

Data derived from routine susceptibility tests performed by Alberta Precision Laboratories, Red Deer Regional Hospital Laboratory.
In 2024 this included specimens collected at Red Deer Regional Hospital and Central Zone Rural Hospitals,
Health Centres and Long-Term Care Centres.

		N	Penicillin (IV)	Ampicillin / Amoxicillin	Cloxacillin	Amoxicillin/Clavulanate	Piperacillin/Tazobactam	Cephalexin	Cefazolin	Cefixime	Ceftriaxone	Ceftazidime	Azithromycin	Clindamycin	Trimethoprim-sulfamethoxazole	Vancomycin	Doxycycline	Tetracycline ^c	Nitrofurantoin ^b	Fosfomycin (PO) ^b	Ciprofloxacin	Levofloxacin	Gentamicin	Tobramycin	Ertapenem	Meropenem	
Gram Positive:																											
Enterococcus faecalis		1127		100 ^a				R	R	R	R	R		R	R	100		27	99		83 ^b						
Enterococcus faecium		222		22 ^a				R	R	R	R			R	R	77		22	14		18 ^b						
Staphylococcus aureus	all	1313			74			74	74					85	94	100		97									
	MSSA	983			100			100	100					86	94	100		97									
	MRSA	366			R			R	R					81	93	100		95									
Staphylococcus lugdunensis		87			96			99	99					87	99	100		97									
Staphylococcus, coagulase-negative		79			43			43	43					65	59	100		91									
Streptococcus anginosus group		51	100								100			73		100											
Streptococcus, group A		55	100					100	100		100			80		100											
Streptococcus, group B		46	100					100	100		100			41		100											
Streptococcus, group C/G [†]		48	100					100	100		100					100											
Streptococcus pneumoniae	Meningitis	105	84								97																
	non-meningitis	105	92							100		72 ^e		84	100			82 ^a					100 ^e				
Gram Negative:																											
Citrobacter freundii complex ^d		139		R		R		R	R						85				93		81		94	99	100	100	
Citrobacter koseri		43		R		98	98	100 ^b	60	98	100				100				86		98		100	100			
Enterobacter cloacae complex ^d		256		R		R		R	R						92				24		94		98	99	84	100	
Escherichia coli	all	4288	61		87	91	90 ^b	88	90	91					83		50	97		74		94	95				
	ESBL	307	R					R	R	R	R				46		46		86	98	11		75	73	99	100	
Haemophilus influenzae		47	79									100 ^a			65			87 [†]									
Klebsiella (Enterobacter) aerogenes ^d		63	R		R			R	R						98				11		95		100	100	97	100	
Klebsiella oxytoca		209	R		93	93		5	97	93					94				90		95		97	97			
Klebsiella pneumoniae complex	all	746	R		95	94	95 ^b	92	94	94					92			50	34		89		98	97			
	ESBL	49	R					R	R	R	R	R			29		63		12		24		61	51	100	100	
Morganella morganii ^d		81	R		R			R	R						81				R		81		88	98	100	100	
Proteus mirabilis		346	81		97	99	97 ^b	91	98	99					86		R	R	R		86		94	96			
Providencia species ^d		36	R		R			R	R						100		R	R	R		94		92	92	100	100	
Pseudomonas aeruginosa		401	R		R	92				R	R	93			R		R	R			84			99	R	95	
Serratia marcescens ^d		54	R		R			R	R						98				R		85		98	96	96	98	
Stenotrophomonas maltophilia		50	R		R	R					R	56			98							74	R	R	R	R	

^aFor Enterococci, results of ampicillin susceptibility testing can be used to predict the activity of amoxicillin, amoxicillin-clavulanate, piperacillin-tazobactam and for E. faecalis only, additionally imipenem.

^bUrinary isolates only

^cSusceptibility to doxycycline can be inferred from susceptibility to tetracycline

^dThese organisms usually produce β-lactamase which can cause failure of 3rd generation cephalosporin therapy, despite in vitro susceptibility

^eRespiratory specimens only

[†]Combined data (May 2023-December 2024) due to the small number of isolates in 2024

Note: Percent susceptible for each organism/antimicrobial combination was generated by including the first isolate of that organism recovered from a given patient during the time period
Abbreviations: MSSA - methicillin-susceptible Staphylococcus aureus; ESBL - extended spectrum beta-lactamase; R - intrinsic resistance

