PeaceHealth Empirical Antimicrobial Treatment Guide

Site of infection		Likely pathogens	Empirical treatment of choice	Standard duration of therapy	Comments
Urinary tract	Asymptomatic bacteriuria	Any bacteria, regardless of colony count or presence of pyuria, LE, nitrite, etc.	Antimicrobials should not routinely be prescribed for asymptomatic bacteriuria	0 days	Patients who are pregnant, with invasive GU surgery, or febrile neutropenia may require antibiotics
	Asymptomatic bacteriuria and altered mental status		Do not treat asymptomatic patients with delirium/dementia unless sepsis with fever or leukocytosis, with no other source identified, and where UTI is not ruled out via absence of pyuria.	See duration for pyelonephritis (cystitis excluded if UTI with sepsis; fever +/- leukocytosis)	Consider imaging to aid diagnosis of UTI with sepsis; fever/leukocytosis absent GU symptoms in patients with delirium or dementia
	Cystitis	*E. coli*, *Klebsiella* spp., *Proteus* spp., other enterobacterales.	Nitrofurantoin 100 mg PO Q12H -OR- SMX/TMP DS PO Q12H -OR- Cephalexin 1-3 g/day PO in 2-3 doses -OR- Tobramycin 5 mg/kg x1	5 days 3 days 5 days 1 dose	Nitrofurantoin only for uncomplicated cystitis and estimated CrCl ≥ 40 mL/min Gentamicin 5 mg/kg x1 adequate if not *P. aeruginosa*
	Pyelonephritis or UTI with signs of systemic illness	*E. coli*, *Klebsiella*, other enterobacterales, *P. aeruginosa*	Ceftriaxone 1 g IV Q24H If suspicion for resistant pathogen: Cefepime 1g IV Q8H -OR- Piperacillin/tazobactam 3.375 IV Q8H	7 days (10 total if SMX/TMP or oral β-lactam)	Broader spectrum should only be used for patients with hemodynamic instability and/or prior relevant cultures demonstrating resistance
Lungs	Community acquired pneumonia (CAP)	*S. pneumoniae*, *H. influenzae*, *S. aureus*, *M. catarrhalis;* rarely atypical organisms	Ceftriaxone 1 g IV Q24H +/- Azithromycin 500 mg PO Q24H	5 days	Addition of coverage for MRSA or *P. aeruginosa* should be avoided without a history of prior relevant cultures
	Aspiration pneumonia	Oral anaerobes	Ceftriaxone 1 g IV Q24H -OR- Ampicillin/sulbactam 3g IV Q6H	5 days	Aspiration events or aspiration pneumonitis should not be treated empirically. For aspiration pneumonia, metronidazole is not needed
	Hospital acquired pneumonia (HAP)	Above plus MRSA, enterobacterales, *P. aeruginosa*	Cefepime 2g IV Q8H +/- Vancomycin per pharmacy	7 days	Pending cultures, de-escalate as soon as possible. MRSA nares PCR has excellent NPV

For complex infections please consider infectious diseases consultation

Skin	Cellulitis (non-suppurative)	*S. pyogenes* (Group A strep), *S. agalactiae* (Group B strep)	Cefazolin 2 g IV Q8H	5 days	Streptococcal cellulitis may appear to worsen for 24-48 hours on appropriate therapy; this is an expected finding rather than an indication to broaden therapy
	Abscess	*S. aureus, viridans Streptococcus* spp.	Incision and drainage; consider: Cefazolin 2 g IV Q8H -OR- Vancomycin per pharmacy	0-5 days Based on pathogen and clinical status	I&D alone may be sufficient; short course oral antibiotics indicated for drained abscess with surrounding cellulitis
	Necrotizing skin and soft tissue infections	*S. pyogenes* (Grp. A strep), *S. aureus*, *E. coli*, anaerobes	Piperacillin/tazobactam 3.375 g IV Q8H OR Ceftriaxone 1 g IV Q24H + metronidazole 500 mg IV Q12H if penicillin allergic + vancomycin per pharmacy +/- clindamycin 600 – 900 mg IV Q8H or linezolid 600 mg IV Q12H	Improvement; afebrile for 48-72 hours	If hemodynamically stable, clindamycin not needed. If linezolid for streptococcal toxin suppression, vancomycin not needed. De-escalate based on cultures
	Diabetic foot infections (including those with osteomyelitis)	*Staphylococcus* spp., S*treptococcus* spp., enterobacterales, anaerobes	Cefazolin 2g IV Q8H OR Ampicillin/sulbactam 3 g IV Q6H OR Ceftriaxone 1 g IV Q24H If ischemic limb, necrosis, gas forming: +/- Metronidazole 500 mg IV or PO Q12H If increased risk of *P. aeruginosa** Cefepime 1-2 g IV Q8H OR Piperacillin/tazobactam 3.375 g IV Q8H If increased risk for MRSA* add Vancomycin per pharmacy	7-14 days If adequate surgical debridement: 10 days If osteomyelitis with surgical source control and positive margin culture: 14-21 days	**P. aeruginosa* is an unusual pathogen in diabetic foot infections. Increased risk of clinically relevant *P. aeruginosa* with positive culture within 3 weeks or macerated wound. De-escalate as soon as possible. *MRSA risk increased with history of MRSA wound infection Ischemic limb, necrosis, or gas are NOT indications for anti-pseudomonal or MRSA activity
	Bite wounds	*Staphylococcus* spp., S*treptococcus* spp., oral anaerobes including *Pasteurella multocida,* HACEK organisms	Ampicillin/sulbactam 3 g IV Q6H OR Ceftriaxone 1 g IV Q24H +/- Metronidazole 500 mg IV or PO Q12H	7 days	HACEK: *Haemophilus, Aggregatibacter, Cardiobacterium, Eikenella, Kingella* spp.

