Sioux Falls VA Antibiogram
Calendar Year 2022

Located under Tools tab in CPRS

GRAM NEGATIVE RODS % Susceptible (# tested)

ENTERICS and PSEUDOMONAS	Ampicillin	Ampicillin/ Sulbactam	Cefazolin	Ceftazidime	Ceftriaxone	Cefepime	Piperacillin/ Tazobactam	Meropenem	Ertapenem	Ciprofloxacin	Nitrofurantoin	Gentamicin	Trim/Sulfa
***Enterobacter cloacae* (37)**						87	80	100	97	95	44	97	92
***Escherichia coli* (221)**	64	71	94	99	96	98	97	100	100	82	99	97	84
***Klebsiella pneumoniae* (70)**	0	79	90	93	91	94	100	100	100	89	31	100	89
***Proteus mirabilis* (44)**	73	86	91	100	98	98	100	100	100	64	0	91	71
***Pseudomonas aeruginosa* (72)**				99		90	99	96		86		93	

RESPIRATORY PATHOGENS % Susceptible (# tested)

***Streptococcus pneumoniae* (11)* 2021 & 2022 data**	Penicillin –parenteral (non-meningitis)			Ceftriaxone			Levofloxacin	Erythromycin	Trim/Sulf	Doxycycline
	S	I	R	S	I	R	S	S	S	S
	79	17	4	100	0	0	100	46	82	82

GRAM POSITIVE COCCI % Susceptible (# tested)

STAPHYLOCOCCUS	Nafcillin	Clinda	Doxy	Vanco	Trim/Sulf	Linezolid	Rifampin
***Staphylococcus aureus* (165) 26% MRSA 74% MSSA**	**74**	79	91	100	97	100	100
Coagulase negative *Staphylococcus* (151)	54	77	82	100			

ENTEROCOCCUS	Ampicillin	Vanco	Nitrofurantoin	Gent Synergy**	Linezolid
***Enterococcus faecalis* (140)**	99	99	100	73	99
***Enterococcus faecium* (17)* 2021 & 2022 data**	12	59	24		94

*Less than 30 isolates may influence the statistical significance of this data.
**Susceptible predicts synergy between aminoglycosides and beta lactams / vancomycin

Department of Veterans Affairs **Memorandum**

Date: 02/13/2023

From: Pathology and Laboratory Medicine Service

Subj: ANTIBIOGRAM 2022 – VAHCS, Sioux Falls, SD

To: Staff Physicians and Other Health Care Providers

1. **ANTIMICROBIAL STEWARDSHIP** consists of the systematic measurement and timely coordinated interventions designed to promote the optimal use of antimicrobial agents in a hospital system. Since 2017, the Joint Commission has required that all hospitals and nursing care centers have antimicrobial stewardship programs. The Antimicrobial Stewardship Program (ASP) at the SFVAHCS oversees the choice, dosing, route, and duration of administration in order to optimize clinical outcomes while minimizing unintended consequences. Unintended consequences include antimicrobial resistance and the emergence of pathogenic organisms such as *Clostridioides difficile*, MRSA, VRE, ESBL, and other multidrug resistant organisms like CRE and the new Carbapenem Resistant *Pseudomonas aeruginosa* (CRPA).

2. **ANTIBIOTIC GUIDELINES CLINICAL DECISION SUPPORT SYSTEM (CDSS)** is available to all clinicians at this facility. It can be found within several menus under the Orders Tab. We encourage clinicians to use the guidelines to select empiric therapy and Quick Order their antibiotics. By guiding the use of antimicrobials this facility's ASP has documented decreased rates of resistant pathogens and Hospital Acquired Infections (HAI), as well as improved patient safety and well-being.

3. The **ANTIBIOGRAM** attached to this memorandum includes clinically significant organisms isolated at the facility between January 1st and December 31st, 2022. The data can be relied upon by clinicians to direct empiric antimicrobial therapy prior to receiving the results of susceptibility testing from microbiology. Only organisms causing clinical infections at this facility are included in the **ANTIBIOGRAM**. The **ANTIBIOGRAM** can be found in CPRS under the Tools Bar.

4. Please be aware that a wider variety of antimicrobials are tested than are reported on the culture report from microbiology. Should a patient present a therapeutic problem, consult the Infectious Disease Service or the ID Clinical Pharmacist for real time assistance.

5. **HAND HYGIENE** and **STANDARD PRECAUTIONS** are the backbone of infection prevention and should be observed for ALL interactions with patients.

ANTIBIOGRAM 2022 REPORT SUMMARY:

- **VRE (Vancomycin Resistant Enterococcus):** There were six infections secondary to VRE in 2022, four in 2021, and five in 2020. Clinically significant VRE cases and isolates remain rare at this facility.

- **MRSA (Methicillin Resistant *Staphylococcus aureus*)**: MRSA isolates accounted for 26% of all *S. aureus* isolates in 2022, 35% in 2021, and 29% in 2020. Both MSSA (Methicillin Sensitive *S. aureus*) and MRSA continue to show a high degree of sensitivity to Trimethoprim/sulfamethoxazole (97% susceptible) and Doxycycline (91% susceptible) making them ideal oral options for treatment of staphylococcal infections. Two MRSA cases were documented in the facility in 2022.

- ***Streptococcus pneumoniae*:** The data indicates 79% are susceptible to penicillin and 100% susceptible to 2nd and 3rd generation Cephalosporins, which are the most appropriate agents for empiric use.

- **ESBL (Extended Spectrum Beta Lactamase)** producing *E. coli, Proteus,* and *Klebsiella spp.* are screened and confirmed in our lab. There were eight new ESBL infections confirmed in 2022, sixteen in 2021, and nine in 2020. In 2022, four of the ESBLs were *E. coli*, four were *K. pneumoniae*, and zero were *Proteus mirabilis*. To date trends remain stable.

- **CRE (Carbapenem Resistant Enterobacteriaceae)** *E. coli*, *Klebsiella spp.* and others, frequently already ESBL producers, often gain further resistance to Carbapenems under antibiotic pressure. Two CRE organisms were isolated at this facility in 2022, four in 2021, and one in 2020.

- ***Escherichia coli*:** Nitrofurantoin susceptibility remains high at 99% and is the best first line agent for treatment of lower urinary tract infections like acute cystitis in our population. TMP/SMX and Ciprofloxacin are at 84% and 82% susceptible this year both showing a trend toward increased resistance. When equally efficacious and narrower spectrum options are available, we recommend selecting them over fluoroquinolones.

- ***Pseudomonas aeruginosa*:** Piperacillin/tazobactam is the primary anti-pseudomonal IV antibiotic in use at this facility. Piperacillin/tazobactam susceptibility remains excellent at 99%. Ciprofloxacin susceptibility is stable at 86%. Three carbapenem resistant *P. aeruginosa* (CRPA) were isolated at our facility in 2022, three in 2021, one in 2020.

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