

Please refer to ED Sepsis Orderset and Septic Shock Guidelines for patients in septic shock

Pneumonia

See complete UH CAP Guideline and UH HAP/VAP Guidelines for more details about definitions

Consider addition of MRSA PCR swab and sputum culture for patients being admitted for pneumonia

	Recommended	Alternative	Comments
Community		Amox/clav 875 mg PO Q12H for 5 days AND	*Doxycycline 100 mg PO Q12H x 5 days can be
Outpatient	Cefuroxime 500 mg PO Q12H for 5 days <u>AND</u> azithromycin 500 mg* PO daily for 3 days (5 days for patients with comorbidities: chronic heart, liver, lung, renal disease; diabetes, alcoholism, malignancy, or asplenia)	azithromycin 500 mg* PO daily for 3 days (5 days for patients with comorbidities: chronic heart, liver, lung, renal disease; diabetes, alcoholism, malignancy, or asplenia) Levofloxacin 750 mg PO daily for 5 days	substituted in cases where patients cannot receive azithromycin (ex. Prolonged QTc) Order S. pneumoniae and Legionella urine antigen in severe/critically ill cases
Aspiration	Ceftriaxone 2 g IV	Levollokaciii 750 ilig PO daliy ioi 5 days	
*treatment only indicated for large inoculum of oropharyngeal or upper GI flora with fever	=	obes is no longer recommended unless lung abscess or	Antibiotics not indicated for chemical pneumonitis or bland aspiration
Non-Severe	Ceftriaxone 2 g IV AND azithromycin 500 mg IV	Levofloxacin 750 mg IV	
<u>Inpatient</u>	Pseudomonas Risk (see criteria in right column)		
	Cefepime 2 g IV <u>AND</u> azithromycin 500 mg IV ^{††} <u>ADD</u> metronidazole 500 mg IV (if lung abscess, empyema, necrotizing process, or aspiration with severe periodontal disease)	Pip/tazo 4.5 g IV <u>AND</u> azithromycin 500 mg IV	†Pseudomonas risk factors: prior history of Pseudomonas infection, structural lung disease, severe COPD/multiple COPD admissions, bronchiectasis, prior IV antibiotics within 90 days ††Doxycycline 100 mg IV can be substituted in cases where patients cannot receive azithromycin
	MRSA Risk (see criteria in right column) ¶		
	ADD of vancomycin 25 mg/kg to above regimen		[¶] MRSA Risk Factors: History of MRSA infection, hemodialysis, hemoptysis, recent influenza infection, neutropenia from infectious source, necrotizing pneumonia or cavitary infiltrate
Severe /Nosocomial Severe Criteria Minor (≥ 3 minor criteria) - RR ≥ 30 - PaO2/FiO2 ≤ 250 - Altered - Uremia (BUN ≥20) - WBC ≤ 4,000 - Platelets ≤ 100,000 - Temp ≤ 36 C - Hypotension Major (≥ 1 major criteria) - Mechanical ventilation - Hypotension requiring vasopressors	Cefepime 2g IV <u>AND</u> azithromycin 500 mg IV [§] <u>AND</u> vancomycin 25mg/kg <u>ADD</u> metronidazole 500 mg IV (if lung abscess, empyema, necrotizing process, or aspiration with severe periodontal disease)	Pip/tazo 4.5 g IV <u>AND</u> azithromycin 500 mg IV [§] <u>AND</u> vancomycin 25mg/kg Levofloxacin 750mg IV <u>AND</u> vancomycin 25mg/kg <u>ADD</u> metronidazole 500 mg IV (if lung abscess, empyema, necrotizing process, or aspiration with severe periodontal disease)	§Doxycycline 100 mg IV can be substituted in cases where patients cannot receive azithromycin



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Urinary Tract Infection

See <u>UH UTI Guidelines</u> for more information on continued treatment For ESBL + cultures, see ED ESBL Culture Follow-up Guideline

