

Public Health Update June 7, 2019 Countywide Antibiogram Now Available!

The Southern Nevada Health District (SNHD), Office of Epidemiology and Disease Surveillance (OEDS), has been conducting surveillance for antimicrobial resistance and has produced countywide antibiograms from data reported by local laboratories. Participating laboratories include two commercial laboratories and eleven hospital laboratories.

The Clark County Antibiogram summarizes the antibiotic resistance patterns among the most common microorganisms detected in the community. Data includes inpatient data in acute care hospitals, inpatient data in long-term care facilities, and outpatient data in the community. The antibiogram includes sensitivity patterns for gram-positive and gram-negative organisms in four populations: inpatients in acute care hospitals, inpatients in long-term care facilities, outpatients in the community, and pediatrics. The antibiogram can be viewed either as an At-A-Glance PDF version or as a web version for individual organisms.

Clark County 2016, 2017, and 2018 Antibiogram are now available for viewing on the SNHD website at: <u>https://www.southernnevadahealthdistrict.org/news-info/statistics-surveillance-reports/antibiogram/#/</u>.

Highlights of antimicrobial resistance trend (2017 – 2018) with statistical significance of selective organisms:

- Susceptibility of *Staphylococcus aureus* against amoxicillin-clavulanic acid, ciprofloxacin, levofloxacin, moxifloxacin, and clindamycin decreased in the acute care hospital inpatient population but improved in the outpatient population (Table 1).
- Susceptibility of *Escherichia coli* against gentamicin, tobramycin, ampicillin-sulbactam, ceftazidime, ceftriaxone, cefuroxime, ciprofloxacin, levofloxacin, Trimethoprim-sulfamethoxazole, aztreonam, nitrofurantoin and ampicillin decreased in the acute care hospital inpatient population but improved in the outpatient population except cefuroxime and nitrofurantoin (Table 2).
- Susceptibility of *Klebsiella pneumoniae* against gentamicin, tobramycin, amoxicillin-clavulanic acid, ampicillin-sulbactam, piperacillin-tazobactam, Ertapenem, cefepime, ceftriaxone, ciprofloxacin, levofloxacin, and Trimethoprim-sulfamethoxazole decreased in the acute care hospital inpatient population but improved in the outpatient population. Susceptibility of *K. pneumoniae* against meropenem improved in both the acute care hospital inpatient population (Table 3).
- Susceptibility of *Proteus mirabilis* against gentamicin, tobramycin, amoxicillin-clavulanic acid, ampicillin-sulbactam, cefepime, ciprofloxacin, levofloxacin, trimethoprim-sulfamethoxazole, and ampicillin decreased in the acute care hospital inpatient population but improved in the outpatient population. Susceptibility of *P. mirabilis* against imipenem improved in the acute care hospital inpatient population but decreased in the outpatient population (Table 4).

	Population						
Antimicrobial Drugs		Acute Care Hospital Inpatient Population			Outpatient Population		
							Yearly Rate
Antimicrobial		Susceptibility	Susceptibility	Yearly Rate	Susceptibility	Susceptibility	Comparison
Class/Subclass	Agent	Rate (2017)	Rate (2018)	Comparison*	Rate (2017)	Rate (2018)	*
β-Lactam/β-							
Lactamase inhibitor	Amoxicillin-						
combinations	clavulanic acid	79.2	73.5	\downarrow	80.8	98.9	\uparrow
	Ciprofloxacin	54.5	49	\rightarrow	56.5	66.8	\uparrow
	Levofloxacin	58.8	52.4	\downarrow	51.7	68.1	\uparrow
Fluoroquinolone	Moxifloxacin	63.4	55.5	\rightarrow	62.5	83	\uparrow
Linosamide	Clindamycin	80.1	73.3	\checkmark	84.2	87.4	\uparrow

Table 1. Antibiogram Comparison of *Staphylococcus aureus* (2017 vs. 2018)

* Changes are statistically significant (p < .05).

Table 2. Antibiogram Comparison of Escherichia coli (2017 vs. 2018)

