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 hours.

Urine Reflex Culture Guidelines:

A urine sample will be cultured when:

- 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 has UTI symptoms, please re-submit a clean catch or catheterized urine.

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.

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
[2010-2012 % Susceptible]

	Amp/Sulb	Pip/Tazo	Cefoxitin	Meropenem	Clindamycin	Metronidazole
Anaerobic GPC*	- [88]	99 [99]	- [94]	100 [98]	97 [79]	100 [96]
Bacteroides fragilis	84 [90]	96 [98]	100 [87]	93 [96]	26 [72]	100 [96]
B. fragilis group	74 [82]	94 [87]	70 [65]	95 [96]	33 [48]	100 [98]
Clostridium perfringens	100 [100]	100 [100]	- [99]	100 100	83 [86]	100 [100]
Fusobacterium spp	100 [100]	96 [100]	- [94]	100 [100]	77 [100]	95 [100]

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

- = no data available GPC = Gram Positive Cocci

Inducible Resistance; All ages/sources/locations [Last Year's]:
MRSA inducible clindamycin resistance 6.9% [14]%
MSSA inducible clindamycin resistance 15.6% [14]%

Grp B Strep Clinda = 36% [56%] Sensitive; 13% [0%] are resistant due to "inducible mechanism" during this time period from 45 [18] 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.

Common Blood Culture Isolations (Frequency of Pathogen):

1. *E. coli* (10)
2. MSSA (9)
3. *Staph. epidermidis* (6)
4. *Strep. pneumoniae* (4)
5. *Pseudo. aeruginosa* (4)
6. *Kleb. pneumoniae* (4)
7. *Enterobacter spp.* (3)
8. Viridans streptococci (3)

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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Colorado Springs Region

PEDIATRIC (Age <18)

Antibiogram

January 2018 – December 2018

MICROBIOLOGY

719-365-5686

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uchealth

Colorado Springs Region PEDIATRIC (Age <18) Antibiogram

January 2018 – December 2018

		Amoxicillin/Clavulanic Acid (Augmentin)	Ampicillin +/- Sulbactam (Unasyn) ◊	Cefazolin *	Cefepime	Ceftriaxone (Non-Meningitis/Meningitis)	Ciprofloxacin	Clindamycin	Erythromycin (Use Azithromycin)	Gentamicin ǂ	Levofloxacin	Meropenem	Nitrofurantoin	Oxacillin	Penicillin (Non-meningitis /Meningitis/Oral)	Piperacillin/Tazobactam (Zosyn)	Tetracycline (Use Doxycycline)	Tobramycin	Trimethoprim/ Sulfamethoxazole (Bactrim)	Vancomycin		
Non-Urine	*Escherichia* spp. (27)	96 [79]	59 [61]	89 [93]	89 [96]	89 [96]	85 [89]			89 [89]	85 [89]	100 [100]				100 [96]	63 [84]	89 [89]	67 [86]		*Escherichia* spp. (27)	Non-Urine
	MSSA (58)			100 [100]				90 [89]	72 [79]	97 [100]				100 [100]	R		95 [97]		95 [98]	100 [100]	MSSA (58)	
	MRSA (27)	R	R	R	R	R		81 [89]	7 [14]	100 [97]		R		R	R	R	96 [94]		100 [100]	100 [100]	MRSA (27)	
Urine	*Escherichia* spp. (248)	90 [91]	61 [57]	97 [98]	100 [100]	99 [100]	95 [96]			95 [95]	95 [96]	100 [100]	98 [100]			98 [100]	85 [80]	96 [95]	80 [80]		*Escherichia* spp. (248)	Urine
	Kleb. pneumoniae (25)	100 [100]	R	100 [100]	100 [100]	100 [100]	100 [100]			100 [100]	100 [100]	100 [100]	44 [67]			100 [100]	92 [91]	100 [100]	92 [100]		*Kleb. pneumoniae* (25)	
All Sources	*Enterococcus faecalis* (43)		100 [98]	R	R	R	100 [100]	R			100 [100]		100 [98]	R			34 [35]		R	100 [100]	*Enterococcus faecalis* (43)	All Sources
	Escherichia spp. (272)	90 [90]	61 [57]	97 [98]	99 [100]	98 [100]	94 [96]			95 [94]	94 [96]	100 [100]	98 [100]			99 [99]	83 [80]	96 [95]	79 [80]		*Escherichia* spp. (272)	
	Kleb. pneumoniae (31)	100 [100]	R	100 [100]	100 [100]	100 [100]	100 [100]			100 [100]	100 [100]	100 [100]	44 [67]			100 [100]	94 [91]	100 [100]	94 [98]		*Kleb. pneumoniae* (31)	
	MSSA (64)			100 [100]				90 [89]	72 [79]	97 [100]			100 [100]	100 [100]	R		95 [96]		95 [98]	100 [100]	MSSA (64)	
	MRSA (27)	R	R	R	R	R		81 [89]	7 [14]	100 [97]		R	--- [100]	R	R	R	96 [94]		100 [100]	100 [100]	MRSA (27)	

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

NU	*Strep. pneumoniae* (21)					95/90 [100/95]		76 [91]	67 [68]		100 [100]				100/76/76 [100/86/86]		90 [86]		81 [86]	100 [100]	*Strep. pneumoniae* (21)	NU
All Sources	*Enterobacter* spp. (23)	R	R	R	100 [100]	91 [90]	100 [100]			100 [100]	100 [100]	100 [100]	38 [29]			91 [90]	100 [100]	100 [100]	96 [100]		*Enterobacter* spp. (23)	All Sources
	Pseudo. aeruginosa (17)	R	R	R	100 [96]	R	94 [96]				94 [92]	100 [96]	R			100 [96]	R	100 [100]	R		*Pseudo. aeruginosa* (17)	
	Staph. epidermidis (24)			43 [46]				57 [50]	14 [0]	92 [89]			100 [100]	46 [46]	R		95 [92]		75 [78]	100 [100]	*Staph. epidermidis* (24)	

Organism (# of isolates) % susceptible [Last Year's Susceptibility]

R = Intrinsically resistant. spp = species MSSA = Methicillin-susceptible *Staphylococcus aureus*

* = Due to breakpoint limitation % susceptible & intermediate shown for non-urine and all source samples

MRSA = Methicillin-resistant *Staphylococcus aureus*

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:

Resistant Isolate Frequencies All age/source/location
% (N) [last year's %]

CRE = 0.47% (16) [0.7%]
11, *Enterobacter* spp.
2, *Klebsiella* spp.
1, *Escherichia coli*
1, *Citrobacter* spp.
1, *Morganella* spp.

MRSA = 36.6% (289) [38.5%]
VRE = 5.7% (23) [4.9%]
CRPA = 6.3% (11) [5%]
CRAB = 16.7% (3) [---]
(2 years of data)

- Clindamycin and Erythromycin only for non-urine isolate.
- Nitrofurantoin only for urine isolates.
- 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 inpatient and outpatient data for MHN, MHC, Grandview, PPRH, CHCO in Colorado Springs, as well as any outpatient clinic, urgent care, or freestanding emergency department who sent specimens to Memorial microbiology lab.