	Recommended	Alternative*	Comments
Uncomplicated cystitis- FEMALE Inpatient/Outpatient - Symptomatic bladder infection characterized by dysuria, frequency, urgency, or suprapubic tenderness of the lower urinary tract - No evidence of fever, chills or flank pain, and NO STD risk	Nitrofurantoin 100mg PO Q12H for 5 days (avoid in 1st and 3rd trimester pregnancy) Amox/clav 500 mg Q12H x 5 days (avoid in pregnancy)	Cefuroxime 500 mg PO Q12H x 5 days (OK in pregnancy) Gentamicin 5 mg/kg IV (using adjusted body weight in obesity) x 1 - Avoid in pregnancy and renal dysfunction	Do NOT treat asymptomatic patients, unless pregnant, neutropenic or about to undergo urologic procedure Do NOT order urine cultures for asymptomatic patients
Uncomplicated cystitis- MALE Outpatient	Cefpodoxime 200 mg PO Q12H x 7 days	Ciprofloxacin 500 mg PO Q12H x 7 days	Order urine culture for follow-up Regimens will not cover <i>Enterococcus</i> and/or <i>Pseudomonas</i> which are common organisms in complicated UTI
Uncomplicated pyelonephritis Inpatient Renal infection characterized by CVA pain and tenderness, often with fever	Ceftriaxone 2 g IV x 5-7 days (ОК in pregnancy)	Ciprofloxacin 400 mg IV (avoid in pregnancy)	Order urine culture
Uncomplicated pyelonephritis Outpatient - All patients should receive at least one dose of IV antibiotics (above) prior to discharge	Ceftriaxone 2 g IV <u>followed by</u> Rx for: - Cefuroxime 500 mg PO Q12H x 10 days (OK in pregnancy) <u>OR</u> - Cefpodoxime 200 mg PO Q12H x 10 days (OK in pregnancy)	Levofloxacin 750 mg PO daily for 5 days (avoid in pregnancy) <u>OR</u> Ciprofloxacin 500 mg PO Q12H for 7 days (avoid in pregnancy) Ceftriaxone 2 g IV <u>followed by</u> Rx for: - TMP/SMX 800/160 mg PO Q12H for 10 days (avoid in pregnancy)	Order urine culture Recommend follow up cultures due to <i>E.coli</i> resistance
Complicated Inpatient Symptomatic urinary infection in individuals with functional or structural abnormalities of the genitourinary tract	Pip/tazo 4.5 g IV (OK in pregnancy) Cefepime 2 g IV <u>AND</u> vancomycin 15 mg/kg IV (OK in pregnancy)	ESBL: meropenem 1 g IV	
Asymptomatic bacteriuria (pregnancy ONLY)	Cefuroxime 500 mg PO Q12H x 5 days (OK in pregnancy)	Nitrofurantoin 100 mg PO Q12H for 5 days (avoid in 1st and 3rd trimester pregnancy)	



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Fever and Neutropenia

	Recommended	Alternative	Comments
Inpatient - Anticipated, profound or	Cefepime 2 g IV <u>AND</u> metronidazole 500 mg IV (if GI source suspicion)	Pip/tazo 4.5 g IV	
prolonged neutropenia	MRSA Risk (see criteria)# - not recommended as standard part of empiric antibiotic regimen for		or febrile neutropenia
(ANC < 100 or ANC < 500 for >7 days)	ADD of vancomy	ycin 25 mg/kg IV	#Risk factors: indwelling catheter, suspected skin/soft tissue infection or mucositis, clinically unstable, history of MRSA colonization or gram-positive bacteremia, pneumonia documented radiographically

