	39	95	41	100	40							100	41	98	40			95	39		
Gram-positive																																
Staphylococcus aureus					21	348			85	349																				100	143	
Enterococcus faecalis	100	94																												100	94	
Streptococcus pneumoniae																														100	40	
Streptococcus sp. (Group C)					100	63																								100	63	
Streptococcus sp. (Group B)					100	56																								100	52	
Streptococcus pyogenes					100	49																								100	49	
Enterococcus faecium	14	35																												50	36	

HNELHD Cumulative Antibiotigrams 2024: HNE: Urine

	Ampicillin		Benzylpenicillin		Cefalexin		Cefazolin (Urine)		Flucloxacillin		Gentamicin		Nitrofurantoin		Trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftioxone		Ciprofloxacin		Meropenem		Norfloxacin		Piperacillin and Tazobactam		Tobramycin		Vancomycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n
Gram-negative																																				
<i>Escherichia coli</i>	58	7181			91	3494	86	3752			95	7199	99	7198	78	7182	100	6046	98	5935	96	5965	93	6062	90	6035	100	6056	88	4933	95	6019	94	3829		
<i>Klebsiella pneumoniae</i>	0	985			94	471	93	463			97	985			89	982	100	844	98	815	97	817	96	847	95	834	100	848	91	679	92	845	96	544		
<i>Proteus mirabilis</i>	91	494			97	76					99	494			87	492	100	426	100	416	100	418	100	428	98	421	100	427	99	335	100	424	99	271		
<i>Enterobacter cloacae complex</i>											89	280			76	280	98	277	92	227					93	267	95	276	86	207			85	204		
<i>Klebsiella oxytoca</i>	0	237			97	128	37	111			99	237			96	236	100	206	100	200	99	201	97	208	100	202	100	207	97	144	92	207	98	115		
<i>Klebsiella aerogenes</i>											99	181			95	181	99	178	100	160					99	176	100	178	93	132			99	128		
<i>Morganella morganii</i>											98	127			92	127	99	127	100	109					98	121	100	125	100	81			100	81		
<i>Pseudomonas aeruginosa</i>																	99	620	95	504	97	630			93	626	97	628	96	118	93	627	98	626		
<i>Serratia marcescens</i>											99	106			94	103	99	105	99	95					98	103	100	106	93	69			64	72		
Gram-positive																																				
<i>Staphylococcus aureus</i>			32	204					90	204					93	40																			100	157
<i>Enterococcus faecium</i>	4	162																																	41	162

HNELHD Cumulative Antibigrams 2024: HNE: Other

	Amoxicillin and Clavulanic acid		Ampicillin		Benzylpenicillin		Cefazolin		Doxycycline		Erythromycin		Flucloxacillin		Gentamicin		Mupirocin		Sulfamethoxazole and trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftioxone		Ciprofloxacin		Clindamycin		Fusidic acid		Linezolid		Meropenem		Piperacillin and Tazobactam		Rifampicin		Telcoplanin		Tobramycin		Vancomycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n				
Gram-negative																																																
<i>Pseudomonas aeruginosa</i>																					98	909	94	681	94	917			90	917							97	916	90	912					97	914		
<i>Haemophilus influenzae</i>	78	648	51	651					97	648								70	651							98	651																					
<i>Escherichia coli</i>	78	488	54	488			77	479					95	493			81	492	100	492	96	336	94	344	92	490	88	491							100	488	93	492					94	490				
<i>Enterobacter cloacae complex</i>													95	188			91	188	100	188	98	133					95	188							98	188							94	187				
<i>Serratia marcescens</i>													100	139			100	139	100	139	100	105					100	139							100	139							79	139				
<i>Klebsiella pneumoniae</i>	80	127	0	129			83	102					95	129			91	129	99	129	98	94	94	95	91	129	95	129						99	128	88	128					95	128					
<i>Proteus mirabilis</i>	95	65	90	114			95	64					98	114			96	115	99	111	96	53	96	53	97	114	98	111						100	110	99	111					98	110					
<i>Klebsiella oxytoca</i>	89	72	0	73			39	70					100	73			99	73	100	73	100	45	100	46	92	72	100	73						100	72	89	73					100	72					
<i>Morganella morganii</i>			0	59									98	59			95	58	100	59	100	41					100	59						100	58							98	58					
<i>Klebsiella aerogenes</i>			0	48									96	48			100	48	98	48	97	34	76	34	54	48	98	48						98	48							96	48					
Gram-positive																																																
<i>Staphylococcus aureus</i>				18	6555			96	6555	84	5514	79	6558			97	5980	97	6554											87	6397	96	5512	100	5220					100	5502	100	4992			100	5523	
<i>Streptococcus pneumoniae</i>								87	121	82	96						97	30																										100	32			
<i>Enterococcus faecium</i>			15	98																														99	98					65	95			41	103			
<i>Enterococcus faecalis</i>			100	95																														99	82					99	80			100	96			
<i>Streptococcus pyogenes</i>				98	65			85	65	93	55																																100	65				
<i>Streptococcus sp. (Group B)</i>				100	45			27	45	56	43																																100	43				
<i>Streptococcus anginosus group</i>				100	44																																											