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	N	Penicillin (IV)	Ampicillin / Amoxicillin	Cloxacillin	Amoxicillin/Clavulanate	Piperacillin/Tazobactam	Cephalexin	Cefazolin	Cefixime	Ceftriaxone	Ceftazidime	Azithromycin	Clindamycin	Trimethoprim-sulfamethoxazole	Vancomycin	Tetracycline ^c	Nitrofurantoin ^b	Fosfomycin (PO) ^b	Ciprofloxacin	Levofloxacin	Gentamicin	Tobramycin	Ertapenem	Meropenem
Gram Positive:																								
Enterococcus faecalis	361		100 ^a				R	R	R	R	R		R	R	100	28	99		79					
Enterococcus faecium	91		19 ^a				R	R	R	R	R		R	R	66	24	25		15					
Staphylococcus aureus	all	666		73			73	73					82	95	100	97		15						
	MSSA	489		100			100	100					85	95	100	98		94						
	MRSA	191		R			R	R					71	92	100	93		22						
Staphylococcus, coagulase-negative	59			47			47	47					76	74	100	95		80						
Staphylococcus lugdunensis	46			96			98	98					91	100	100	98		100						
Streptococcus anginosus group	49	98								98			82		100									
Streptococcus, group A	78	100					100	100					91		100									
Streptococcus pneumoniae	Meningitis	86	81							92														
	non-meningitis	87	93							100		76 ^a	63	80	100	73 ^e			100 ^e					
Gram Negative:																								
Citrobacter freundii complex ^a	43		R		R		R	R						91			93		77		95	91	100	100
Enterobacter cloacae complex ^d	76		R		R		R	R						95			45		91		97	96	91	100
Escherichia coli	All	968		58	87	91	88 ^b	81	88	91				84			97		70		93	93		
	ESBL	83		R			R	R	R	R	R			60			89	99	14		81	76	100	100
Haemophilus influenzae	33		76																					
Klebsiella oxytoca	74		R		89	89		9	93	89				96			88		97		96	96	99	99
Klebsiella pneumoniae complex	208		R		97	94	93 ^b	90	94	94				92			51		90		99	98	100	100
Proteus mirabilis	73		90		95	99	96 ^b	85	100	99				90		R			86		96	97	99	100
Pseudomonas aeruginosa	145		R		R	91			R	R	95			R					81			99	R	93

^aFor Enterococci, results of ampicillin susceptibility testing can be used to predict the activity of amoxicillin, amoxicillin-clavulanate, piperacillin-tazobactam and for E. faecalis only, additionally imipenem.

^bUrinary isolates only

^cSusceptibility to doxycycline can be inferred from susceptibility to tetracycline

^dThese organisms usually produce β-lactamase which can cause failure of 3rd generation cephalosporin therapy, despite in vitro susceptibility

^eRespiratory specimens only

Note: Percent susceptible for each organism/antimicrobial combination was generated by including the first isolate of that organism recovered from a given

Abbreviations: MSSA - methicillin-susceptible Staphylococcus aureus; MRSA - methicillin-resistant Staphylococcus aureus; ESBL - extended spectrum beta-

Antibiotic % Susceptibility
Red Deer Regional Hospital Laboratory
January -December 2022

Data derived from routine susceptibility tests performed by Alberta Precision Laboratories, Red Deer Regional Hospital Laboratory.
In 2022, this included specimens collected at Red Deer Regional Hospital, Central Zone Rural Hospitals, Health Centres, Long-Term Care Centres and community physician's offices.

	N	Penicillin (IV)	Ampicillin / Amoxicillin	Cloxacillin	Amoxicillin-Clavulanate	Piperacillin-Tazobactam	Cephalexin	Cefazolin	Ceftriaxone	Ceftazidime	Azithromycin	Clindamycin	Trimethoprim-Sulfamethoxazole	Vancomycin	Tetracycline ^c	Nitrofurantoin ^b	Fosfomycin ^b	Ciprofloxacin	Levofloxacin	Gentamicin	Tobramycin	Ertapenem	Meropenem
Gram-positive																							
Enterococcus faecalis	1437		100 ^d				R	R	R	R	R	R	R	100	25 ^b	99		84 ^b					
Enterococcus faecium	197		28 ^d				R	R	R	R	R	R	R	74	30 ^b	25		20 ^b					
Enterococcus species - other	31		97				R	R	R	R	R	R	R	32	32 ^b	90		77 ^b					
Staphylococcus aureus	All	2197		74			74	74				80	96	100	97								
	MSSA	1633		100			100	100				82	96	100	98								
	MRSA	564		R			R	R				73	96	100	97								
Staphylococcus, coagulase-negative	50			46			46	46				70	70	100	92								
Staphylococcus lugdunensis	280			98			98	98				88	99	100	96								
Streptococcus anginosus group	33	97							100			76		100									
Streptococcus, group A	34	100					100	100				88		100									
Streptococcus, group B	64	100					100	100				56		100									
Group C/G Streptococcus	35	100					100	100				58		100									
Streptococcus pneumoniae	meningitis	71	89						94					100									
	non-meningitis	93							100		78 ^e			100	82 ^e				100 ^e				
Gram-negative																							
Citrobacter freundii complex ^a	180		R		R		R	R					85			92		81		96	97	98	99
Citrobacter koseri	84		R		96	99	99	99	100				98			81		93		100	100		
Klebsiella (Enterobacter) aerogenes ^a	80		R		R		R	R					100			18		95		100	100	96	100
Enterobacter cloacae complex ^a	261		R		R		R	R					92			38		91		97	97	88	100
Escherichia coli	All	6276		64		87	98	92	90	93			84			98		75		94	94		
	ESBL	516		R			R	R	R	R			59			91	97	28		80	74	100	100
Klebsiella oxytoca	266		R		93	94	85	76	94				97			91		96		98	98		
Klebsiella pneumoniae complex	949		R		95	98	94	93	94				93			43		89		98	97		
Morganella morganii ^a	63		R		R		R	R					71		R	R		75		78	97	100	100
Providencia species ^a	34		R		R		R	R					100		R	R		97		91	91	97	97
Proteus mirabilis	352		84		95	100	98	91	99				82		R	R		84		95	98		
Pseudomonas aeruginosa	394		R		R	89			R	92			R		R			81			99	R	93
Serratia marcescens ^a	48		R		R		R	R					100			R		88		98	94	98	98
Stenotrophomonas maltophilia	37		R		R	R			R				95						78	R	R	R	R