CNS Infection

	Recommended	Alternative	Comments
Nosocomial, post trauma, or neurosurgical	Dexamethasone 10 mg IV (prior to antibiotics) AND Ceftriaxone 2 g IV AND vancomycin 25 mg/kg ADD ampicillin 2 g IV if immunocompromised, alcoholism, age > 50 years, pregnancy ADD acyclovir 10 mg/kg IV (adjusted body weight if obese) if suspicion for HSV encephalitis Dexamethasone 10 mg IV (prior to antibiotics) AND cefepime 2 g IV AND vancomycin 25 mg/kg ADD acyclovir 10 mg/kg IV (adjusted body weight	Dexamethasone 10 mg IV (prior to antibiotics) AND meropenem 2 g IV AND vancomycin 25 mg/kg IV ADD acyclovir 10 mg/kg IV (adjusted body weight if obese) if suspicion for HSV encephalitis	Comments
	if obese) if suspicion for HSV encephalitis		



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Non- Purulent Skin and Soft Tissue

See UH SSTI Guidelines for more information on continued treatment

	Recommended	Alternative	Comments	
Mild Inpatient & outpatient - Cellulitis with no focus of purulence and no systemic signs of infection	Cephalexin 1,000 mg PO Q8H for 5 days* (if compliance is a concern)— extend to 7-10 days if immunocompromised Amox/clav 875 mg PO Q12H for 5 days* (extend to 7-10 days if immunocompromised)	Clindamycin 300 mg PO Q6H for 5 days <u>OR</u> 450 mg PO Q8H (if able to tolerate) (extend to 7-10 days if immunocompromised)	*If risk factors for MRSA (IVDU, history of MRSA): <u>ADD</u> TMP/SMX 2 DS PO Q12H <u>OR</u> doxycycline 100 mg PO Q12H	
Moderate	Cefazolin 1 g IV (2 g if > 80 kg or PVD)	Clindamycin 600 mg IV		
Inpatient	MRSA Risk (see criteria) [†]			
- Cellulitis and systemic signs of infections	vancomycin 15 mg/kg IV (monotherapy, cefazolin not needed as vancomycin will cover appropriate bugs)	No additional antibiotic needed if initial treatment is clindamycin	[†] Risk factors: IVDU, history of MRSA	
Severe	Cefepime 2g IV <u>AND</u> vancomycin 25mg/kg			
<u>Inpatient</u>	ADD metronidazole 500 mg IV ^{††}	Meropenem 2 g IV <u>AND</u> vancomycin 20	†† ADD clindamycin 900 mg IV if suspected	
 Failed PO antibiotics OR septic OR immunocompromised OR clinical signs of deeper infection (bullae, skin sloughing, hypotension) OR evidence of organ dysfunction 	Pip/tazo 4.5 g IV <u>AND</u> vancomycin 20 mg/kg IV ^{††}	mg/kg IV ^{††}	necrotizing fasciitis	

Purulent Skin and Soft Tissue

	Recommended	Alternative	Comments	
Supportive infection (<2 cm) without signs of infection or surrounding erythema	I&D, no additional antibiotics recommended Consider treatment with below agents if (1) severe disease (2) rapid progression (3) signs/symptoms of systemic illness (4) extreme age (5) septic phlebitis (6) sensitive area (7) lack of response to I&D			
Moderate				
Outpatient - Purulent infection (> 2 cm) and systemic signs of infection	TMP/SMX 2 DS tablet PO Q12H for 5 days [©]	Clindamycin 300 mg PO Q6H (preferred in	€ If concurrent cellulitis: <u>ADD</u> cephalexin 1,000 mg PO Q8H for 5 days (if compliance is	
or (1) severe disease (2) rapid progression (3) extreme age (4) septic phlebitis (5) sensitive area (6) lack of response to I&D	Doxycycline 100 mg PO/IV Q12H for 5 days [€] pregnancy)		a concern)	
Moderate		Linezolid 600 mg PO/IV	Daptomycin and linezolid restricted to ID	
<u>Inpatient</u>	Vancomycin 20 mg/kg	Elliczolia ddo Hig i O/TV	approval and only for severe vancomycin	
 Purulent infection (>2 cm) and systemic signs of infections 	or or year of o	Daptomycin 8 mg/kg IV	allergy (anaphylaxis)	
Severe	Cefepime 2g IV <u>AND</u> vancomycin 25mg/kg			
Inpatient - Failed I&D and PO antibiotics OR septic OR	ADD metronidazole 500 mg IV	Meropenem 2 g IV <u>AND</u> vancomycin 25	††ADD clindamycin 900 mg IV if suspected	
immunocompromised	Pip/tazo 4.5 g IV <u>AND</u> vancomycin 20 mg/kg IV ^{††}	mg/kg IV ^{††}	necrotizing fasciitis	