HNELHD Cumulative Antibigrams 2024: John Hunter Hospital: Blood

	Ampicillin		Amoxicillin and Clavulanic acid		Benzylpenicillin		Cefazolin		Flucloxacillin		Gentamicin		Sulfamethoxazole and trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftaxone		Ciprofloxacin		Meropenem		Piperacillin and Tazobactam		Tobramycin		Vancomycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n
Gram-negative																																
<i>Escherichia coli</i>	47	154	75	153			51	154			93	154	81	154	100	151	98	56	91	150	93	153	86	154	100	154	97	151	93	153		
<i>Pseudomonas aeruginosa</i>																			100	30			93	30	97	30	93	30	97	30		
Gram-positive																																
<i>Staphylococcus aureus</i>					16	101			87	101																					100	30
<i>Enterococcus faecalis</i>	100	37																													100	37

HNELHD Cumulative Antibiotigrams 2024: John Hunter Hospital: Urine

	Ampicillin		Benzylpenicillin		Cefalexin		Cefazolin (Urine)		Flucloxacillin		Gentamicin		Nitrofurantoin		Trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftioxone		Ciprofloxacin		Meropenem		Norfloxacin		Piperacillin and Tazobactam		Tobramycin		Vancomycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n
Gram-negative																																				
<i>Escherichia coli</i>	54	1749			88	650	85	1102			94	1749	100	1749	76	1749	100	1742	97	1739	95	1745	92	1745	89	1745	100	1745	83	1099	95	1736	93	1109		
<i>Klebsiella pneumoniae</i>	0	250			90	101	90	134			97	250			89	250	100	250	97	249	94	248	95	250	96	248	99	250	91	151	90	249	96	152		
<i>Pseudomonas aeruginosa</i>																	97	197	95	196	97	199			93	199	97	199			91	198	97	199		
<i>Proteus mirabilis</i>	92	124									98	124			87	123	100	122	100	122	100	123	100	123	98	123	100	123	97	76	100	122	100	76		
<i>Enterobacter cloacae complex</i>											87	98			74	98	99	98	89	97					92	98	91	98	80	69			78	69		
<i>Klebsiella oxytoca</i>	0	66					28	40			100	66			97	66	100	65	100	65	97	66	98	66	100	65	100	65	98	40	94	65	100	39		
<i>Klebsiella aerogenes</i>											100	48			94	48	100	48	100	48					98	48	100	48	88	32			97	32		
<i>Morganella morganii</i>											97	39			97	39	97	39	100	39					97	39	100	38								
<i>Serratia marcescens</i>											100	37			97	35	100	37	100	37					97	37	100	37								
Gram-positive																																				
<i>Enterococcus faecium</i>	1	67																																	36	67
<i>Staphylococcus aureus</i>			27	59					90	59																									100	57

