

Suggested Empiric Antimicrobial Agents of Choice In Hospitalized Adults

(12th Edition)

Aspirus System 2020-2022

System Antimicrobial Stewardship Subcommittee
System Pharmacy and Therapeutics Committee

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Recommended Treatment Durations – Shorter is Better!		
INFECTION	DURATION	
Genitourinary Tract Infections		
Uncomplicated UTI (uUTI)	3 – 7 days (relative to antibiotic)	TMP/SMX = 3 days Nitrofurantoin = 5 days Beta-lactam = 3 – 7 days
Pyelonephritis, Complicated UTI (cUTI)	5 – 14 days (relative to antibiotic)	Levofloxacin = 5 days Ciprofloxacin = 7 days TMP/SMX = 7 – 14 days Beta-lactam = 10 – 14 days
Catheter-Associated UTI (CA-UTI)	3 – 14 days (relative to patient)	3 – 5 days women ≤ 65 yo without upper urinary symptoms, after catheter removal. 7 days with swift symptom resolution. 10 – 14 days if delayed clinical response.
Gastrointestinal Infections		
Complicated Intra-abdominal Infection (cIAI)	4 – 14 days	4 – 7 days after source control, with adequate clinical response (afebrile for >24hr, WBC < 11, and consumption of more than half of patient's regular diet w/out adverse events) 7 – 14 days if NO source control.
Spontaneous Bacterial Peritonitis (SBP)	5 – 7 days	
Diverticulitis	4 – 7 days	
Clostridioides difficile (C. diff)	10 days	
Sepsis		
Severe Sepsis and Shock	Unknown source	7 – 10 days (with clinical improvement)
Bloodstream Infections		
Uncomplicated Gram-negative Rod Bacteremia	7 – 14 days	<u>Uncomplicated:</u> no uncontrolled focus of infection, immunocompetent, afebrile for at least 48 hours and hemodynamically stable by day 7 of antibiotics.
Staphylococcus aureus Bacteremia	<u>Uncomplicated:</u> 14 days minimum from first negative BCx. (no metastatic infection, negative echo, no implanted prostheses, no fever within 72 hours of active antibiotics, and negative repeat BCx 2 – 4 days after initial <u>Complicated:</u> 4 – 8 weeks from first negative blood cultures depending on source of infection.	
Catheter-Related Bloodstream Infections	5 days – 8 weeks depending on type of catheter, removal, and organism.	
Endocarditis	2 – 8 weeks dependent on organism, valve, and presence of additional metastatic infection.	
Candidemia	14 days after first blood cultures negative.	

** Procalcitonin can be used to shorten the duration of antibiotics. Consider stopping antibiotics if the procalcitonin value falls to < 20% of the previous peak level or a subsequent value drops to less than 0.25 ng/mL and is accompanied by clinical improvement.**

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Recommended Treatment Durations – Shorter is Better!		
INFECTION	DURATION	
Skin and Skin Structure Infections		
Cellulitis	5 – 10 days	5 days if no progression at day 5. 5 – 10 days if not improved at day 5.
Purulent Including Abscess	5 – 10 days	7 – 14 days if febrile neutropenia patient.
Animal Bite	5 – 10 days	5 – 10 days if cellulitis and/or abscess.
Diabetic Foot Infection	<i>Soft Tissue ONLY</i>	<u>mild soft tissue:</u> 5 – 14 days (>2 manifestations of inflammation, cellulitis <2 cm, infection limited to skin/SQ) <u>moderate to severe soft tissue:</u> 14 – 28 days (> 2cm cellulitis or with proximal spread, lymphangitis or evidence of deep tissue involvement, with or without significant systemic response)
	<i>Soft Tissue AND Bone Involved</i>	2 – 5 days s/p clean amputation with NO residual tissue. 2 – 4 weeks s/p amputation with residual soft tissue (all infected bone removed). 4 – 6 weeks s/p amputation with residual tissue AND viable but infected bone. >12 wks if no amputation or s/p amputation with residual dead bone.
Musculoskeletal Infections		
Acute Osteomyelitis	28 – 56 days (4 – 8 weeks)	
Chronic Osteomyelitis	42 – 84 days (6 – 12 weeks)	
Septic Arthritis	14 – 28 days (2 – 4 weeks)	
Lower Respiratory Tract Infections		
Community-Acquired Pneumonia (CAP)	5 – 7 days	5 days with clinical improvement (afebrile for 48-72 hours, requires no supplemental oxygen above baseline, and has one or less abnormal vital sign: HR > 100, RR > 24, SBP ≤ 90) No more than 5 days of azithromycin is needed. 7 days if MRSA or <i>Pseudomonas aeruginosa</i> as source.
Nosocomial Pneumonia (HAP/VAP)	7 days (even for MRSA and <i>Pseudomonas</i>)	
Acute Exacerbation of Chronic Bronchitis (AECB)	5 – 7 days	No more than 5 days of azithromycin needed. Indications for antibiotics: severe acute exacerbations with increased cough, sputum volume and sputum purulence.
Nervous System Infections		
Community-Acquired Meningitis	<i>Streptococcus pneumoniae</i> = 10 – 14 days <i>Neisseria meningitidis</i> = 7 – 10 days <i>Haemophilus influenzae</i> = 7 – 10 days <i>Listeria monocytogenes</i> = 14 – 21 days Enterobacteriaceae = 14 – 21 days HSV-1 = 14 – 28 days	
Post-Neurosurgical Meningitis	14 – 28 days	

