ASPIRUS REFERENCE LAB ANTIBIOGRAM GRAM NEGATIVE BACILLI REPORTED AS % SUSCEPTIBLE JAN.2014-DEC.2014	# OF ISOLATES	AMPICILLIN	UNASYN	ZOSYN	AZTREONAM	CEFAZOLIN	CEFTRIAXONE	CEFTAZIDIME	CEFEPIME	SXT	LEVOFLOXACIN	GENTAMICIN	TOBRAMYCIN	NITROFURANTOIN	ERTAPENEM	MEROPENEM
Citrobacter freundii	82			91	94		94	93	100	82	98	88	95	82	99	100
Enterobacter aerogenes	79			90	82		90	82	100	92	95	95	100	15	99	100
Enterobacter cloacae complex	156			89	90		88	90	100	89	97	99	99	15	99	100
Escherichia coli	3969	62	70	97	95	90	95	95	96	83	84	94	95	93	100	100
Klebsiella oxytoca	124		56	94	96	71	100	100	100	97	98	99	100	66	100	100
Klebsiella pneumoniae	700		91	98	99	99	99	99	99	95	99	99	99	29	100	100
Proteus mirabilis	306	90	95	100	98	93		98	98	68	64	73	76		100	100
Pseudomonas aeruginosa	334			100				93	93		80	73	96			98
Serratia marcescens	64					0	100	100	100	100	98	100	95		100	100
Haemophilus influenzae	43	66														

PRIMARY			FORMULARY		
			ADJUSTMENTS BASED ON CrCl*		
DRUG	USUAL DOSE	LOADING DOSE**	50-80	10-50	< 10
Ampicillin	2gm q 4-6h	2gm	usual	q6-12h	q12h
Nafcillin	2gm q 4-6h	2gm	usual	usual	usual
Unasyn	3gm q 6h	3gm	q 6-8h	q8-12h	q24h
Zosyn	3.375gm q 8h	4.5gm	usual	Pharm	Pharm
Cefazolin	1-2gm q 8h	3gm	usual	q8-12h	q24h
Ceftriaxone	1-2gm q 24h	2gm	usual	usual	usual
Cefepime	1gm q 6h	2gm	1gm q6h	1gm q8-12h	1g q24h
Aztreonam	2gm q 8h	2gm	usual	1gm q8h	500mg q8h
Meropenem	500mg q 6h	1gm	usual	q8-12h	q24h
Levaquin	750mg q 24h	750mg	usual	750mg q48h	500mg q48h
Levaquin	500mg q 24h	500mg	usual	250mg q24h	250mg q48h
Azithromycin	500mg q 24h	500mg	usual	usual	usual
Doxycycline	100mg q 12h	200mg	usual	usual	usual
Clindamycin	600mg q 8h	600mg	usual	usual	usual
Flagyl	500mg q 8-12h	500mg	usual	usual	usual
TMP/SMX	5mg/kg q 6-12h	5mg/kg	usual	q12h	q12-24h
Fluconazole	200-400mg q 24h	400mg	usual	50% of dose	25% of dose
Tobramycin	age > 50: 5mg/kg		subsequent dosing per Pharmacy		
	CrCl < 50: 5mg/kg		subsequent dosing per Pharmacy		
	age < 50: 7mg/kg		subsequent dosing per Pharmacy		

** The appropriate loading dose will automatically be given by the Pharmacy.

VIII. SKIN AND SOFT TISSUE INFECTIONS.

- **Nonpurulent/Moderate Severity (Cellulitis):** Preferred: Penicillin-G 4 million units q6h (Alternates: Cefazolin 2gm q8h or Ceftriaxone 2gm q 24h) PLUS Clindamycin 600mg q 8h. [Type I PCN Allergy: Vancomycin PLUS Clindamycin.]
- **Nonpurulent/Severe (Necrotizing):** Surgical intervention (C&S). Zosyn 3.375gm q 8h (x 4h) PLUS Vancomycin per Pharmacy. [Type I PCN Allergy: Aztreonam 2g q8 PLUS Vancomycin PLUS Flagyl 500 q8.]
- **Purulent (Abscess):** I&D + C&S. Vancomycin per Pharmacy or TMP/SMX DS TID or Doxycycline 100mg q 12h. Switch to Nafcillin or Ancef if MSSA in C&S.
- **Diabetic or Ischemic Foot Infection** (AFTER deep tissue, or bone biopsy culture): Cefepime 2gm q 12h PLUS Flagyl 500mg q 8h PLUS Vancomycin per Pharmacy– d/c Vancomycin if no MRSA/MRSE/ enterococcus in culture. [Type I PCN Allergy: [Aztreonam 2gm q8h or Levaquin 750mg q 24h] PLUS Vancomycin per Pharmacy PLUS Flagyl 500mg q 8h.]
- **Options for MRSA Infections:**

(1) Older, Inexpensive Agents: Bactrim DS q 8h; Minocycline 100mg q 12h; Clindamycin 450-600mg q 8h; or Vancomycin IV.
(2) Newer, Expensive Agents: (subject to ID review) Tedizolid 200mg q 24h x5 days Tigecycline 100mg/ 50mg IV q 12h; Daptomycin 4-6mg/kg IV q 24h.