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Diabetic Foot Infection

See **UH DFI Guidelines** for more information on continued treatment

X-ray should be done for all new diabetic foot infections including: deformity, bony destruction, soft tissue gas, foreign body Patients with findings suggestive of osteomyelitis should undergone debridement with bone culture prior to antibiotics if patient is stable

Alternative Recommended Comments Mild Amox/clav 875 mg PO Q12H for 5 days Cephalexin 1,000 mg PO Q8H for 10 Patient should have close outpatient Inpatient & outpatient days (if compliance is a concern) follow up Local infection only involving the skin and Clindamycin 300 mg PO Q8H for 10 days subcutaneous tissue, no involvement of deeper MRSA Risk (see criteria)** tissue or SIRS criteria; erythema 0.5 to 2 cm **Risk factors: history of MRSA, prior long-term ADD TMP/SMX 2 DS PO Q12H for 10 around ulcer Additional coverage not necessary if antibiotics, previous hospitalization, osteomyelitis, days OR Doxycycline 100 mg PO Q12H treating with clindamycin nasal carrier of MRSA, jailed inmates, military for 10 days personnel, IVDU, MSM Moderate Patient should have close outpatient Amox/clav 875 mg PO Q12H for 10 days Levofloxacin 750 mg PO daily Outpatient follow up MRSA Risk (see criteria)** **Risk factors: history of MRSA, prior long-term ADD TMP/SMX 2 DS PO Q12H for 10 ADD clindamycin 300 mg PO Q8H for 10 antibiotics, previous hospitalization, concern for days OR Doxycycline 100 mg PO Q12H osteomyelitis, nasal carrier of MRSA, jailed days for 10 days inmates, military personnel, IVDU, MSM Ceftriaxone 2 g IV AND metronidazole Moderate 500 mg IV/PO +/- vancomycin 20 mg/kg Inpatient Levofloxacin 750 mg IV AND **Risk factors: history of MRSA, prior long-term IV (if MRSA risk factors)** Local infection with erythema > 2 cm erythema, metronidazole 500 mg IV/PO +/antibiotics, previous hospitalization, concern for osteomyelitis, or mild infection with abscess osteomyelitis, nasal carrier of MRSA, jailed vancomycin 20 mg/kg IV (if MRSA risk Not septic Ampicillin/sulbactam 3 g IV +/inmates, military personnel, IVDU, MSM factors)** vancomycin 20 mg/kg IV (if MRSA risk factors)** Pip/tazo 4.5 g IV AND vancomycin 25 Severe Cefepime 2 g IV AND metronidazole 500 mg/kg IV Inpatient mg IV AND vancomycin 25 mg/kg IV Local infection with sepsis Levofloxacin 750 mg IV AND metronidazole 500 mg IV AND vancomycin 25 mg/kg IV



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Animal (Cat or Dog) and Human Bites