# ISOLATES	ASPIRUS SYSTEM REFERENCE LAB ANTIBIOTIC REPORTED AS % SUSCEPTIBLE JAN 2019-DEC 2019	GRAM-NEGATIVE BACILLI	GRAM-POSITIVE COCCI
34	<i>Acinetobacter baumannii</i> complex	Ampicillin	
226	<i>Citrobacter freundii</i>	Amp/Sul	
122	<i>Enterobacter aerogenes</i>	Pip/Tazo	
305	<i>Enterobacter cloacae</i> complex	Aztreonam	
8496	<i>Escherichia coli</i>	Cefazolin	
313	<i>Klebsiella oxytoca</i>	Ceftriaxone	
1165	<i>Klebsiella pneumoniae</i>	Ceftazadime	
707	<i>Proteus mirabilis</i>	Cefepime	
746	<i>Pseudomonas aeruginosa</i>	TMP/SMX	
114	<i>Serratia marcescens</i>	Levofloxacin	
		Gentamicin	
		Tobramycin	
		Nitrofurantoin	
		Ertapenem	
		Meropenem	

# ISOLATES	ASPIRUS SYSTEM REFERENCE LAB ANTIBIOTIC REPORTED AS % SUSCEPTIBLE JAN 2019-DEC 2019	GRAM-POSITIVE COCCI	GRAM-NEGATIVE BACILLI
56	<i>Enterococcus faecium</i>	Ampicillin	
958	<i>Enterococcus faecalis</i>	Oxacillin	
2331	<i>Staphylococcus aureus</i>	Penicillin	
1654	MSSA (71% of <i>Staph aureus</i>)	Ceftriaxone	
677	MRSA (29% of <i>Staph aureus</i>)	Clindamycin	
195	<i>Staphylococcus coag negative</i>	Erythromycin	
531	<i>Staphylococcus epidermidis</i>	Levofloxacin	
99	<i>Staphylococcus lugdunensis</i>	Gentamicin*	
102	<i>Streptococcus agalactiae</i> (GrpB)	Nitrofurantoin	
69	<i>Streptococcus pneumoniae</i>	Rifampin*	
	67 Non-meningitis	Tetracycline	
	2 Meningitis*	TMP/SMX	
		Vancomycin	

CV 2019 *Haemophilus influenzae* n=121, 36% β-lactamase positive
*Should not be used alone to treat staphylococcal infections
SYN: Synergy with Ampicillin or Vancomycin
**Strep pneumoniae* Meningitis breakpoints are lower than pneumonia/bacteremia

ANTIMICROBIAL STEWARDSHIP PEARLS

When ordering antimicrobials, follow the [Stewardship Approach](#):

- Utilize stewardship ORDER SETS to pick empiric therapies then NARROW (DE-ESCALATE) antimicrobials as far as possible based on culture results in order to lessen resistance.
- 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.
- Convert IV to PO as soon as possible to shorten length of stay and reduce line infections.
- De-escalate away from coverage of *Pseudomonas* (e.g., pip-tazo, cefepime, levo/cipro) and MRSA (e.g., vanco, linezolid, dapto) after 48 hours of no growth of these organisms on properly obtained cultures.**
- SHORTER IS BETTER! Treat for the shortest duration possible to optimize patient outcomes.