HNELHD Cumulative Antibigrams 2024: John Hunter Hospital: Other

	Amoxicillin and Clavulanic acid		Ampicillin		Benzylpenicillin		Cefazolin		Doxycycline		Erythromycin		Flucloxacillin		Gentamicin		Mupirocin		Sulfamethoxazole and trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftioxone		Ciprofloxacin		Clindamycin		Fusidic acid		Linezolid		Meropenem		Piperacillin and Tazobactam		Rifampicin		Teicoplanin		Tobramycin		Vancomycin		
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n			
Gram-negative																																																	
<i>Pseudomonas aeruginosa</i>																					96	340	92	326	91	344			89	344							95	344	86	342					95	344			
<i>Haemophilus influenzae</i>	76	237	52	238					97	237								76	238						98	238																							
<i>Escherichia coli</i>	74	229	51	229			70	220						93	229			81	229	100	229	95	222	94	229	90	229	85	229							100	228	93	229					93	229				
<i>Enterobacter cloacae complex</i>													96	103				92	103	100	103	98	102					94	103							98	103							94	102				
<i>Serratia marcescens</i>													100	75				100	75	100	75	100	72					100	75							100	75	96	75							75	75		
<i>Klebsiella pneumoniae</i>	86	66	0	66			88	52						95	66			92	66	98	66	98	65	95	66	95	66	95	66						100	66							95	66					
<i>Klebsiella aerogenes</i>													97	30				100	30	97	30	97	30				97	30							100	30							97	30					
<i>Proteus mirabilis</i>			90	30														93	30	97	30					93	30								100	30													
Gram-positive																																																	
<i>Staphylococcus aureus</i>					18	1833			95	1833	83	1825	79	1834			98	1828	97	1833										84	1818	97	1752	100	1744					100	1749	100	1662			100	1756		
<i>Enterococcus faecalis</i>			100	67																														98	63							100	62			100	68		
<i>Enterococcus faecium</i>			17	65																														98	66							69	64			43	69		
<i>Streptococcus pneumoniae</i>									76	37	78	37																																					

HNELHD Cumulative Antibigrams 2024: Calvary Mater Newcastle: Blood

	Ampicillin		Amoxicillin and Clavulanic acid		Benzylpenicillin		Cefazolin		Flucloxacillin		Gentamicin		Sulfamethoxazole and trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftioxone		Ciprofloxacin		Meropenem		Piperacillin and Tazobactam		Tobramycin		
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	
Gram-negative																															
Escherichia coli	50	112	79	112			52	111			92	112	77	112	98	111	90	39	90	112	86	111	85	111	100	112	98	109	91	111	
Gram-positive																															
Staphylococcus aureus					23	53			81	53																					

HNELHD Cumulative Antibigrams 2024: Calvary Mater Newcastle: Urine

	Ampicillin		Cefalexin		Cefazolin (Urine)		Gentamicin		Nitrofurantoin		Trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftriaxone		Ciprofloxacin		Meropenem		Norfloxacin		Piperacilin and Tazobactam		Tobramycin		
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	
Gram-negative																															
Escherichia coli	58	832	91	298	87	536	95	832	100	831	78	831	99	829	99	828	97	832	94	832	91	831	100	831	86	534	95	826	96	536	
Klebsiella pneumoniae	0	143	98	50	95	79	97	143			90	142	99	143	99	141	99	143	99	143	95	143	100	143	85	92	93	143	96	93	
Pseudomonas aeruginosa													99	80	96	80	98	80			96	80	100	80			89	80	99	80	
Proteus mirabilis	92	60					98	60			87	60	100	60	100	60	100	60	100	60	100	60	100	60	100	36	100	60	100	37	
Klebsiella aerogenes							94	33			97	33	97	33	100	33					100	32	100	33							
Klebsiella oxytoca	0	30					97	30			87	30	100	30	100	30	100	30	97	30	100	30	100	30			93	30			

