Skin & Soft Tissue Infection

Syndrome	Regimen
Uncomplicated Cellulitis OR Diabetic Foot Infection *Purulent = S. aureus* *Non-purulent, streaky/diffuse = Strep* *Note local high MRSA prevalence	**MRSA**: **PO**: Bactrim 1-2 DS tabs, *OR* Doxycycline 100mg, *OR* Clindamycin 600mg **IV**: Vancomycin 15-20mg/kg **MSSA**: **PO:** Dicloxacillin 500mg, OR Cephalexin 500mg, OR Amox/clav 500-875/125mg **IV:** Cefazolin 1-2g **Strep**: **PO**: Cephalexin 500mg, OR Amox 500mg **IV:** Cefazolin 1-2g OR Ampicillin/sulbactam 1.5-3g (for anaerobic coverage if needed)
Severe Soft Tissue, *OR* Complicated Diabetic Foot	Limb threatening, h/o MDRO or prior abx, toxic: Vancomycin 15-20m/kg IV + Piperacillin/tazobactam 2.25-4.5g IV
Suspect Necrotizing Infection	Call Surgery/ID consult, add **Clindamycin 900mg** IV to severe regimen (refine later based on cultures)

Clostridium difficile Infection (CDI)

Obtain CBC, BMP, abdominal Xray or CT if ileus, stool *C.diff,* **STOP** unnecessary PPI, antibiotics, laxatives; *surgery/GI/ID consult recommended for severe or fulminant disease*

First episode: PO Vancomycin 125mg every 6 hours (mild to moderate disease)

- ***Severe disease:*** age >60, Temp > 101℉, WBC count >15K, ↓HCO_3-, AKI, extensive colitis on CT, SBO/distension or ileus, ↑ creatinine, albumin <2.5mg/dL; add IV Metronidazole 500mg q8h and consider higher dose of PO Vancomycin

Fulminant disease (ileus, hypotension, multi-organ failure, megacolon, ICU status): **PO vancomycin 500mg, PR vancomycin 500mg, IV metronidazole 500mg q8h**

Intra-abdominal Infection (non-CDI):

Community acquired: IV Ceftriaxone 1g + IV/PO Metronidazole 500mg, OR Cefoxitin 1-2g +/- IV/PO Metronidazole 500mg, OR Ciprofloxacin 500mg PO/400mg IV + Metronidazole 500mg (severe PCN allergy)

Risk for MDROs: IV Piperacillin/tazobactam 2.25-4.5g (IV Aztreonam + Metronidazole if severe PCN allergy)

Meningitis/Encephalitis

LP, blood cultures, CT/MRI; ID consult recommended

Meningitis:

- Age < 60 AND normal host immunity: Vancomycin 15-20mg/kg x 1 IV + Ceftriaxone 2g IV
- Age >60 OR Immunosuppressed: Vancomycin 15-20mg/kg x 1 IV + Ceftriaxone 2g IV + Ampicillin 2g IV

Suspect HSV Encephalitis
IV Acyclovir 10 mg/kg IBW (max 800mg)

Anaphylaxis to Penicillin: Vancomycin 15-20mg/kg IV + Levofloxacin 750mg IV or Ciprofloxacin 400mg IV

Neutropenic Fever

Look for focal sx/signs on exam and history, blood cultures, UA/UCx, CXR

Treatment: Cefepime 2g IV

MMC Criteria for adding IV Vancomycin

- Blood cultures positive for GP organisms
- Clinically suspect catheter or skin source (cellulitis, chills with infusion through catheter)
- h/o MRSA or other MDRO infection
- Infiltrate on CXR
- Severe sepsis or hemodynamic instability

Severe illness: Can add Gentamicin 5-7 mg/kg x 1 IV IBW

Severe Penicillin allergy
Aztreonam 1-2g IV +/- Gentamicin 5-7mg/kg IV IBW (enhanced coverage of MDROs) + Vancomycin 15-20mg/kg IV (GP coverage)
**for intra-abdominal source, can add metronidazole 500mg IV*

Catheter-associated Bloodstream Infection

Send at least 2 sets of blood cultures (culprit line and peripheral blood), remove line and send tip for culture

Treatment
IV Vancomycin 15-20mg/kg + Cefepime 1-2g +/- Gentamicin 5-7mg/kg IBW x 1 (if sepsis or h/o MDRO);

If HD OR severe PCN allergy: IV Vancomycin 15-20mg/kg + Gentamicin 5-7mg/kg IV IBW x 1

**If endocarditis suspected remove line and consult ID!*

UTI

Change foley, UA/UCx, U/S of kidneys if suspect pyelo or obstruction, BCx if febrile

Cystitis

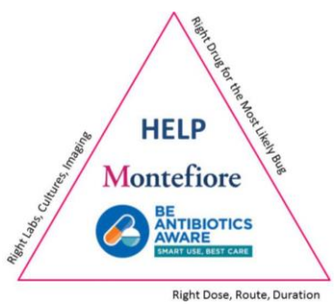
Cephalexin 500mg PO, **OR** TMP/SMX 1 DS tab PO, **OR** Nitrofurantoin 100mg PO (for CrCl >30ml/min), **OR** Ceftriaxone 1g IV

Severe PCN allergy: Ciprofloxacin 500mg PO **OR**, TMP/SMX 1 DS tab PO

Complicated UTI/pyelonephritis (without h/o MDRO)
Ceftriaxone 1g IV

Severe Illness OR h/o MDRO
Cefepime 1-2g IV +/- Gentamicin 3mg/kg IV IBW x1

Anaphylaxis to Penicillin Gentamicin 3mg/kg IV IBW, OR Aztreonam 1-2g IV, OR Ciprofloxacin 400mg IV (if from home ONLY)



Version 2018

Montefiore
HEALTH SYSTEM, INC.

