

ANTIBIOGRAM 2018, WASHOE COUNTY

Organism	# Isolates Identified	Antibiotic Susceptibility (%)																									
		Am (Am)	Amk (Ak)	Amc (Aug)	AmS (AS)	Cht (Non-meningitis)	Cht (Meningitis)	Cax (Cax)	Cd (Cd)	Cp (Cp)	Cpt (Cpt)	Dap (Dap)	E (E)	Gat (Gat)	Gm (Gm)	Gm 500 (Gm 500)	Lvx (Lvx)	Lzd (Lzd)	Fd (Fd)	Ox (Ox)	P (P)	Rif (Rif)	Syn (Syn)	St2000 (ST2000)	Te (Te)	T/S (T/S)	Va (Va)
<i>Enterococcus faecalis</i>	1796	99%							72%		100%	24%			76%	79%	100%	99%		99%	64%			81%	21%		99%
<i>Enterococcus faecium</i>	257	29%							19%		98%	25%			233	101	257	227		27%	19%			60%	28%		49%
<i>Enterococcus species*</i>	2053																										85%
<i>Staphylococcus aureus</i>	3889	0%		63%	62%			65%	76%	62%	100%	100%	47%		98%		74%	100%	99%	68%	24%	99%		94%	99%	100%	100%
<i>Staphylococcus spp. Coag neg</i>	478	0%		48%	48%			42%	43%	61%	69%			100%	37%		87%	100%	98%	50%	17%	95%		80%	69%	100%	100%
<i>Staphylococcus epidermidis</i>	746	0%		57%	57%			59%	64%		100%	28%		86%		67%	100%	99%	37%	15%	99%		82%	59%	100%	100%	100%
<i>Streptococcus pneumoniae**</i>	210											71%	98%			100%						96%***			81%	99%	

\* Enterococcus faecalis and Enterococcus faecium \*\* Data from Washoe County Health District's surveillance project, not based on reported hospital's antibiogram \*\*\* Non-meningitis breakpoint; Meningitis breakpoint S% = 66%

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		Am (Am)	Amk (Ak)	Amc (Aug)	AmS (AS)	Az (Az)	Cep (Cep)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)	Cef (Cef)
<i>Acinetobacter Baumannii</i>	52					86%																							
<i>Citrobacter koseri</i>	70					98%																							
<i>Enterobacter aerogenes</i>	220					84%	99%																						
<i>Enterobacter cloacae</i>	512					81%	96%																						
<i>Escherichia coli</i>	9962					83%	60%	92%	93%	86%	91%	92%																	
<i>Klebsiella oxytoca</i>	387					88%	77%	94%	95%	92%																			
<i>Klebsiella pneumoniae</i>	1168					92%	84%	93%	94%	89%	89%	93%																	
<i>Morganella morganii</i>	79					100%																							
<i>Proteus mirabilis</i>	667					78%	97%	85%	75%	97%	98%	71%	95%	97%															
<i>Pseudomonas aeruginosa</i>	1008					96%		82%	85%																				
<i>Serratia marcescens</i>	116							97%																					
<i>Stenotrophomonas maltophilia</i>	88																												

\* The number of isolates in 2018 was under 30 therefore not reported. Keep the data available from the prior antibiogram for a reference as well as for future report preparation convenience.

SUMMARY OF MAJOR FINDINGS

**MRSA**  
The rate of Methicillin-resistant *Staphylococcus aureus* (MRSA) significantly increased from 35% in 2002 to 48% in 2007, a 37% increase from 2002 to 2007, which showed a statistical significance ( $X^2 = 145, P < 0.001$ ). The MRSA rate was 33% in 2018, which showed no statistically significant decrease compared to 36% in 2017 ( $X^2 = 0.0599, P = .8066$ )

**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 the Washoe County Health District 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) increased from 9.8% in 2002 to 11.6% in 2007, which showed a statistical significance ( $X^2 = 65, P < 0.001$ ). The VRE rate was 15.0% in 2018, which was a statistically significant decrease compared to 22.2% in 2017 ( $X^2 = 28.81, P = < 0.0001$ ). The VRE rate in 2015 was the highest (25.2%) one since 2002.