HNELHD Cumulative Antibigrams 2024: Calvary Mater Newcastle: Other

	Amoxicillin and Clavulanic acid		Ampicillin		Benzylpenicillin		Cefazolin		Doxycycline		Erythromycin		Flucloxacillin		Gentamicin		Mupirocin		Sulfamethoxazole and trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftioxone		Ciprofloxacin		Clindamycin		Fusidic acid		Linezolid		Meropenem		Piperacillin and Tazobactam		Rifampicin		Telcoplanin		Tobramycin		Vancomycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n		
Gram-negative																																																
Haemophilus influenzae	75	73	54	74					100	74									64	74																												
Pseudomonas aeruginosa																					100	58	90	52	93	58			84	58						98	58	81	58					100	58			
Gram-positive																																																
Staphylococcus aureus					17	528			94	528	84	528	78	528			98	528	97	528										85	528	97	520	100	519					100	518	100	488			100	519	

HNELHD Cumulative Antibigrams 2024: Maitland Hospital: Blood

	Ampicillin		Amoxicillin and Clavulanic acid		Benzylpenicillin		Cefazolin		Flucloxacillin		Gentamicin		Sulfamethoxazole and trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftioxone		Ciprofloxacin		Meropenem		Piperacillin and Tazobactam		Tobramycin		
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	
Gram-negative																															
Escherichia coli	52	85	69	85			56	85			98	85	84	85	100	85	98	41	96	85	91	85	92	85	100	84	93	83	99	85	
Gram-positive																															
Staphylococcus aureus					28	47			90	49																					

HNELHD Cumulative Antibigrams 2024: Maitland Hospital: Urine

	Ampicillin		Cefalexin		Cefazolin (Urine)		Gentamicin		Nitrofurantoin		Trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftriaxone		Ciprofloxacin		Meropenem		Norfloxacin		Piperacillin and Tazobactam		Tobramycin		
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	
Gram-negative																															
Escherichia coli	56	883	88	368	83	516	96	883	100	883	79	883	100	881	98	879	96	881	94	881	90	880	100	879	85	515	94	877	96	517	
Klebsiella pneumoniae	0	116	96	46	95	65	98	116			94	116	100	116	99	116	98	116	97	116	95	116	100	116	89	70	93	116	97	70	
Proteus mirabilis	95	65					100	65			95	65	100	65	100	65	100	65	100	65	100	65	100	65	100	40	100	65	100	40	
Pseudomonas aeruginosa													98	51	94	51	98	51			90	51	98	51			94	51	98	51	

HNELHD Cumulative Antibigrams 2024: Maitland Hospital: Other

	Amoxicillin and Clavulanic acid		Ampicillin		Benzylpenicillin		Cefazolin		Doxycycline		Erythromycin		Flucloxacillin		Gentamicin		Mupirocin		Sulfamethoxazole and trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftioxone		Ciprofloxacin		Clindamycin		Fusidic acid		Linezolid		Meropenem		Piperacillin and Tazobactam		Rifampicin		Telcoplanin		Tobramycin		Vancomycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n				
Gram-negative																																																
<i>Pseudomonas aeruginosa</i>																					99	82	92	79	93	82			91	82							98	82	88	81					98	82		
<i>Haemophilus influenzae</i>	83	60	52	60					98	60									70	60							100	60																				
<i>Escherichia coli</i>	83	48	63	48			84	44							94	48			77	48	100	48	100	48	96	48	98	48	85	48							100	48	96	48					94	48		
Gram-positive																																																
<i>Staphylococcus aureus</i>					17	796			96	796	85	796	74	796			98	795	96	796											85	787	98	767	100	766					100	765	100	737			100	768

HNELHD Cumulative Antibibiograms 2024: Armidale Hospital: Urine

	Ampicillin		Cefalexin		Gentamicin		Nitrofurantoin		Trimethoprim		Norfloxacin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n
Gram-negative												
<i>Escherichia coli</i>	62	239	90	239	96	242	97	242	76	237	93	242

