Non-Urine

uchealth

Southern Colorado Region OUTPATIENT Adult (Age ≥18) Antibiogram

January 2020 – December 2020

	Amoxicillin/Clavulanic Acid (Augmentin)	Ampicillin +/- Sulbactam (Unasyn) ◊	Cefazolin *	Cefepime	Ceftriaxone (Non-Meningitis/Meningitis)	Ciprofloxacin*	Clindamycin	Erythromycin (Use Azithromycin)	Gentamicin ǂ	Levofloxacin	Meropenem	Oxacillin	Penicillin (Non-meningitis /Meningitis/Oral)	Piperacillin/Tazobactam (Zosyn)	Tetracycline (Use Doxycycline)	Tobramycin	Trimethoprim/Sulfamethoxazole (Bactrim)	Vancomycin		
***Escherichia* spp. (89)**	86	64	88	96	93	87			92	82	100			96	78	92	75		***Escherichia* spp. (89)**	Non-Urine
MSSA (140)			100				83	75	100			100	R		92		97	100	**MSSA (140)**	
MRSA (72)	R	R	R	R	R		81	6	100		R	R	R	R	98		98	100	**MRSA (72)**	
All Enterobacterales (131)	73	43	73	97	95	89			93	85	100			97	77	92	80		**All Enterobacterales (131)**	
Results Below This Line Must Be Interpreted With Caution Due To Low Isolate Numbers – Significant Outlier Effects Possible – May Not Be Representative of Wild Type Bacteria																				
***Enterococcus faecalis* (22)**		100	R	R	R							R					R	100	***Enterococcus faecalis* (22)**	
***Pseudo. aeruginosa* (22)**	R	R	R	90	R	95				81	90			90	R	90	R		***Pseudo. aeruginosa* (22)**	
***Staph. epidermidis* (19)**			47				57	36	89			47	R		89		57	100	***Staph. epidermidis* (19)**	

Organism (# of isolates) % susceptible

R = Intrinsically resistant. spp = species

* = Due to breakpoint limitation % susceptible & intermediate shown; for ciprofloxacin only applies to Enterobacterales group

ǂ = For synergy for gram-positive infections, not appropriate as monotherapy for gram-positives.

◊ = Ampicillin/sulbactam susceptibility is approximately the same or only a few percentage points better than ampicillin by itself.

Notes:

- Includes outpatients at MHN, MHC, Grandview, and PPRH emergency departments who were discharged from the emergency department as well as urgent care and freestanding emergency departments that are part of UCHealth. Inpatient rehab is also included in this data.

Resistant Isolate Frequencies All age/source/location

% (N) – Erta = E, Mero = M

CRE = 0.13% (6)
- 2, *K. aerogenes* (E=R, M=S)
- 2, *K. pneumoniae* (E=R, M=S)
- 1, *C. koseri* (E=R, M=R)
- 1, *K. pneumoniae* (E=R, M=R)

MRSA = 32% (274)
VRE = 3.9% (18)
CRPA = 3.8% (13)
CRAsp = 0%

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	Amoxicillin/Clavulanic Acid (Augmentin)	Ampicillin +/- Sulbactam (Unasyn) ◊	Cefazolin	Cefepime	Ceftriaxone (Non-Meningitis/Meningitis)	Ciprofloxacin*	Gentamicin ǂ	Levofloxacin	Meropenem	Nitrofurantoin	Oxacillin	Penicillin (Non-meningitis /Meningitis/Oral)	Piperacillin/Tazobactam (Zosyn)	Tetracycline (Use Doxycycline)	Tobramycin	Trimethoprim/Sulfamethoxazole (Bactrim)	Vancomycin		
***Enterobacter* spp. (54)**	R	R	R	96	83	100	100	98	100	22			93		100	96		***Enterobacter* spp. (54)**	Urine
***Enterococcus faecalis* (123)**		100	R	R	R	87		89		99	R					R	100	***Enterococcus faecalis* (123)**	
***Escherichia* spp. (1347)**	85	59	92	96	95	86	93	82	100	97			97		93	79		***Escherichia* spp. (1347)**	
***Kleb. oxytoca* (34)**	94	R		97	97	97	97	100	100	85			97		97	88		***Kleb. oxytoca* (34)**	
***Kleb. pneumoniae* (191)**	96	R	96	97	97	96	97	94	100	36			96		96	92		***Kleb. pneumoniae* (191)**	
***Proteus mirabilis* (45)**	100	84	91	93	93	78	88	77	100	R			100	R	94	75		***Proteus mirabilis* (45)**	
***Pseudo. aeruginosa* (56)**	R	R	R	91	R	78		76	85	R			87	R	94	R		***Pseudo. aeruginosa* (56)**	
***Staph. epidermidis* (56)**			55				96			100	55	R		85		75	100	***Staph. epidermidis* (56)**	
All Enterobacterales (1671)	83	50	85	96	94	88	94	84	100	85			97		94	81		**All Enterobacterales (1671)**	

Organism (# of isolates) % susceptible

R = Intrinsically resistant. spp = species

* = Due to breakpoint limitation % susceptible & intermediate shown; for ciprofloxacin only applies to Enterobacterales group

ǂ = For synergy for gram-positive infections, not appropriate as monotherapy for gram-positives.