^a These organisms usually produce β -lactamase which can cause failure of 3rd generation cephalosporin therapy, despite in vitro susceptibility

^b Urine isolates only

^c Susceptibility to doxycycline can be inferred from susceptibility to tetracycline

^d For Enterococci, results of ampicillin susceptibility testing can be used to predict the activity of amoxicillin, amoxicillin-clavulanate, piperacillin-tazobactam and for *E. faecalis* only, additionally imipenem.

^e Respiratory specimens only

Note: Percent susceptible for each organism/antimicrobial combination was generated by including the first isolate of that organism recovered from a given patient during the time period

Abbreviations: MSSA - methicillin-susceptible *Staphylococcus aureus*; MRSA - methicillin-resistant *Staphylococcus aureus*; ESBL - extended spectrum beta-lactamase; R - intrinsic resistance

		n	Penicillin	Ampicillin/ Amoxicillin	Cloxacillin	Amoxicillin- Clavulanate	Piperacillin- Tazobactam	Cephalexin (Urine) ^y	Cefazolin	Ceftiozone	Ceftazidime	Clindamycin	Trimethoprim- sulfamethoxazole	Vancomycin	Tetracycline	Nitrofurantoin (Urine) ^y	Fosfomycin (Urine) ^u	Ciprofloxacin	Levofloxacin	Gentamicin	Tobramycin	Ertapenem	Meropenem
GP	<i>Enterococcus faecalis</i>	1545		100				R	R	R	R	R	R	100	22 ^u	99		82 ^u					
	<i>Enterococcus faecium</i>	174		28				R	R	R	R	R	R	86	29 ^u	20		22 ^u					
	<i>Enterococcus species - other</i>	49		90				R	R	R	R	R	R	44	22 ^u	82		78 ^u					
	<i>Staphylococcus aureus</i>	All	2572		71				71			78	97	100	97								
		MSSA	1844		100				100			82	97	100	98								
		MRSA	728		R				R			67	96	100	96								
	<i>Staphylococcus coagulase negative</i>	86			59				59			76	77	100	93								
	<i>Staphylococcus lugdunensis</i>	295			96				96			88	99	100	98								
	<i>Streptococcus anginosus</i> group	46	96							100		71		100									
	Group A <i>Streptococcus</i> ♦	36	100						100	100		86		100									
	Group B <i>Streptococcus</i>	87	100						100	100		52		100									
	<i>Streptococcus pneumoniae</i>	non-meningitis	63	91						100				100	82			82					
		meningitis		85						97													
GN	<i>Citrobacter freundii</i> complex*	175		R		R		R	R				85			96		79		94	97	98	99
	<i>Citrobacter koseri</i>	86		R		100	100	100	100				100			84		99		100	100		
	<i>Klebsiella (Enterobacter) aerogenes</i> *	96		R		R		R	R				100			12		96		100	100	94	100
	<i>Enterobacter cloacae</i> complex*	286		R		R		R	R				93			32		88		98	98	86	99
	<i>Escherichia coli</i>	All	6581	64		87	92	92	62	92			83			98		75		94	94		
		non-ESBL	5991	69		90	92	99	64	100			86			98		80		95	96		
		ESBL	590		R			R	R	R	R		59			91	97	24		80	78	99	100
	<i>Klebsiella oxytoca</i>	269		R		92	93	86	12	96			97			87		98		100	100		
	<i>Klebsiella pneumoniae</i>	1001		R		91	95	92	91	92			91			36		86		96	94		
	<i>Morganella morganii</i> *	56		R		R		R	R				77		R	R		73		80	91	100	100
	<i>Providencia species</i> *	34		R		R		R	R				97		R	R		91		77	77	100	100
	<i>Proteus mirabilis</i>	348		82		92	100	97	41	98			78		R	R		80		92	95		
	<i>Pseudomonas aeruginosa</i>	414		R		R	89			R	91		R		R			83			98	R	92
	<i>Serratia marcescens</i> *	53		R		R		R	R				100			R		92		100	96	96	100
	<i>Stenotrophomonas maltophilia</i>	45		R		R	R			R			100					84	R	R	R	R	R