HNELHD Cumulative Antibiotigrams 2024: Armidale Hospital: Other

	Benzylpenicillin		Doxycycline		Erythromycin		Flucloxacillin		Mupirocin		Sulfamethoxazole and trimethoprim		Ciprofloxacin		Clindamycin		Fusidic acid		Linezolid		Rifampicin		Telcoplanin		Vancomycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n
Gram-positive																										
<i>Staphylococcus aureus</i>	23	189	98	189	84	82	84	189	97	157	98	189	99	95	92	185	98	100	100	78	100	101	100	72	100	101

HNELHD Cumulative Antibigrams 2024: Belmont District Hospital: Blood

	Ampicillin		Amoxicillin and Clavulanic acid		Cefazolin		Gentamicin		Sulfamethoxazole and trimethoprim		Amikacin		Ceftazidime		Ceftriaxone		Ciprofloxacin		Meropenem		Piperacillin and Tazobactam		Tobramycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n
Gram-negative																								
<i>Escherichia coli</i>	53	66	71	65	55	64	91	66	74	66	98	66	92	65	89	66	91	66	100	66	92	64	89	66

HNELHD Cumulative Antibigrams 2024: Belmont District Hospital: Urine

	Ampicillin		Cefalexin		Cefazolin (Urine)		Gentamicin		Nitrofurantoin		Trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftriaxone		Ciprofloxacin		Meropenem		Norfloxacin		Piperacillin and Tazobactam		Tobramycin		
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	
Gram-negative																															
Escherichia coli	59	588	92	225	90	364	94	588	99	587	78	587	99	586	98	583	95	587	94	587	92	586	100	585	88	364	94	583	94	368	
Klebsiella pneumoniae	0	74	91	32	94	35	97	74			85	74	100	74	99	74	99	74	95	74	93	74	100	74	83	42	92	74	98	42	
Pseudomonas aeruginosa													100	49	90	49	92	51			94	51	98	51			88	51	98	51	
Proteus mirabilis	86	37					95	37			84	37	97	37	100	37	100	37	100	37	97	37	100	37			100	37			

HNELHD Cumulative Antibiotigrams 2024: Belmont District Hospital: Other

	Amoxicillin and Clavulanic acid		Ampicillin		Benzylpenicillin		Doxycycline		Erythromycin		Flucloxacillin		Mupirocin		Sulfamethoxazole and trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftriaxone		Ciprofloxacin		Clindamycin		Fusidic acid		Linezolid		Meropenem		Piperacillin and Tazobactam		Rifampicin		Teicoplanin		Tobramycin		Vancomycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n		
Gram-negative																																												
Haemophilus influenzae	72	36	44	36			97	36							86	36							100	36																				
Pseudomonas aeruginosa																	97	34	97	31	94	34			82	34							100	34	94	34					100	34		
Gram-positive																																												
Staphylococcus aureus					20	315	95	315	83	314	74	315	98	315	96	315											84	313	97	306	100	306					100	306	100	292			100	307

HNELHD Cumulative Antibigrams 2024: Tamworth Base Hospital: Blood

	Ampicillin		Amoxicillin and Clavulanic acid		Benzylpenicillin		Cefazolin		Flucloxacillin		Gentamicin		Sulfamethoxazole and trimethoprim		Amikacin		Ceftriaxone		Ciprofloxacin		Meropenem		Piperacillin and Tazobactam		Tobramycin		Vancomycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n
Gram-negative																												
Escherichia coli	59	51	82	51			80	51			98	51	80	51	100	51	86	51	90	51	100	50	92	51	94	50		
Gram-positive																												
Staphylococcus aureus					23	31			84	31																100	31	

HNELHD Cumulative Antibigrams 2024: Tamworth Base Hospital: Urine

	Ampicillin		Cefalexin		Gentamicin		Nitrofurantoin		Trimethoprim		Amikacin		Ceftazidime		Ceftriaxone		Ciprofloxacin		Meropenem		Norfloxacin		Piperacillin and Tazobactam		Tobramycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n
Gram-negative																										
<i>Escherichia coli</i>	66	575	94	584	97	585	98	585	82	578	97	39			38	42	50	32	98	44	93	583	95	42	73	40
<i>Klebsiella pneumoniae</i>	2	81	95	81	100	81			88	80											99	79				
<i>Pseudomonas aeruginosa</i>											100	58	100	62			93	59	95	61	94	62	100	61	98	58
<i>Proteus mirabilis</i>	88	34	97	34	100	34			88	34											100	34				