[Avoid Empiric Use of Fluoroquinolones \(FQs\) and Clindamycin](#): Both are extremely high risk for *C. diff*, both have high resistance rates, and FQs have a black box warning due to tendonitis, CNS effects, peripheral neuropathy, hypo/hyperglycemia, and ruptured AAA.

[Avoid Use of Pip-tazo, Cefepime, and Vanco When Not Indicated](#):

- Utilize stewardship Order Sets and this pocket card to guide empiric use of these agents. Even in sepsis overuse of these agents when not indicated causes harm by increasing resistance, mortality, costs, length of stay, and *C. diff*.
- If using these and other broad-spectrum agents, source cultures/PCR should be obtained to aid in de-escalation.

Staph aureus (MRSA) PCR Swabs: Use to rule out MRSA pneumonia (nares) or wound/purulent skin infections:

- Staph aureus, MRSA PCR – Nares (MRSA PCR – Nares)** >96% NPV for MRSA pneumonia.
- Staph aureus, MRSA PCR – Skin and Soft Tissue Infection (MRSA PCR – SSTI)** > 97% NPV for MRSA SSTI.

ESBL: Ertapenem is the drug of choice for infections due to ESBL-producing Gram-negative organisms. Empiric use of Meropenem for ESBL-producing organisms is NOT recommended as it can select for resistant *Pseudomonas*. [Double Coverage of Gram-negatives](#): Only use in select patients:

- Unless a patient has a specific history with a MDRO or is in septic SHOCK, double coverage is NOT necessary.
- If needed, AVOID using fluoroquinolones due to high resistance rates. An aminoglycoside is preferred.
- If used, quickly stop the 2nd agent after 48hrs of no growth OR when an organism is cultured, and sensitivities are known. There is NO benefit to double coverage once sensitivities are known.

[Surgical Prophylaxis](#):

- Antibiotic administration should begin and end within 60 min prior to incision (120 min for vanco or levo/cipro).
- Penicillin allergic patients should receive cefazolin or cefoxitin as they are safe and have 50-60% less odds of SSI.
- Patients on antibiotics still need additional pre-op antibiotics OR if the concurrent antibiotic is suitable for prophylaxis it should be rescheduled to be given within 60 min prior to incision.

[Penicillin \(PCN\) Allergic Patients](#): >90% of PCN allergies aren't accurate, always perform a thorough allergy history.

- Penicillin allergic patients (except for SJS, TEN) should receive cephalosporins as they provide no increased risk of a reaction compared to those without an allergy history. Stewardship order sets contain cephalosporin options.
- Consider using a graded challenge to a cephalosporin in patients with a recent history (past 10 years) of a severe Type I hypersensitivity reaction (i.e., immediate onset hives, angioedema, or anaphylaxis) to a penicillin.

[Follow-Up Blood Cultures](#): Do not routinely obtain follow-up blood cultures to document clearance of bacteremia in patients who are NOT worsening. Blood cultures to document clearance of bacteremia are only recommended for patients with endocarditis, candidemia, and Enterococcal or *Staphylococcus aureus* bacteremia.

[Stewardship Intranet Site](#):

<http://aspirusintranet/MedStaff/Antimicrobial-Stewardship.aspx>

- Open Aspirus intranet and select “Medical Staff” at the top right of screen
 - Under “Communications” drop-down select “Antimicrobial Stewardship”
- [Stewardship Order Sets in EPIC](#): the recommendations in this pocket card are contained in these order sets:
- Aspirus Infectious Disease “Blue Card” Empiric Antibiotics
 - Aspirus ED Provider Adult Sepsis Orders AND Aspirus IP Provider Adult Sepsis Orders
 - Aspirus Adult Sepsis Step-Down Antimicrobial Orders
 - Aspirus *C. diff* Infection Treatment
 - Aspirus Beta-Lactam Antibiotic Graded Challenge (Adult)

SEVERE SEPSIS AND SEPTIC SHOCK

- The recs in this guide are for NON-sepsis. See Aspirus ED Provider Adult Sepsis Orders OR Aspirus IP Provider Adult Sepsis Orders within EPIC for empiric antibiotic recs based on source of sepsis.