◊ = Ampicillin/sulbactam susceptibility is approximately the same or only a few percentage points better than ampicillin by itself.

Notes:

- Routine testing of urine isolate of *Staph saprophyticus* is not advised because infections respond to concentrations achieved in urine of antimicrobial agents commonly used to treat acute, uncomplicated UTIs (e.g. cephalexin, nitrofurantoin, trimethoprim/sulfamethoxazole, or fluoroquinolones). It is intrinsically resistant to fosfomycin.
- Includes outpatients at MHN, MHC, Grandview, and PPRH emergency departments who were discharged from the emergency department as well as urgent care and freestanding emergency departments that are part of UCHealth. Inpatient rehab is also included in this data.

Resistant Isolate Frequencies All age/source/location
% (N) – Erta = E, Mero = M

CRE = 0.13% (6)
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MRSA = 32% (274)
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CRAsp = 0%

MDRO PROTOCOL: An automatic infectious disease consult will occur for **CRE/CRPA from ANY site** and **blood specimens positive for S. aureus, Enterococcus, or Yeast** in inpatient adult patients age 15 and over. Unless there are extenuating circumstances, the patient will be seen within 24

Urine Culture Reflex Guidance (Outpatient):

- A urine sample will be cultured when the patient is <13 years old or when reflex criteria are met:
  - Positive leukocyte esterase AND/OR
  - Positive nitrite **and** leukocytes > 10/hpf
- No culture will be done when:
  - Epithelial cells > 10/hpf (indicative of contaminated specimen, unsatisfactory for culture)
- **Asymptomatic bacteriuria does not require therapy.** If the patient does not have UTI symptoms, urine culture is not indicated unless the patient is pregnant, pediatric, undergoing invasive urinary tract procedures, or immunocompromised.
- If culture is indicated; re-submit a clean catch or catheterized urine if it has been >24 hours from initial collection of UA, otherwise add-on from UA.
- The negative chemical and/or microscopic urinalysis has a very high specificity and a very high negative predictive value for absence of a UTI.

United States Anaerobic Susceptibility Data 2013-2016 % Susceptible

	Amp/Sulb	Pip/Tazo	Cefoxitin	Meropenem	Clindamycin	Metronidazole
Anaerobic GPC*	-	99	-	100	97	100
Bacteroides fragilis	84	96	100	93	26	100
B. fragilis group	74	94	70	95	33	100
Clostridium perfringens	100	100	-	100	83	100
Fusobacterium spp	100	96	-	100	77	95

*Anaerobic gram-positive cocci = *Peptococcus, Peptostreptococcus, Fingoldia, Peptoniphilus,* and *Anaerococcus* species

- = no data available GPC = Gram Positive Cocci

Inducible Resistance; All ages/sources/locations:
MRSA inducible clindamycin resistance 6%
MSSA inducible clindamycin resistance 18%

Grp B Strep Clinda = 32% Sensitive; 18% of the total resistance was due to "inducible mechanism" during this time period from 17 resistant isolates tested.

While susceptibility testing may indicate that bacteria are susceptible to an antibiotic, some bacteria may have enzymes that can be "turned on" or induced (thus inducible resistance) in vitro resulting in antibiotic resistance.

Blood Cultures (Outpatient) Frequency of Pathogen Isolation:

1. *E. coli* (46)
2. MSSA (12)
3/4. MRSA, Viridans streptococci (9 each)
5/6. *K. pneumonia*, *S. anginosus* (8 each)
7. *E. faecalis* (7)
8. Enterobacter spp., *K. oxytoca* (5 each)

Types of Isolation and Associated Organisms

Isolation	Required PPE	Organisms/ Diseases (active or r/o)	Comments
Contact	Gowns & gloves	MRSA, VRE, MDROs and draining abscesses	MRSA can be cleared with nares/axilla/groin cultures.
Special Contact	Gowns & gloves, soap & water for hand hygiene	*C. diff*	Isolate until discontinued by physician or Infection Preventionist.
		Diapered or incontinent pts with: Shigella, Shigella, & Norovirus	Isolate for duration of illness.
Droplet	Mask, eye protection rec'd; gowns & gloves as necessary	Influenza	Isolate for 7 days from onset of sx or 24 hrs after resolution of fever & resp sx whichever is longer.
		Neisseria meningitides, meningitis	Isolation until pt on abxs for 24 hrs. Viral or aspectic meningitis → Standard precautions.
Airborne	PAPR or N95, gowns & gloves as needed per standard precaution	Tuberculosis	3 negative AFB AND 2 negative PCR required to rule out.
		Varicella (Chickenpox)	Airborne/contact until lesions dry and crusted over.
		Varicella Zoster (Shingles)	Airborne/contact for immunocomp'd pts or disseminated shingles infection. For non-immunocomp'd pts and/or shingles confined to one area on body → Standard precautions.
Droplet/ Contact Peds Units	Gowns, gloves, & mask	RSV, Enterovirus, Acute respiratory illness, Bronchiolitis	Isolate for duration of illness.

Questions? Possible Employee Exposure?
Call Infection Prevention at 719-365-6612

For more information search, "isolation guidelines" on The Source

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OUTPATIENT Adult (Age ≥18) Antibiogram

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MICROBIOLOGY

719-365-5686

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