

ANTIBIOGRAM 2022, WASHOE COUNTY

SUMMARY OF MAJOR FINDINGS



TO READERS

Organism	# Isolates Identified	Ampicillin (Am)	Amoxicillin/Clavulanate (Aug)	Amoxicillin/Subactam (AS)	Benzylpenicillin (PenG)	Cefazolin (Ctz)	Ceftazidime (Cax) (S. pneumo non-meningitis)	Ceftazidime (Caz) (S. pneumo Meningitis)	Clindamycin (Cl)	Ciprofloxacin (Cp)	Ceftazidime (Cpl)	Daptomycin (Dap)	Erythromycin (E)	Gentamicin (Gm)	Gentamicin 800 (Gm 800)	Levofloxacin (Lvx)	Linezolid (Lzd)	Nitrofurantoin (Fol)	Oxacillin (Ox)	Penicillin-G (P) (S. pneumo non-meningitis)	Penicillin-G (P) (S. pneumo Meningitis)	Rifampin (RF)	Streptomycin 2000 (ST2000)	Tetracycline (Te)	Trimethoprim/sulfamethoxazole (T/S)	Vancomycin (Va)	
<i>Enterococcus faecalis</i>	1504	99%								77%			27%		77%	84%	99%	99%		99%		50%	85%	22%		99%	
	1504									733			135		947	947	1240	1222		1142		582	293	1504		1504	
<i>Enterococcus faecium</i>	204	22%								14%			95%		98%	14%	96%	60%		14%		2%	43%	26%		53%	
	204									71			204		173	71	204	189		52		52	40	204		204	
<i>Enterococcus species*</i>	1708	90%								71%			26%		80%	79%	98%	94%		96%		46%	54%	22%		94%	
	1708									804			150		1120	1068	1444	1411		1194		634	492	1708		1708	
<i>Staphylococcus aureus</i>	2476	66%	64%			77%	64%			77%	68%	99%	52%	93%		75%	100%	98%	68%	20%		99%		87%	98%	100%	
	2476	658	658			507	413			2368	998	585	2476	2368	998	949	2185	1540	2476	658		658		2476	2476	2476	
<i>Staphylococcus spp. Coag neg</i>	410	45%	45%			59%	43%			65%	80%		99%	43%	88%		81%	99%	100%	49%	17%		98%		78%	74%	99%
	410	273	273			121	230			229	273		410	229	273		410	273	181	410	273		273		410	410	410
<i>Staphylococcus epidermidis</i>	577	46%	46%			46%	44%			44%	72%		100%	24%	89%		76%	100%	98%	39%	11%		98%		78%	58%	100%
	577	140	140			140	553			209	209		508	553	209		508	532	532	577	140		140		577	577	577
<i>Staphylococcus lugdunensis</i>	95					94%				85%			100%	84%			97%	100%		88%					96%	97%	100%
	95					36				95			95	95			36	59		95					95	95	95
<i>Streptococcus pneumoniae</i>	118												84%							97%	79%				80%	98%	
	118												118							118	118				51	118	

**MRSA**  
The rate of Methicillin-resistant *Staphylococcus aureus* (MRSA) decreased from 33.5% in 2021 to 32.0% in 2022. This decrease was not statistically significant ( $X^2 = 1.3605$ ,  $P = 0.243457$ ).

**VISA / VRSA**  
Vancomycin-intermediate resistant *Staphylococcus aureus* (VISA) or Vancomycin-resistant *Staphylococcus aureus* (VRSA) has not been found yet in Washoe County. Please report VISA or VRSA to Northern Nevada Public Health at 775-328-2447. Please also have your laboratory send the VISA/VRSA isolate for further confirmation at the Nevada State Public Health Laboratory.

**VRE**  
The rate of vancomycin-resistant *enterococci* (VRE) was 6.4% in 2022, which was not a statistically significant increase compared to 5.0% in 2021 ( $X^2 = 2.937$ ,  $P = 0.086572$ ). The VRE rate in 2015 was the highest (25.2%) one since 2002.