HNELHD Cumulative Antibiotigrams 2024: Tamworth Base Hospital: Other

	Amoxicillin and Clavulanic acid		Ampicillin		Benzylpenicillin		Cefazolin		Doxycycline		Erythromycin		Flucloxacillin		Gentamicin		Mupirocin		Sulfamethoxazole and trimethoprim		Amikacin		Ceftazidime		Ceftioxone		Ciprofloxacin		Clindamycin		Fusidic acid		Meropenem		Piperacillin and Tazobactam		Rifampicin		Tobramycin		Vancomycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n
Gram-negative																																										
<i>Pseudomonas aeruginosa</i>																				99	130	99	130			94	130					96	130	100	130			99	127			
<i>Escherichia coli</i>	86	108	57	106			86	111					95	111			81	110	100	110			94	108	92	109					100	110	95	110			95	108				
<i>Haemophilus influenzae</i>	92	59	63	59					90	59							58	59					95	59																		
<i>Enterobacter cloacae</i> complex													98	42			90	42	100	42					100	42					100	42					98	42				
<i>Proteus mirabilis</i>	100	37	97	38			100	38					100	38			95	38	100	35			100	37	100	35					100	33	100	35			100	35				
Gram-positive																																										
<i>Staphylococcus aureus</i>					18	648			97	648	85	87	81	648			97	301	98	646								98	562	99	168					99	168			100	170	

HNELHD Cumulative Antibigrams 2024: Taree Hospital: Blood

	Ampicillin		Amoxicillin and Clavulanic acid		Benzylpenicillin		Cefazolin		Flucloxacillin		Gentamicin		Sulfamethoxazole and trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftioxone		Ciprofloxacin		Meropenem		Piperacillin and Tazobactam		Tobramycin		
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	
Gram-negative																															
Escherichia coli	59	79	75	77			58	78			95	79	85	79	100	78	98	44	96	79	95	79	96	79	100	79	94	79	96	79	
Gram-positive																															
Staphylococcus aureus					23	40			95	40																					

HNELHD Cumulative Antibiotigrams 2024: Taree Hospital: Urine

	Ampicillin		Cefalexin		Cefazolin (Urine)		Gentamicin		Nitrofurantoin		Trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftriaxone		Ciprofloxacin		Meropenem		Norfloxacin		Piperacillin and Tazobactam		Tobramycin		
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	
Gram-negative																															
Escherichia coli	61	697	91	286	90	412	97	697	100	697	82	697	100	695	98	689	97	696	96	697	94	695	100	696	89	411	95	688	96	415	
Klebsiella pneumoniae	0	107	97	35	94	63	96	107			90	107	100	107	98	107	96	107	96	107	95	107	99	107	92	72	93	107	94	72	
Pseudomonas aeruginosa													100	72	94	71	94	72			90	72	99	72			89	72	100	72	
Proteus mirabilis	87	62					100	62			85	62	98	62	98	61	100	62	98	62	100	62	100	62	100	43	100	61	100	43	
Enterobacter cloacae complex							86	36			72	36	97	36	89	36					89	36	94	36							

HNELHD Cumulative Antibigrams 2024: Taree Hospital: Other

	Amoxicillin and Clavulanic acid		Ampicillin		Benzylpenicillin		Cefazolin		Doxycycline		Erythromycin		Flucloxacillin		Gentamicin		Mupirocin		Sulfamethoxazole and trimethoprim		Amikacin		Cefepime		Ceftazidime		Ceftioxone		Ciprofloxacin		Clindamycin		Fusidic acid		Linezolid		Meropenem		Piperacillin and Tazobactam		Rifampicin		Telcoplanin		Tobramycin		Vancomycin	
Organism	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n	%S	n				
Gram-negative																																																
Haemophilus influenzae	70	73	38	73					99	73									68	73							100	73																				
Pseudomonas aeruginosa																					96	73	96	68	95	73		88	73							99	73	86	73					96	73			
Escherichia coli	70	33	58	33			75	32						97	33				85	33	100	33	94	33	94	33	85	33	88	33					100	33	97	33					94	33				
Gram-positive																																																
Staphylococcus aureus					16	595			97	593	86	594	78	595			96	593	95	594								94	587	85	593	95	586	100	586					100	585	100	566			100	588	