		Recommended	Alternative	Comments
Dog Bite Prophylaxis indicated for: - Immunocompromised - Asplenia - Advanced liver disease - Edema in affected area - Injury to hand/face - Injuries that may have penetrated periosteum or joint capsule DO NOT give prophylaxis if not indicated,	Outpatient	Amox/clav 875 mg PO Q12H for 5 days Cefuroxime 500 mg PO Q12H for 5 days AND metronidazole 500 mg PO Q8H for 5 days#	Doxycycline 100 mg PO Q12H for 5 days Levofloxacin 750 mg PO daily for 5 days AND clindamycin 300 mg PO Q6H for 5 days	#If patient cannot tolerate metronidazole, consider addition of clindamycin 300 mg
as above Cat Bite - Always treat with prophylaxis ≤ 5 days Human Bite - Always treat with prophylaxis ≤ 5 days	Inpatient	Ampicillin/sulbactam 3 g IV Ceftriaxone 1 g IV <u>AND</u> metronidazole 500 mg IV	PCN allergy: Levofloxacin 750 mg IV <u>AND</u> clindamycin 600mg IV Q8H	instead Consider risk of tetanus and/or rabies exposure



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Sexually Transmitted Diseases/Genital Tract Infection

See 2021 new CDC Recommendations

		Recommended	Alternative*	Comments
Gonorrhea/Chlar	nydia	Ceftriaxone 500mg IM once (ceftriaxone 1 g IM once if patient > 150 kg) AND doxycycline 100 mg PO Q12H x 7 days (during pregnancy, azithromycin 1 g PO as a single dose is recommended)	If compliance is a major concern: ceftriaxone 500 mg IM once <u>AND</u> azithromycin 1g PO once (not recommended for MSM or rectal G/C) Gentamicin 240mg IM once <u>AND</u> azithromycin 2g PO once	Test of cure recommended for alternative regimens Empiric treatment should cover both gonorrhea and chlamydia
Pelvic inflammatory disease	Inpatient	Ceftriaxone 1 g IV <u>AND</u> doxycycline 100mg PO <u>AND</u> metronidazole 500mg PO/IV	Amp/sulbactam 3g IV <u>AND</u> doxycycline 100mg Clindamycin 900 mg IV <u>AND</u> gentamicin 5 mg/kg IV (using adjusted body weight in obesity)	
	<u>Outpatient</u>	Ceftriaxone 500mg IM once (ceftriaxone 1 g IM once if patient > 150 kg) <u>AND</u> doxycycline 100mg PO Q12H for 14 days <u>AND</u> metronidazole 500mg PO Q12H for 14 days	Levofloxacin 500mg PO daily for 14 days <u>AND</u> metronidazole 500mg PO Q12H for 14 days	
Trichomoniasis		Female: Metronidazole 500mg PO Q12H for 7 days Male: Metronidazole 2g PO once	Tinidazole 2g PO once (non-formulary)	
Bacterial vaginos	is	Metronidazole 500mg PO Q12H for 7 days	Clindamycin 300mg PO Q12H for 7 days (preferred for pregnancy)	
Herpes simplex, a	genital	Initial episode: Valacyclovir 1g PO Q12H for 7 days (10 days in immunocompromised) Recurrence: valacyclovir 1g PO Q12H for 5 days OR valacyclovir 500mg PO Q12H for 3 days	Initial episode: Acyclovir 400mg PO Q8H for 7 days (10 days in immunocompromised) Recurrence: Acyclovir 800mg PO Q12H for 5 days OR acyclovir 800mg PO Q8H for 3 days	Consider discharging patient with valacyclovir for better compliance (however, may be more expensive without insurance)
Epididymitis- orchitis/Bacteria	l Prostatitis	Most likely caused by sexually transmitted chlamydia/gonorrhea: Ceftriaxone 500mg IM once (ceftriaxone 1 g IM once if patient > 150 kg) AND doxycycline 100mg PO Q12H for 10 days Most likely caused by sexually transmitted chlamydia/gonorrhea and enteric organisms (men who practice insertive anal sex): Ceftriaxone 500mg IM once (ceftriaxone 1 g IM once if patient > 150 kg) AND Levofloxacin 500mg PO daily for 10 days (750 mg PO daily if patient BMI > 40) Most likely caused enteric organisms only: Levofloxacin 500mg PO daily for 10 days (750 mg PO daily if patient BMI > 40)	Call ID	Order <i>Chlamydia</i> And <i>N. Gonorr</i> PCR on all patients