**DRSP**  
The rate of drug-resistant *Streptococcus pneumoniae* (DRSP) decreased in the past several years in Washoe County. The rate for penicillin non-susceptible *streptococcus pneumoniae* (PNSSP) decreased from 29% in 2002 to 23% in 2007, a 21% decrease, which did not show a statistical significance ( $X^2 = 5.562, P = 0.234$ ). The decrease might be associated with the introduction of pneumococcal conjugate vaccine in 2000. The rate for PNSSP was 4% in 2017. The rate for PNSSP in 2018 was also 4%, which did not show a statistical significance ( $X^2 = 0.0083, P = .8808$ ). The multi-drug resistance (resistant to 2 or more antibiotics tested) rate was 11.7% in 2018, which was similar to 11.4% in 2017.

**ESBLs & CRE**  
Strains of *Klebsiella spp.*, *E. coli*, *Proteus mirabilis* 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 two laboratories showed an average 5.4% of *E. coli*/*Klebsiella spp.*/*Proteus mirabilis* produced ESBLs in 2018, statistically significantly lower than 6.7% in 2017 ( $X^2 = 10.38, P = 0.0013$ ). The rate of carbapenem-resistant enterobacteriaceae (CRE) was 0.70% (40/5709) in 2018. It is important to note that the numerator was pulled from the active Carbapenem Resistant Organism (CRO) surveillance beginning 2017.



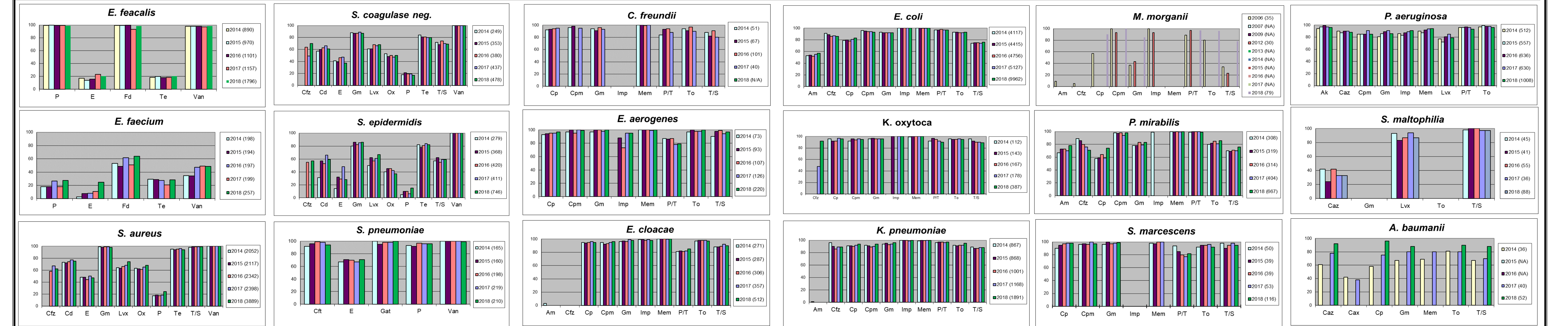
This antibiogram was compiled by the Division of Epidemiology & Public Health Preparedness (DEPHP), Washoe County Health District in collaboration with all four hospital laboratories in the community. Data covered all inpatients in local hospitals and outpatients seen at hospital emergency rooms. This 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@WashoeCounty.us](mailto:EpiCenter@WashoeCounty.us). The online version and pocket size version can be downloaded from the Health Department's website at <http://tinyurl.com/WCAntibiogram>.

ACKNOWLEDGEMENTS

Northern Nevada Medical Center Laboratory, Renown Regional Medical Center Laboratory, Saint Mary's Regional Medical Center 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) The susceptibility result for *Streptococcus pneumoniae* is a combination of screening test and E-test results. 5) 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, 2014-2018, WASHOE COUNTY (Published July 2021)



**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. **Attention!** The number of *Morganella morganii* was under 30 in 2014-2018. Therefore, the last available data for this organism are displayed here.