FEBRILE NEUTROPENIA

Note: Defined as a single temp ≥101 F or ≥100.4 F sustained for 1 hr and ANC ≤500 cells/μL, or <1000 cells/μL with expected decline to <500 cells/μL in 48 hrs.

- Cefepime 2g IV q8h**
 - If intra-abdominal infection or severe mucositis: Replace Cefepime with [Pip-Tazo 3.375g IV q8](#)
 - If septic shock = [ADD tobramycin x1 AND Vancomycin per pharmacy](#)
 - If severe mucositis, skin infection, indwelling cath infection, pneumonia, hypotension, or h/o MRSA = [ADD Vancomycin per pharmacy](#)
- If source and organism identified, target it with antibiotics.
- If no cultures positive for Gram-positive bacteria within 48 hrs, vancomycin should be stopped.

COMPLICATED INTRA-ABDOMINAL or BILIARY TRACT INFECTIONS, and PANCREATITIS

Pancreatitis: Routine “prophylactic” antibiotics are NOT recommended. Antibiotics indicated if admit CT, or repeat CT w/contrast 48h after admit has > 30% pancreatic necrosis. Obtain CT-directed FNA culture to guide antibiotics. [Community-Acquired \(Extra biliary, abscesses and perforations\)](#):

- [Ceftriaxone 2g IV q24h PLUS Metronidazole 500mg IV q8h](#)
- [Community-Acquired \(Cholecystitis and Cholangitis\)](#):
 - [Ceftriaxone 2g IV q24h ± Metronidazole 500mg IV q8h](#)
- [Community-Acquired \(Spontaneous Bacterial Peritonitis\)](#): ascites with > 250 PMN/mL with positive cultures and no surgically amenable intra-abdominal source of infection
- Diagnostic paracentesis and ascitic culture are recommended before starting antibiotics. Use culture to refine abx.
- [Ceftriaxone 2g IV q24h](#)

[Health Care-Associated \(HCA\)](#): Use ascitic culture results to refine antibiotic choice

- [Pip-Tazo 3.375g IV q8h OR \[Cefepime 1g IV q6h PLUS Metronidazole 500mg IV q8h\]](#)

[Duration](#): 4-7 days after adequate source control

Clostridioides difficile INFECTION (CDI)

Note: Stop all unnecessary concurrent antibiotics to increase cure rate. Utilize *C. diff* testing algorithm. Use the Aspirus *C. diff* Infection Treatment order set.

- NAT/GDH positive, toxin A/B negative = Colonization, NO treatment. Only treat for toxin positive.
- IV Vancomycin has no effect on *C. diff* due to minimal GI absorption
- [Initial episode](#): Vancomycin 125mg PO q6h for 10 days
- [Initial episode, fulminant \(hypotension, shock, toxic megacolon\)](#): Vancomycin 500mg PO q6h PLUS Metronidazole 500mg IV q8h ± Vancomycin Enema for 10 days
- [First recurrence](#):
 - If metronidazole was used for first episode: [Vancomycin 125 mg PO q6h for 10 days](#)
- If vancomycin PO was used for first episode: [Tapered and pulsed Vancomycin PO regimen](#) (Order set in EPIC: Aspirus *C. diff* Infection Treatment)
- [Second OR Subsequent Recurrence](#): [Tapered and pulsed vancomycin PO regimen](#)

ACUTE EXACERBATION OF CHRONIC BRONCHITIS

Note: Antibiotics only recommended for acute exacerbations with increased cough, sputum volume and purulence. Consider ordering procalcitonin and discontinuing antibiotics if value is < 0.5 ng/mL.