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Suggested Empiric Antimicrobial Agents of Choice In Hospitalized Adults (10th Edition)

Aspirus Wausau Hospital

2015 - 2017

Infectious Disease Section
&
Pharmacy and Therapeutics Committee

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I. ANTIBIOTIC STEWARDSHIP

- (1) **Before initiating empiric therapy or changing antibiotics due to lack of response to a current regimen, make certain that all relevant cultures have been obtained or repeated.**
- (2) **Switch & De-escalate:** "switch" IV to PO, and change to narrower-spectrum agent(s) ("de-escalate") based on microbiology results.
- Consider discontinuing Vancomycin if: cultures are negative for MRSA, MRSE, or penicillin- resistant Enterococcus; and, no Hx of MRSA colonization; and, no Type I allergy to penicillins.
- Except for proven non-UTI infections due to Pseudomonas; or, ICU CAP, combination therapy with [Cipro or Levaquin] PLUS [Zosyn or Cefepime] is not beneficial beyond 48-72 hr– [Cipro or Levaquin] can be discontinued.
- (3) **ESBL**- Meropenem is the drug of choice for infections due to ESBL-producing gram-negative rods.
- (4) **Bioavailability:** Levaquin, Bactrim, Clindamycin, Azithromycin, Fluconazole, and Flagyl are highly bioavailable (90-100% GI absorption). They should be given PO if the GI tract is functional.
- (5) **Use of Cephalosporins in Patients With Penicillin Allergy:** After taking a careful history, cephalosporins may be given safely to any patient without a history of a Type I (immediate hypersensitivity: i.e. anaphylaxis, hives, angioedema) to penicillin.

II. "SEPSIS" OF UNKNOWN ETIOLOGY

- **Community-Acquired/Normal Host:** Tobramycin 5-7mg/kg/d x 1-3 days PLUS Ceftriaxone 2gm q 24h PLUS Vancomycin per Pharmacy.
- **Health Care-Associated/Compromised Host:** Tobramycin 5-7mg/kg/d x 1-3 days PLUS [Zosyn 3.375gm q8h (x4hr) or Cefepime 2gm q12h] PLUS Vancomycin per Pharmacy.
- Type I PCN Allergy: Tobramycin 5-7mg/kg/d x 1-3 days PLUS Aztreonam 2gm q 8h PLUS Vancomycin per Pharmacy.
- Levaquin can be used as an alternative to Tobramycin if significant renal insufficiency is present.

III. COMMUNITY-ACQUIRED PNEUMONIA (CAP)

- **Non-ICU:** Ceftriaxone 2gm q 24h PLUS [Azithromycin 500mg q 24h or Doxycycline 100mg q 12h].
- **ICU:** Ceftriaxone 2gm q 24h PLUS Levaquin 750mg q 24h (x 5days and 48hr afebrile).
- Type I PCN Allergy: Aztreonam 2gm q 8h PLUS Levaquin 750mg q 24h.

IV. HEALTH CARE ASSOCIATED PNEUMONIA (HCAP)

- [Cefepime 1gm q 6h or Zosyn 3.375gm q8h (x4hr)] PLUS Levaquin 750mg q24h PLUS [Vancomycin per Pharmacy. or Zyvox 600mg q 12h] (Zyvox **only** if gram (+) cocci in clusters on sputum gram-stain, or Hx of MRSA colonization- discontinue at 48hr if no MRSA in culture).
- Consider inhaled Tobramycin.
- Duration of Rx for HCAP = 8 days (14 days if proven Pseudomonas).

V. ASPIRATION PNEUMONIA

- [Ceftriaxone 2gm q 24h (CAP) or Cefepime 1gm q 6h (HCAP)] PLUS Flagyl 500mg IV q 8h.
  OR, Zosyn 3.375 q 8h (x4hr). Both options PLUS Vancomycin per Pharmacy or Zyvox (as above).
- Type I PCN Allergy: Aztreonam 2gm q 8h PLUS Vancomycin per Pharmacy PLUS Flagyl 500mg q 8h.