Abdomen	Variable	*Viridans streptococcus* spp., enterobacterales, anaerobes including *B. fragilis*	Ceftriaxone 1 g IV Q24H + metronidazole 500 mg IV/PO Q12H If suspicion for resistant pathogens*: Cefepime 1-2g IV Q8H + metronidazole 500 mg IV/PO Q12H -OR- Piperacillin/tazobactam 3.375 g IV Q8H	4 days from surgical source control, otherwise dependent on clinical status	No indication for prophylactic antimicrobials for pancreatitis, even with necrosis, unless confirmed infection present *Biliary infections with anastomosis *Post-operative infections
GI tract	Odontogenic/oral	*Staphylococcus* spp., S*treptococcus* spp., oral anaerobes including *Pasteurella multocida,* HACEK organisms	Ampicillin/sulbactam 3g IV Q6H Ceftriaxone 1g IV Q24H +/- metronidazole 500 mg IV/PO Q12H Amoxicillin/clavulanate 875 mg PO BID	Dependent on source control, typically no more than 7 days	*Pseudomonas* should not be treated for empirically in odontogenic infections.
	Infectious colitis with bloody diarrhea	*Campylobacter*, shiga-toxin producing *E. coli* (STEC), *Salmonella*, *Shigella* spp.	Avoid empiric antibiotics without signs of severe sepsis due to added risk of hemolytic uremic syndrome. Ceftriaxone 1g IV Q24H (*Salmonella* or *Shigella* spp.) -OR- Azithromycin 500 mg IV/PO Q24H (C*ampylobacter* or *Shigella* spp.)	3-7 days depending on pathogen/site	Antibiotics do not alter and may worsen illness in many cases. Consider antibiotics with pathogen identification for non-STEC in immune compromised or those with severe disease. Consider ID consult for bloodstream infections with *Salmonella* spp.
	Clostridioides difficile (formerly *Clostridium difficile)*	*Clostridioides difficile* (formerly *Clostridium difficile)*	Vancomycin 125 mg PO Q6H Fulminant: vancomycin 500 mg Q6H, oral AND/OR rectal +/- metronidazole 500 mg IV Q8H	10 days	Fulminant: hypotension or shock, ileus, megacolon attributable to *C. difficile* (rare)
	H. pylori	*H. pylori*	Tetracycline 500 mg PO Q6H Metronidazole 500 mg PO Q6-8H Pantoprazole 40 mg PO Q12H Bismuth subsalicylate 262 mg PO Q6H	14 days	Other agents not recommended without susceptibility data
	SBP (confirmed by PMN or empirical in the setting of GI bleed and ascites)	*Enterobacterales,* Viridans *streptococcus*	Ceftriaxone 1g IV q24H	5 days (varices) 5-7 days (confirmed)	Stopping at resolution of hemorrhage, hospital discharge, or for PMN less than 250 on repeat sampling if less than 5 days is non-inferior for variceal bleeding
CNS	Meningitis	*S. pneumoniae,* *N. meningitidis,* *L. monocytogenes*	Ceftriaxone 2 g IV Q12H + Vancomycin per pharmacy	*N. meningitidis*: 7 days *S. pneumoniae*:	Ampicillin indicated for adults age > 50 or patients who are immune compromised or

			+/- Ampicillin 2 g IV Q4H Dexamethasone 10 mg IV Q6H	14 days *L. monocytogenes*: 21 days	pregnant. If started with or before antibiotics, continue dexamethasone for *S. pneumoniae*, consider benefit v. risk for *H. influenzae,* and stop if *L. monocytogenes*
	Encephalitis	HSV-1 and -2, VZV	Acyclovir 10 mg/kg IV Q8H	14-21 days	No specific treatment is recommended for viral meningitis
Musculoskeletal	Discitis or osteomyelitis	*S. aureus*, coagulase negative *Staphylococcus* spp., enterobacterales	Hold empiric antibiotics absent clinical suspicion for bacteremia; if indicated: Vancomycin per pharmacy +/- Ceftriaxone 2g IV Q24H	4-6 weeks	Empiric antibiotics decrease diagnostic yield of cultures if bacteremia not present. Please consult ID
	Septic arthritis	*S. aureus*, *Streptococcus* spp., *N. gonorrhoeae*	Hold empiric antibiotics absent clinical suspicion for bacteremia; if indicated: Vancomycin per pharmacy +/- Ceftriaxone 2g IV Q24H See recommendations by likely source, with hemodynamic instability if present	2-4 weeks	Empiric antibiotics decrease diagnostic yield of cultures if bacteremia not present. Please consult ID Pending cultures, de-escalate as soon as possible
Severe sepsis	See infections by likely source	See infections by likely source	See recommendations by likely source, with hemodynamic instability if present	See infections by likely source	Pending cultures, de-escalate as soon as possible
Cardiovascular	Infective endocarditis	*Streptococcus* spp., *S. aureus* (MRSA with relevant clinical history (IVDU), HACEK orgs.	If unstable: Ceftriaxone 2 g IV Q24H +/- Vancomycin per pharmacy	2-6 weeks	Empiric therapy not needed if stable; definitive treatment based on cultures appropriate, please consult ID