- [Doxycycline 100mg IV/PO q12h OR Azithromycin 500mg IV/PO q24h](#)
- [Severe life-threatening respiratory failure: Ceftriaxone 2g IV q24h](#)

[Duration](#) = 5 – 7 days

COMMUNITY-ACQUIRED PNEUMONIA (CAP)

Note: The term HCAP (Health Care-Associated Pneumonia) is no longer used. Risk factors for enhanced Gram-negative or MRSA coverage are given below. If covering MRSA order [MRSA PCR – Nares](#) and stop if no MRSA.

[Standard CAP Therapy](#):

- [Ceftriaxone 1g IV q24h PLUS Azithromycin 500mg IV/PO q24h](#)
- [CAP with Gram-negative Risk Factors](#): For patients with **≥ 3 of these risk factors** – Immunosuppression, non-ambulatory, tube feedings, gastric acid suppression (H2RA, PPI), hospitalization ≥ 2 days in previous 90 days, use of antibiotics in previous 90 days:
- [\[Cefepime 1g IV q6h OR Pip-Tazo 3.375g IV q8h\] PLUS Azithromycin 500mg IV q24h](#)
 - Obtain respiratory culture to aid in de-escalation
 - If MRSA consistent presentation (gross hemoptysis, leukopenia, rapidly progressive CXR and/or lung necrosis or cavitation) OR **≥ 2 of these risk factors exist**: dialysis in past 30 days, prior MRSA history, congestive heart failure, hospitalization ≥2 days in previous 90 days, or use of antibiotics in previous 90 days, [Obtain MRSA PCR – Nares](#) AND [ADD Vancomycin per pharmacy](#).
 - Discontinue Vancomycin if [MRSA PCR – Nares](#) is negative for MRSA
 - If lung abscess or empyema, [ADD Metronidazole 500mg IV/PO q8h](#) to Ceftriaxone or Cefepime above.

[Duration](#) = 5 – 7 days. 5 days if afebrile for 48-72 hours, on baseline O2, and has ≤ 1 abnormal vital sign (HR > 100, RR > 24, SBP ≤ 90).

No more than 5 days of azithromycin is needed, in general.

HOSPITAL-ACQUIRED/VENTILATOR-ASSOCIATED PNEUMONIA (HAP/ VAP)

Note: Order a respiratory culture and [MRSA PCR – Nares](#) to guide de-escalation. If mixed oral flora is grown, the lab will exclude the presence of MRSA and *Pseudomonas* so coverage can be de-escalated accordingly.

- [\[Cefepime 1g IV q6h OR Pip-Tazo 3.375g IV q8h\] PLUS Vancomycin per pharmacy](#)
 - Discontinue Vancomycin and de-escalate Pip-Tazo OR Cefepime at 48h if no MRSA AND/OR *Pseudomonas* in a quality respiratory culture
- Consider addition of inhaled Tobramycin
- If lung abscess or empyema, [ADD Metronidazole 500mg IV/PO q8h](#) to Cefepime above.

[Duration](#) = 7 days (including *Pseudomonas* and MRSA)

MANAGEMENT of *Staph aureus* BACTEREMIA

- MSSA Treatment = [Nafcillin OR Cefazolin](#) (Vancomycin NOT recommended due to worse outcomes)
 - MRSA Treatment = [Vancomycin per pharmacy](#) (unless MIC > 1, then use Daptomycin)
 - [Uncomplicated *Staph aureus* Bacteremia](#): no metastatic infection, negative echo, no implanted prostheses, no fever within 72 hours of initiation of targeted antibiotics, and negative repeat blood cultures 2 – 4 days after initial positive
- 48hr after targeted therapy, repeat BCx daily until negative x48hrs
 - Remove indwelling IV catheters
 - Obtain TTE. If prosthetic valve, or TTE negative and fever/bacteremia not resolved in 48hr, obtain TEE.
 - In general, obtain ID consult to guide management
 - [Duration](#) = 4 – 6 wks IV antibiotics from most recent negative BCx. 2wks IV antibiotics may be considered in select uncomplicated bacteremia cases (ID consult recommended).