VI. URINARY TRACT INFECTIONS

(1) **Asymptomatic Bacteriuria (ASB) in Noncatherized Adults.**

- Except in pregnancy or prior to urologic procedures, urine studies (UA and/or C&S) in **noncatheterized** adults should NOT be obtained in the absence of UTI Signs and Symptoms, defined as any 2 of the following: fever (> 38 C); worsened urgency or frequency; new dysuria; suprapubic tenderness; CVA pain or tenderness; and, in the frail elderly a change (unreponsive to hydration) in mental status or character of urine (odor, color).
- Frail, older adults have a prevalence of pyuria and/ or bacteriuria as high as 45% in the absence of UTI symptoms.
- ASB should NOT be treated.

(2) **Catheter Associated UTI (CA-UTI) and Catheter Associated Asymptomatic Bacteriuria (CA-ASB)**.

- **CA-UTI**- Signs and Symptoms: new onset or worsening fever, altered mental status, malaise, or lethargy with no other identified cause; flank pain; CVAT; acute hematuria; pelvic discomfort; AND > 10,000 cfu/ml AND pyuria (> 10WBC/ hpf). The absence of pyuria in a symptomatic patient (i.e. fever) suggests a diagnosis other than CA-UTI.
- **CA-ASB- >** 100,000 cfu/ml, with or without pyuria, in the absence of symptoms of UTI. Pyuria in the absence of symptoms is NOT an indication for antibiotic treatment.

(3) **Symptomatic UTI/Pyelonephritis/Urosepsis.**

- Symptomatic UTI = signs and symptoms of UTI (above), AND bacteriuria (> 100,000 CFU/ml) AND pyuria (> 10 WBC/hfp).
- **Community-Acquired/Normal Host:** Tobramycin 5-7mg/kg x 1 PLUS Ceftriaxone 2gm q 24h PLUS Ampicillin 2gm q 6h.
- **Health Care-Associated:** Tobramycin 7mg/kg x 1 PLUS Cefepime 2gm q 12h PLUS Ampicillin 2gm q 6h.
- Type I PCN Allergy: Aztreonam 2gm q 8h PLUS Vancomycin per Pharmacy.

VII. COMPLICATED INTRA-ABDOMINAL or BILIARY TRACT INFECTIONS, and PANCREATITIS.

- **Note:** At AWH, only 83% of E. coli, and 64% of P. mirabilis are susceptible to Levaquin, Cipro, or Bactrim; > 95% are susceptible to Ceftriaxone and Aztreonam. (Unasyn/E. coli = 70%.)
- **Community-Acquired/Normal Host and Mild-Moderate Severity:** Ceftriaxone 2gm q 24h PLUS Flagyl 500mg q 8h.
- **Community-Acquired/Compromised Host or High Severity:** Zosyn 3.375gm q 8h (x 4h). OR, Cefepime 2gm q 12h PLUS Flagyl 500mg q 8h. Health Care-Associated (HCA): ADD Vancomycin per Pharmacy PLUS Fluconazole 400mg q24h.
- **Type I PCN Allergy:** Aztreonam 2gm q 8h PLUS Vancomycin per Pharmacy PLUS Flagyl 500mg q 8h; ADD Fluconazole 400mg q 24h if HCA.
- **Duration of Therapy**: 7 days after adequate "source control" is generally sufficient.
- **Pancreatitis:** According to most recent ACG guidelines (2013), "the routine use of prophylactic antibiotics to prevent infection in pts with sterile necrosis (even predicted as having severe disease) is NOT recommended. FNA for C&S if pt deteriorates or fails to improve after 7-10 days.

ASPIRUS REFERENCE LAB ANTIBIOGRAM GRAM POSITIVE COCCI REPORTED AS % SUSCEPTIBLE JAN.2014-DEC.2014

# OF ISOLATES		AMPICILLIN	OXACILLIN	PENICILLIN	CLINDAMYCIN	ERYTHROMYCIN	LEVOFLOXACIN	GENTAMYCIN	NITROFURANTOIN	RIFAMPIN	TETRACYCLINE	SXT	VANCOMYCIN
23	Enterococcus faecium	39		30					30		22		43
80	Enterococcus faecalis	89		89					100		15		99
694	Enterococcus species	97		96					97		20		100
1341	Staphylococcus aureus		70		73	54	72	100	99	99	95	99	100
374	MRSA				61	13				98	98	96	100
210	Staphylococcus coag negative		66	23	61	49	69	97	99	100	79	85	100
423	Staphylococcus epidermidis		46	13	64	40	52	89	100	97	88	62	100
92	Staphylococcus lugdunensis		89	51	88	88	98	100	100	100	92	98	100
150	Staphylococcus saprophyticus		57	0	71	43	100	100	100	100	95	95	100
58	Streptococcus agalactiae (GRP B)			100	48						14		100
40	Streptococcus pneumoniae			100									