**DRSP**  
The rate of drug-resistant *Streptococcus pneumoniae* (DRSP) decreased from 2012 through 2018 in Washoe County. The Northern Nevada Public Health discontinued the surveillance system for *Streptococcus pneumoniae* in early 2019. The surveillance program data was used to create the antibiograms until this year (2019). As of the 2019 antibiogram, the antibiogram data reported by area hospitals is now used and rates to previous years will not be compared pre-2019 to post-2019. In 2021, the rate for PNSSP was 2.4%, while in 2022 it increased to 2.5%, although was not statistically significant.

Organism	# Isolates Identified	Ampicillin (Am)	Amikacin (Ak)	Amoxicillin/Clavulanate (Aug)	Ampicillin/Subactam (AS)	Aztreonam (Azi)	Cefepime (Cpm)	Cefazolin (Ctz)	Cefuroxime (Crm)	Ceftriaxone (Cft)	Cefotetan (Cft)	Ceftazidime (Caz)	Ceftazidime (Cax)	Ceftazidime (Cax)	Cephalothin (Cf)	Ciprofloxacin (Cp)	Ertapenem (Etp)	Gentamicin (Gm)	Imipenem (Imp)	Levofloxacin (Lvx)	Meropenem (Mem)	Nitrofurantoin (Fol)	Piperacillin-tazobactam (P/T)	Tetracycline (Te)	Tigecycline (TGC)	Tobramycin (To)	Trimethoprim/sulfamethoxazole (T/S)	
<i>Citrobacter freundii</i>	39														77%					95%						98%	90%	
	39														39					39						39	39	
<i>Klebsiella aerogenes</i> (formerly called <i>Enterobacter aerogenes</i> )	122														82%	77%				99%	98%					100%	29%	89%
	122														70	122				95	43	122	41			97	85	122
<i>Enterobacter cloacae</i>	369	100%	8%	16%	89%	90%	4%			79%	34%	74%	67%			96%	92%	98%	95%	98%	100%	35%	82%	94%	100%	97%	90%	
	369	122	134	134	134	279	134			68	134	291	369			315	188	369	90	92	345	280	369	68	66	369	369	
<i>Escherichia coli</i>	6406	59%	99%	88%	92%	91%	86%			91%					85%	99%	92%	92%		85%	99%	88%	99%	75%	100%	93%	77%	
	6406	5948	2130	4496	6406	1549	4038	6406		1091		4393	5470			5367	3524	6406	1432	3001	4496	5196	6406	1091	458	6406	6406	
<i>Klebsiella oxytoca</i>	272	100%	91%	75%	98%	96%	39%			100%	98%	98%	94%			97%	100%	96%	100%	100%	86%	94%		88%	100%	96%	93%	
	272	110	220	242	119	167	185			66	163	198	250			228	185	272	83	118	220	188	272	66	53	272	272	
<i>Klebsiella pneumoniae</i>	1182	100%	90%	79%	91%	87%	86%			87%	99%	91%	91%			90%	99%	97%	100%	98%	99%	43%	96%	77%	100%	95%	88%	
	1182	433	958	1062	369	829	1062			240	562	869	1078			989	666	1182	249	464	958	959	1182	240	129	1182	1182	
<i>Proteus mirabilis</i>	505	74%	99%	92%	87%	96%	93%	80%		94%	98%	97%	92%			79%	100%	89%		94%	100%		99%		89%	79%		
	505	307	136	399	505	176	307	399		84	228	396	456			453	238	505		190	399	505			505	505		
<i>Pseudomonas aeruginosa</i>	779	99%														87%		89%	91%	91%	93%	94%				98%		
	779	284														627		684	152	219	692	779				779		
<i>Serratia marcescens</i>	90			7%												96%	100%	100%			99%					94%	99%	
	90			31												78	31	90			90					90	90	
<i>Stenotrophomonas maltophilia</i>	46																			88%							100%	
	46																			46							46	

**ESBLs & CRE**  
Strains of *Klebsiella spp.*, *Proteus mirabilis*, and *E. coli* that produce extended-spectrum beta-lactamase (ESBLs) may be clinically resistant to therapy with penicillins, cephalosporins, or aztreonam, despite apparent *in vitro* susceptibility to some of these agents. ESBL screening data reported from three laboratories showed an average 5.3% of *E. coli/Klebsiella spp./Proteus mirabilis* produced ESBLs in 2022, which was not statistically significantly higher than 5.0% in 2021 ( $X^2 = 0.5092$ ,  $P = 0.475471$ ). The rate of carbapenem-resistant enterobacteriaceae (CRE) was 0.06% (4/6633) in 2022. It is important to note that the numerator was pulled from the active Carbapenem Resistant Organism (CRO) surveillance for 2022.