Appendix

Notes:

1. Data processed by OrgTRx (antibiogram) software to exclude multiple isolates so only the first isolate of a given species per patient per year per subset (e.g., urine) is included. Only data captured by OrgTRx is presented.
2. Only organisms with 30 or more isolates are included (CLSI Guidelines M39-ED5 recommended that results should include at least 30 isolates to be considered significant.)
3. During the period covered, antimicrobial susceptibility testing standards used include: EUCAST v13.1 and regional sites may have reported using CDS. Variations in breakpoints between reporting systems may influence interpretations.
4. The HNE antibiogram captures data from the following sites: All facilities captured under OrgTrx with inclusion of Calvary Mater Hospital.
5. Regarding antibiotics: (1) Aminoglycosides: EUCAST v13.1 does not provide breakpoints for gentamicin for *Pseudomonas*. Where interpretations have been provided, these may be derived from an earlier version of EUCAST or CDS. EUCAST derived results for aminoglycosides based on epidemiological cut-offs may not predict clinical outcomes. In systematic infections, the aminoglycoside must be supported by other active therapy. (2) Penicillin: testing for *Staphylococcus aureus* may be based on a rapid method, and figures provided represent an estimate of susceptibility. (3) Some organisms commonly found in sample types may not be captured in Antibiograms where susceptibility testing was not required.
6. Hospital specific susceptibility rates are based on smaller sample numbers.
7. It is recommended that guidelines be followed at all times when treating infections associated with any organism captured in this document.

Blood Cultures

- The most frequent pathogens isolated from blood cultures collected in HNE were *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, and *Proteus mirabilis*.
- *Escherichia coli* isolates demonstrated 53% susceptibility to ampicillin (c.f. 54% susceptibility in the previous year) and 94% susceptibility to gentamicin (c.f. 95% susceptibility in the previous year).
- *Staphylococcus aureus* isolates demonstrated 85% susceptibility to flucloxacillin (c.f. 86% susceptibility in the previous year) and 100% susceptibility to vancomycin. 15% of isolates were MRSA (c.f. 14% in the previous year).
- *Pseudomonas aeruginosa* isolates demonstrated 97% susceptibility to tobramycin. EUCAST does not provide breakpoints for gentamicin. This species is intrinsically resistant to ampicillin, amoxicillin and clavulanic acid, ceftriaxone and cefotaxime.

Urinary Isolates

- The five most frequently isolated pathogens from for which antibiotic susceptibility profiles were ascertained in urine samples were: *Escherichia coli*, *Klebsiella pneumoniae*, *Proteus mirabilis*, *Enterobacter cloacae* complex, and *Klebsiella oxytoca*. Antimicrobial susceptibilities are not captured for *Enterococcus faecalis*.