URINARY TRACT INFECTIONS (UTI)

[Asymptomatic Bacteriuria \(ASB\) in Non-catheterized Adults](#):

- ASB should NOT be treated or tested for**, except in pregnancy or prior to urologic procedures involving mucosal bleeding (e.g., TURP). Urine studies (UA/UCx) in non-catheterized 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.
- Symptomatic UTI (sUTI)= signs/symptoms of UTI, AND bacteriuria (> 100,000 CFU/mL) AND pyuria (>10 WBC/hpf)
- Older adults have a prevalence of pyuria and/or bacteriuria as high as 50% in the absence of UTI symptoms
- Elderly patients with altered mental status, s/p a fall, or with weakness, AND with NO UTI signs and symptoms, fever, or hypotension, should NOT have a UA/UCx obtained and should NOT be treated with antibiotics

[Uncomplicated UTI/Cystitis](#): Urgency, frequency, dysuria, suprapubic pain/tenderness in otherwise healthy, non-pregnant woman

- [Nitrofurantoin 100mg PO BID for 5 days](#)
 - OR [TMP/SMX 1DS PO BID for 3 days](#)
- OR [Cephalexin 1000mg PO BID for 3-7 days](#)

[Complicated UTI \(cUTI\) and Pyelonephritis](#): Infection in the presence of an anatomical abnormality AND/OR infection that has spread from bladder to kidneys

- [Community-Acquired](#): [Ceftriaxone 1g IV q24h](#)
- [Health Care-Associated](#): [Cefepime 1g q IV q6h PLUS Ampicillin 2g IV q6h](#)
 - [Recent Severe Type I PCN Allergy](#): [Substitute Vancomycin per pharmacy](#) for Ampicillin above

[Catheter-Associated UTI \(CA-UTI\) and Catheter-Associated Asymptomatic Bacteriuria \(CA-ASB\)](#):

- CA-ASB: ≥100,000 CFU/mL, with or without pyuria, in the absence of sx of UTI.
 - CA-ASB should NOT be treated.** Pyuria in the absence of sx is NOT an indication for antibiotics.
- 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
- [Cefepime 1g q 6h PLUS Ampicillin 2g q6h](#)
 - [Recent Severe Type I PCN Allergy](#): substitute [Vancomycin per pharmacy](#) for Ampicillin above

COMMUNITY-ACQUIRED BACTERIAL MENINGITIS

Note: In addition to blood, a LP and a PCR of the CSF can be used to identify organisms

- [Ceftriaxone 2g IV q12h AND Vancomycin per pharmacy](#)
 - If age > 50yo, neutropenic, or immunosuppressed, [ADD Ampicillin 2g IV q4h](#)

[Duration](#): 7 – 21 days (pathogen specific)

SKIN AND SOFT TISSUE INFECTIONS (SSTI)

Note: If covering MRSA, order the [MRSA PCR – SSTI](#) and stop MRSA coverage if negative (>97% NPV)

[Nonpurulent Cellulitis](#):

- [Penicillin-G 4 million units IV q6h OR Cefazolin 2g IV q8h](#)
- [Purulent Cellulitis](#): I&D + C&S + [MRSA PCR – SSTI](#)
- [Cefazolin 2g IV q8h AND \[TMP/SMX 2DS PO q12h \(5mg/kg IV q12h\) OR Doxycycline 100mg IV/PO q12h\]](#)

[Abscess](#): I&D + C&S + [MRSA PCR – SSTI](#)

- [TMP/SMX 1-2DS tab PO q12h \(5mg/kg IV q12h\) OR Doxycycline 100mg IV/PO q12h](#)
 - If [Severe](#): [Vancomycin per pharmacy](#) ALONE
- Switch to [Cefazolin 1-2g IV q8h, Cephalexin 500mg PO q6h, OR Dicloxacillin 500mg PO q6h](#) if MSSA

[Diabetic Foot Ulcer \(Mild\)](#): Only skin/tissue and erythema ≤ 2 cm

- [Cephalexin 500mg PO q6h OR Amox-Clav 875/ 125mg PO q12h](#)
 - If history of MRSA, Order [MRSA PCR - SSTI](#) AND [ADD Doxy 100mg PO q12h OR TMP/SMX 2DS PO q12h](#)