TO READERS

This antibiogram was compiled by the Division of Epidemiology & Public Health Preparedness (DEPHP), Northern Nevada Public Health in collaboration with five hospital laboratories in the community. Data covered all inpatients in local hospitals and outpatients seen at hospital emergency rooms. This antibiogram can be used as a reference for clinicians but shouldn't serve as a basis for therapy. The antibiotic susceptibility test for individual patients is still encouraged, if needed. This antibiogram only represents antibiotic susceptibility *in vitro*. Please address your questions, comments, and/or suggestions to DEPHP at 775-328-2447 or e-mail to [EpiCenter@nnph.org](mailto:EpiCenter@nnph.org).

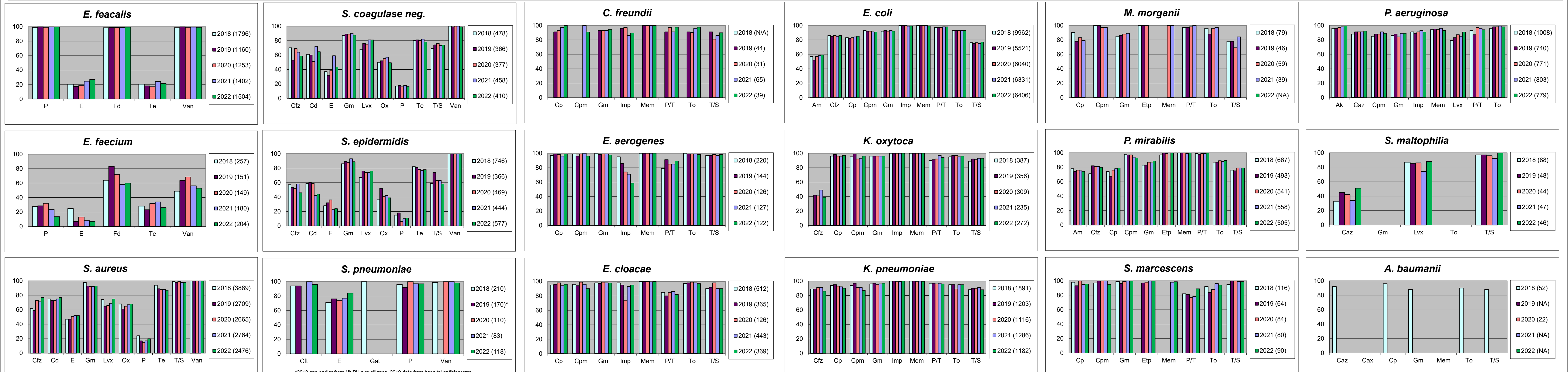
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ACKNOWLEDGEMENTS

Northern Nevada Medical Center Laboratory, Renown Regional Medical Center Laboratory, Saint Mary's Regional Medical Center Laboratory, Tahoe Forest Hospital District Laboratory, Veteran's Affairs Medical Center Laboratory (Reno).

**To read this antibiogram:** 1) Each organism is presented in two rows. The top row represents susceptibility in percent to that antibiotic. The 2nd row represents number of isolates tested for that specific antibiotic. 2) Susceptibility greater than or equal to 90% is highlighted in light GREEN, 60%-89% in YELLOW, and less than 60% in RED. 3) Nitrofurantoin is tested for urine specimens only. 4) CLSI performance standards for antimicrobial susceptibility testing were applied. CLSI stands for Clinical and Laboratory Standards Institute (Formerly NCCLS, The National Committee for Clinical Laboratory Standards). 6) Black empty shaded cells indicate that susceptibility testing for that specific organism is not recommended or complete testing data was not available or number is too small for valid reporting.

ANTIBIOTIC SUSCEPTIBILITY (%) TREND, 2018-2022, WASHOE COUNTY (Published MONTH 2024)



**To read these graphs:** Each graph represents an organism; X-axis represents the abbreviation of an antibiotic (see tables above graphs for full name of antibiotics); Y-axis represents susceptibility in percent; legends indicate each year and number of isolates identified for that year in parentheses.