R denotes that this species is inherently resistant to the antibiotic.

*These organisms can develop resistance to third-generation cephalosporins and piperacillin-tazobactam. Use of these agents is not recommended.

♦ Susceptibility testing not routinely performed. Results based on all GAS isolated where susceptibility testing was indicated for treatment purposes.

^u Data for this antimicrobial is only applicable to uncomplicated lower urinary tract infections.

Note: Percent susceptible for each organism/antimicrobial combination was generated by including the first isolate of that organism recovered from a given patient.

Only those species with at least 30 isolates are included in the antibiograms.

ABBREVIATIONS: GP - Gram-positive; GN - Gram-negative; MSSA - methicillin-susceptible *Staphylococcus aureus*; MRSA - methicillin-resistant *Staphylococcus aureus*; ESBL - extended spectrum beta-lactamase; R - intrinsic resistance

		n	Penicillin	Ampicillin/ Amoxicillin	Cloxacillin	Amoxicillin- Clavulanate	Piperacillin- Tazobactam	Cephalexin (Urine) ^u	Cefazolin	Ceftioxaone	Ceftazidime	Clindamycin	Trimethoprim- sulfamethoxazole	Vancomycin	Tetracycline	Nitrofurantoin (Urine) ^u	Fosfomycin (Urine) ^u	Ciprofloxacin	Levofloxacin	Gentamicin	Tobramycin	Ertapenem	Meropenem
GP	<i>Enterococcus faecalis</i>	1407		100				R	R	R	R	R	R	100	21 ^u	99		81 ^u					
	<i>Enterococcus faecium</i>	182		24				R	R	R	R	R	R	88	27 ^u	24		18 ^u					
	<i>Staphylococcus aureus</i>	All	2799		70				70			77	97	100	97								
		MSSA	1949		100				100			81	97	100	96								
		MRSA	850		R				R			69	97	100	98								
	<i>Staphylococcus coag neg</i>	118			54				54			71	75	100	95								
	<i>Staphylococcus lugdunensis</i>	113			95				95			90	99	100	96								
	<i>Streptococcus anginosus</i> group	38	100							100		81		100									
	Group A <i>Streptococcus</i> ♦	65	100						100	100		95		100									
	Group B <i>Streptococcus</i>	73	100						100	100		50		100									
	<i>Streptococcus pneumoniae</i>	non-meningitis	67	91						97				100	75			82					
		meningitis		86						97													
GN	<i>Citrobacter freundii</i> complex*	165		R		R		R	R				87			95		82		96	98	99	99
	<i>Citrobacter koseri</i>	81		R		96	99	99	100	100			100			84		96		100	100		
	<i>Klebsiella (Enterobacter) aerogenes</i> *	82		R		R		R	R				99			13		98		100	100	96	100
	<i>Enterobacter cloacae</i> complex*	277		R		R		R	R				95			29		94		99	99	83	100
	<i>Escherichia coli</i>	All	6891		62	84	97	92	90	92			82			97		74		95	95		
		non-ESBL	6277		68	88	98	99	97	100			84			98		78		96	97		
		ESBL	614		R			R	R	R	R		58			94	99	30		83	79	100	100
	<i>Klebsiella oxytoca</i>	241		R		94	96	83	67	94			96			80		96		99	99		
	<i>Klebsiella pneumoniae</i>	1017		R		91	97	95	93	95			93			34		88		96	96		
	<i>Morganella morganii</i> *	63		R		R		R	R				70		R	R		62		79	93	100	100
	<i>Proteus mirabilis</i>	353		82		90	100	98	87	99			81		R	R		82		95	98		
	<i>Pseudomonas aeruginosa</i>	548		R		R	93			R	95		R		R			87			99	R	92
	<i>Serratia marcescens</i> *	51		R		R		R	R				100			R		94		100	100	98	100
	<i>Stenotrophomonas maltophilia</i>	44		R		R	R			R			98						90	R	R	R	R

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