[Diabetic Foot Ulcer \(Moderate\)](#): Only skin/tissue and erythema >2 cm OR

- deeper (abscess, osteo, septic arthritis)
- Obtain deep tissue or bone biopsy culture before antibiotics
- [Amox-Clav 875mg PO q12h OR Amp-Sul 3g IV q6h OR \[Ceftriaxone 2g IV q24h PLUS Metro 500mg IV q8h\]](#)
 - If history of MRSA, Order [MRSA PCR - SSTI](#) AND [ADD Vancomycin per pharmacy](#)

[Diabetic Foot Ulcer \(Severe\)](#): Moderate criteria AND ≥ 2 SIRS

- Obtain deep tissue or bone biopsy culture and [MRSA PCR – SSTI](#) before antibiotics if possible
- [Ceftriaxone 2g IV q24h PLUS Metronidazole 500mg IV q8h PLUS Vancomycin per pharmacy](#)
 - If recent standing water exposure or history of *Pseudomonas*, [Replace Ceftriaxone/Metronidazole above with Cefepime/Metronidazole OR Pip-Tazo](#).
 - Discontinue Vancomycin if no MRSA/MRSE/*Enterococcus*
 - Narrow Pip-Tazo OR Cefepime if no *Pseudomonas* (e.g., Ceftriaxone)

[Decubitus Ulcer](#): Wound care crucial. C&S + [MRSA PCR – SSTI](#)

- [\[Cefepime 1g IV q6h OR Pip-Tazo 3.375g IV q8h\] PLUS Vancomycin per pharmacy](#)
 - Discontinue Vancomycin if no MRSA/MRSE/*Enterococcus*
 - Narrow Pip-Tazo OR Cefepime if no *Pseudomonas*

[Infected Wound – Postoperative](#) (operations on trunk, head/neck, extremities):

- [Cefazolin 2g IV q8h](#)
 - If history of MRSA, hospitalization ≥2 days in previous 90 days, or use of antibiotics in previous 90 days, Obtain [MRSA PCR - SSTI](#) AND [ADD Vancomycin per pharmacy](#).
- [Infected Wound – Postoperative](#) (operations on axilla, GI tract, perineum, female genital tract):
 - [Ceftriaxone 2g IV q24h AND Metronidazole 500mg IV q8h](#)
 - If history of MRSA, hospitalization ≥ 2 days in previous 90 days, or use of antibiotics in previous 90 days, Obtain [MRSA PCR - SSTI](#) AND [ADD Vancomycin per pharmacy](#).

[Necrotizing Skin Infection](#): Surgical intervention (C&S) and [MRSA PCR – SSTI](#)

- [Pip-Tazo 3.375g IV q8h PLUS Clindamycin 600mg IV q8h PLUS Vancomycin per pharmacy](#)
 - [Recent Severe Type I PCN Allergy](#): [Cefepime 1g IV q6h PLUS Metronidazole 500mg IV q8h PLUS Linezolid 600mg IV q12h](#). (Linezolid for anti-toxin and MRSA coverage)
 - Clindamycin is only used to reduce toxin production. Its use can be discontinued after source control is obtained and the patient is improving.
 - Discontinue vancomycin if no MRSA.

[Open Fracture – Antibiotic Prophylaxis](#)

- Type I and II: clean wound <1cm long OR laceration >1cm long without extensive soft tissue damage
 - [Cefazolin 2g IV q8h for 24 hours](#)
 - If contamination, treat as Type III below based on type of contamination
- Type III: open segmental fracture, open fracture w/extensive soft tissue damage, OR traumatic amputation
 - No gross contamination: [Ceftriaxone 2g IV q24h](#) for 48h OR 24h after wound closure
 - Soil/fecal contamination: [Ceftriaxone 2g IV q24h PLUS Metronidazole 500mg IV q8h](#) for 48h after wound closure
 - If history of MRSA, [Obtain MRSA PCR - SSTI](#) AND [ADD Vancomycin per pharmacy](#).
- Standing water contamination: [Pip-Tazo 3.375g IV q8h OR \[Cefepime 1g IV q6h PLUS Metronidazole 500mg IV q8h\]](#) for 48h after wound closure
- If history of MRSA, Obtain [MRSA PCR - SSTI](#) AND [ADD Vancomycin per pharmacy](#).