- *Escherichia coli* demonstrated mixed rates of susceptibility to first line oral agents for cystitis and non-severe pyelonephritis (78% trimethoprim susceptibility [c.f. 81% in the previous year; lowest percentage susceptibility: Calvary Mater Newcastle: 78%], and 99% nitrofurantoin susceptibility [c.f. 100% in the previous year; lowest percentage susceptibility: Tamworth Base Hospital: 98%]). The isolates showed variable susceptibility to first line intravenous therapy options for severe pyelonephritis (95% gentamicin susceptibility and 58% ampicillin susceptibility). In the previous year, gentamicin susceptibility was 95% and ampicillin susceptibility was 61%.
- *Klebsiella pneumoniae* isolates showed susceptibility to oral options (89% trimethoprim susceptibility [c.f. 88% susceptibility the previous year; lowest percentage susceptibility: Tamworth Base Hospital: 83%]) and a first line intravenous option (97% gentamicin susceptibility [c.f. 98% susceptibility the previous year; lowest percentage susceptibility: Maitland Hospital: 96%]). Isolates were not susceptible to ampicillin (0% susceptibility).
- Isolates of *Pseudomonas aeruginosa* demonstrated high rates of susceptibility to the oral option (93% ciprofloxacin susceptibility, c.f. 93% susceptibility the previous year; lowest percentage susceptibility: Belmont District Hospital: 89%) and high susceptibility to intravenous therapy (98% tobramycin susceptibility, c.f. 98% susceptibility the previous year; lowest percentage susceptibility: Taree Hospital: 96%).
- *Enterococcus faecium* is an isolate of note that demonstrated low rates of susceptibility (4%) to ampicillin and 41% vancomycin susceptibility (c.f. 38% susceptibility the previous year; lowest percentage susceptibility: John Hunter Hospital: 38%). 59% of isolates were vancomycin resistant enterococci (VRE) (c.f. 62% the previous year).

Other Isolates Commentary

The Cumulative Antibigram for “Other Isolates” provides summary data of antibiotic resistance patterns for organisms obtained from sites other than blood and urine. Chiefly these bacteria are collected from skin, soft tissue, respiratory tract and surgical sites.

- Frequently isolated pathogens included: *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Haemophilus influenzae*, and *Escherichia coli*.
- *Staphylococcus aureus* was frequently isolated from the samples collected at HNE. Isolates demonstrated high rates of susceptibility to flucloxacillin (79% susceptibility, c.f. 81% the previous year) as the recommended first line oral agent and cefalexin as the second line agent recommended for use in penicillin hypersensitivity. Isolates susceptible to flucloxacillin are considered susceptible to cefazolin. 21% of isolates were MRSA, c.f. 19% the previous year. First line oral agents for the treatment of *Staphylococcus aureus* demonstrated high rates of susceptibility (87% clindamycin susceptibility, 97% sulfamethoxazole and trimethoprim susceptibility, and 96% doxycycline susceptibility).
- *Streptococcus pneumoniae* was another Gram-positive organism of note. Infective presentations vary, including respiratory, bacteraemia, and meningitis. 82% of isolates tested were susceptible to erythromycin (lowest percentage susceptibility: John Hunter Hospital: 74%), and 87% of isolates tested were susceptible to doxycycline (lowest percentage susceptibility: John Hunter Hospital: 78%). Penicillin and ceftriaxone/cefotaxime breakpoint determination is dependent on presentation type. Penicillin and ceftriaxone/cefotaxime MIC surveillance data was not available from OrgTRx.

- A respiratory pathogen of note was *Haemophilus influenzae*. Isolates demonstrated 51% ampicillin susceptibility (c.f. 58% the previous year; lowest percentage susceptibility: Maitland Hospital: 52%), 98% ceftriaxone susceptibility (lowest percentage susceptibility: Tamworth Base Hospital: 98%), and 78% Amoxicillin and Clavulanic acid susceptibility (c.f. 81% the previous year; lowest percentage susceptibility: Maitland Hospital: 77%).
- *Pseudomonas aeruginosa* can be a respiratory and skin coloniser, but also cause invasive infections. Isolates demonstrated 97% tobramycin susceptibility (c.f. 97% the previous year; lowest percentage susceptibility: John Hunter Hospital: 95%), 94% ceftazidime susceptibility (c.f. 93% the previous year; lowest percentage susceptibility: Taree Hospital: 88%), and 90% ciprofloxacin susceptibility (c.f. 90% the previous year; lowest percentage susceptibility: Calvary Mater Newcastle: 84%).
- *Streptococcus pyogenes* (Group A) isolates demonstrated 98% Benzylpenicillin susceptibility. This organism is frequently isolated from skin and soft tissue infections. Invasive Group A streptococcal (iGAS) infection can result in serious disease.