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Intra-abdominal Infection

		Recommended	Alternative	Comments
Mild-Moderate Community-	<u>Inpatient</u>	Ceftriaxone 2 g IV <u>AND</u> metronidazole 500 mg IV	Ciprofloxacin 400 mg IV <u>AND</u> metronidazole 500 mg IV	
Acquired Infections Abscessed appendicitis, diverticulitis, cholecystitis, cholangitis, common duct obstruction	Outpatient	Cefuroxime 500 mg PO Q12H for 5 days <u>AND</u> metronidazole 500 mg PO Q8H for 5 days	Ciprofloxacin 500 mg PO Q12H <u>AND</u> metronidazole 500 mg PO Q8H for 5 days	
Severe Community-Acquired Infect	ions			
Inpatient - Patients with co-morbidities, organ dysfunction, poor nutritional status, immunosuppression, malignancy, severe physiological disturbance, APACHE > 15 prolonged antibiotic therapy, advanced age, inability to achieve source control, and prolonged hospital stay prior to source control - Necrotizing pancreatitis		Cefepime 2 g IV <u>AND</u> metronidazole 500 mg IV <u>AND</u> vancomycin 25 mg/kg IV	Pip/tazo 4.5 g IV <u>AND</u> vancomycin 25 mg/kg IV (if MRSA risk factors)* Ciprofloxacin 400 mg IV <u>AND</u> metronidazole 500 mg IV <u>AND</u> vancomycin 25 mg/kg IV	*MRSA risk factors: history of MRSA, prior treatment failure, significant antibiotic exposure
Healthcare Associated Infection Inpatient - Presence of an invasive device at time of admission; history of MRSA infection or colonization; history of surgery, hospitalization, dialysis, or residence in a long- term care facility in the preceding 12 months; positive culture results from a normally sterile site obtained		Cefepime 2 g IV <u>AND</u> metronidazole 500 mg IV <u>AND</u> vancomycin 25 mg/kg IV (if MRSA risk factors)*	Pip/tazo 4.5 g IV <u>AND</u> vancomycin 25 mg/kg IV (if MRSA risk factors)* Ciprofloxacin 400 mg IV <u>AND</u> metronidazole 500 mg IV <u>AND</u> vancomycin 25 mg/kg IV	*MRSA risk factors: history of MRSA, prior treatment failure, significant antibiotic exposure
Spontaneous Bacterial Peritonitis		Ceftriaxone 2 g IV	Levofloxacin 750mg IV	



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C. difficile Infection

See complete <u>UH Adult C. Difficile Infection Guideline</u>

	Recommended	
Non-fulminant	Initial episode: vancomycin 125 mg PO/NG Q6H x 10 days	
- Diarrhea (3 or mote watery stools in 24 hours) with history of recent antibiotics (within the past 3 months)	First recurrence: vancomycin 125 mg PO/NG Q6H x 10 days	
	Second recurrence: Vancomycin PO taper	
	1. 125 mg PO Q6H x 14 days	
	2. 125 mg PO Q12H x 7 days	
	3. 125mg PO Q24H x7 days	
	4. 125 mg PO every other day x 8 days	
	5. 125 mg PO every third day x 15 days	If the patient is currently on
	Third recurrence & beyond: consider fecal microbiota transplantation	antibiotics, consider extending the treatment
Fulminant - Hypotension - Shock - Toxic megacolon or pancolitis - ICU admission for severe disease - Need for colectomy - Perforation	Vancomycin 500mg PO/NG Q6H <u>AND</u> metronidazole 500mg IV Q8H x 14 days	course 7 days beyond the current course of treatment, whichever is longer
Fulminant with ileus/toxic megacolon/high risk for perforation	Vancomycin 500mg PO/NG Q6H <u>AND</u> metronidazole 500mg IV Q8H <u>AND</u> vancomycin 500mg retention enema in 100mL NS	
Clinical evidence of ileus includes constipation and abdominal distension	Consider consultation with surgery and infection disease services	