		Population					
Antimicrobial Drugs		Acute Care Hospital Inpatient Population			Outpatient Population		
							Yearly Rate
Antimicrobial		Susceptibility	Susceptibility	Yearly Rate	Susceptibility	Susceptibility	Comparison
Class/Subclass	Agent	Rate (2017)	Rate (2018)	Comparison*	Rate (2017)	Rate (2018)	*
	Gentamicin	91.8	90.1	\checkmark	90.6	92.1	\uparrow
Aminoglycosides	Tobramycin	91.6	89.1	\checkmark	90.2	92.2	\uparrow
β-Lactam/β-							
Lactamase inhibitor	Ampicillin-						
combinations	sulbactam	61.3	57.1	\checkmark	59.9	62.8	\uparrow
	Ceftazidime	92.7	90.1	\checkmark	88.2	94	\uparrow
	Ceftriaxone	93.6	88.8	\checkmark	92.9	93.7	\uparrow
Cephalosporin	Cefuroxime	87.7	85.2	\checkmark	77.1	68.6	\checkmark
	Ciprofloxacin	79.2	76.5	\checkmark	76	80.1	\uparrow
Fluoroquinolone	Levofloxacin	79.6	76.8	\checkmark	75.9	80.1	\uparrow
Folate pathway	Trimethoprim-						
inhibitors	sulfamethoxazole	75.8	72.8	\checkmark	73.3	75.4	\uparrow
Monobactams	Aztreonam	91.1	88.4	\downarrow	88.2	93.5	\uparrow
Nitrofurans	Nitrofurantoin	97.6	97	\checkmark	96.6	95.8	\checkmark
Penicillin	Ampicillin	55	49.8	\downarrow	53.5	56.2	\uparrow

* Changes are statistically significant (p < .05).

Table 3. Antibiogram Com	parison of Klebsiella	nneumoniae (2017 vs. 3	2018)
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		Population					
Antimicrobial Drugs		Acute Care Hospital Inpatient Population			Outpatient Population		
Antimicrobial Class/Subclass	Agent	Susceptibility Rate (2017)	Susceptibility Rate (2018)	Yearly Rate Comparison*	Susceptibility Rate (2017)	Susceptibility Rate (2018)	Yearly Rate Comparison *
	Gentamicin	95.1	91.8	\checkmark	94.5	97.6	\uparrow
Aminoglycosides	Tobramycin	91.9	86.8	\downarrow	90.9	95.7	\uparrow
	Amoxicillin- clavulanic acid	92.8	88.9	\downarrow	91.9	94.1	\uparrow
β-Lactam/β- Lactamase inhibitor combinations	Ampicillin- sulbactam	81.1	76	\downarrow	79.8	84.3	\uparrow
	Piperacillin- tazobactam	92.6	90.7	\downarrow	92.5	95	\uparrow
	Ertapenem	97.2	94.6	\checkmark	97.4	99.7	\uparrow
Carbapenem	Meropenem	95	96.4	\uparrow	83.6	95.9	\uparrow
	Cefepime	92.4	86.1	\checkmark	94.2	97.1	\uparrow
Cephalosporin	Ceftriaxone	92	85.2	\checkmark	91.3	95.2	\uparrow
	Ciprofloxacin	90.9	85	\downarrow	89.8	94.9	\uparrow
Fluoroquinolone	Levofloxacin	92.2	88.4	\checkmark	90.3	95	\uparrow
Folate pathway inhibitors	Trimethoprim- sulfamethoxazole	88.5	83.6	\downarrow	86.3	90.7	\uparrow

* Changes are statistically significant (p < .05).

Population							
Antimicrobial Drugs		Acute Care Hospital Inpatient Population			Outpatient Population		
Antimicrobial Class/Subclass	Agent	Susceptibility Rate (2017)	Susceptibility Rate (2018)	Yearly Rate Comparison*	Susceptibility Rate (2017)	Susceptibility Rate (2018)	Yearly Rate Comparison *
	Gentamicin	84.5	77.6	\downarrow	83.1	88.4	\uparrow
Aminoglycosides	Tobramycin	85.3	78.6	\downarrow	83.7	89.9	\uparrow
β-Lactam/β- Lactamase inhibitor combinations	Amoxicillin- clavulanic acid	97.5	91.9	\rightarrow	95	98.4	\uparrow
	Ampicillin- sulbactam	87.1	80.7	\downarrow	85.7	89.8	\uparrow
Carbapenem	Imipenem	32.5	72.2	\uparrow	21.7	11.9	\checkmark
Cephalosporin	Cefepime	95.7	91.4	\downarrow	96	98.5	\uparrow
	Ciprofloxacin	74.5	67.2	\downarrow	74.7	83.3	\uparrow
Fluoroquinolone	Levofloxacin	76.9	71.1	\downarrow	76.1	84.7	\uparrow
Folate pathway inhibitors	Trimethoprim- sulfamethoxazole	73.7	68.9	\downarrow	70	79.2	\uparrow
Penicillin	Ampicillin	77.2	70.3	\downarrow	75.5	83.4	\uparrow

Table 4. Antibiogram Comparison of Proteus mirabilis (2017 vs. 2018)

* Changes are statistically significant (*p* < .05).

If you have any questions regarding the Clark County Antibiogram, please contact the Office of Epidemiology and Disease Surveillance (OEDS) at (702) 759-1300.

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Health Alert: conveys the highest level of importance; warrants immediate action or attention **Health Advisory:** provides important information for a specific incident or situation; may not require immediate action

Health Update: provides updated information regarding an incident or situation; unlikely to require immediate action

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