Antimicrobial Stewardship Program

Empiric Guide for Antibiotic Initiation, Adult Inpatients

Moses/Einstein

Notes:

- **This is not intended to replace clinical judgment**
- **ID assistance recommended for severely compromised hosts, pregnancy, organ transplant, etc.**
  - **Dose and frequency may depend on renal function and weight** (e.g. IV vancomycin, gentamicin, acyclovir, SMX/TMP, etc.)
- Always send 8-10cc/ blood cx bottle
- Look at prior micro results to help guide you
- MDRO = multidrug resistant organism
- PCN = penicillin
- Recommendations may be amended for drug shortages

Take an antibiotic time out at 48-72hrs
Is this antibiotic still needed? Can it be narrowed or switched to PO? How long do I plan to treat?

Clarifying an Allergy

Non-IgE mediated penicillin reaction: non-urticarial rash, injection site reaction, unknown/remote reaction (hard to forget anaphylaxis!)

IgE mediated/immediate hypersensitivity reaction: requires prior drug exposure) urticarial rash, dyspnea, hoarseness, bronchospasm, facial/tongue swelling, anaphylaxis

- Loss of IgE occurs each decade
- PCN-cephalosporin cross reactivity rate: ≤ 5%; depends on side chains; benefit of cephalosporin may outweigh risk
- Take opportunity to challenge while in monitored setting; look back at administered meds from prior admits to see if β-lactam even given

Aspiration

Serial CXR, CBC, sputum culture

If treatment required (often caused by chemical irritation, not infectious process)
Amoxicillin/clavulante 500-875/125mg PO, **OR** Ampicillin/sulbactam 1.5-3g IV, **OR** Clindamycin 600mg IV, **OR** doxycycline 100mg PO; ~3-5 days duration

Influenza

Rapid influenza/RSV PCR, CXR

Treatment: For patients at high risk for severe disease & complications; sx onset w/in 48-72h

Oseltamivir 75mg PO (Q12h dosing for CrCl ≥ 60ml/min), 30mg PO (Q12h dosing if CrCl 30-59 ml/min; Q24h if CrCl ≤ 29ml/min)

Community Acquired Pneumonia

CBC, CXR, Urine Ag for *Legionella/S. pneumoniae*, sputum culture, influenza PCR if in season

Hospitalized, non-severe
Ceftriaxone 1g IV + Azithromycin 500mg PO (stop if Legionella Ag neg); Levofloxacin 500mg PO if anaphylaxis to Penicillin

Severe CAP/ICU
Ceftriaxone 1g IV + Azithromycin 500mg IV + Vancomycin 15-20mg/kg IV

Severe CAP, Anaphylaxis to Penicillin
Levofloxacin 500mg IV + Vancomycin 15-20mg/kg

COPD Exacerbation

GOLD Criteria for Antibiotics
1) Sputum purulence and either increased sputum volume or dyspnea **OR**
2) Severe disease requiring positive pressure ventilation

Mild: Doxycycline 100mg **OR** Azithromycin 500mg

Moderate:
PO: Amoxicillin/clavulanate 500-875/125mg, **OR** Levofloxacin 500mg (severe PCN allergy)

IV: Ampicillin/sulbactam 1.5-3g, **OR** Ceftriaxone 1g, **OR** Levofloxacin 500mg (severe PCN allergy)

Severe + Risk Factors for MDROs: Anti-Pseudomonal β-lactam (i.e. Cefepime, Pip/Taz; see HCAP below), **OR** levofloxacin 750mg IV (severe PCN allergy)

Hospital Acquired Pneumonia

Sputum culture, CXR or CT thorax

***Healthcare-associated PNA (HCAP):** milder cases can be treated like CAP; severe cases should be treated as HAP/VAP

ATS-IDSA Risk Factors for MDROs (use criteria as a guide; not all patients require broad spectrum antibiotics):
- ❖ IV antibiotic use within 90d
- ❖ Current inpatient stay at least 5d
- ❖ Septic shock or ARDS at time of VAP
- ❖ Acute renal replacement therapy prior to VAP

Mild Disease/Limited Healthcare Exposure
Ceftriaxone 1g +/- Vancomycin 15-20mg/kg x IV

Severe Disease/VAP
Vancomycin 15-20mg/kg x IV + either Cefepime 1-2g IV **OR** Piperacillin/tazobactam 2.25-4.5g IV; ***add Gentamicin*** *5-7mg/kg x1 IV IBW for severe illness or h/o MDRO*

Anaphylaxis to Penicillin: Vancomycin 15-20mg/kg x IV + either Aztreonam 1-2g IV **OR** Ciprofloxacin 400mg IV (anti-pseudomonal quinolone); ***add Gentamicin*** *5-7mg/kg x 1 IV IBW for severe illness or h/o MDRO*

Antibiotic Durations
(variations may apply; consult ID if additional guidance needed)

Syndrome	Duration
COPD exacerbation, meets criteria for antibiotics	3-5 days
CAP	5-7 days
Complicated CAP (empyema, bacteremic S. aureus PNA, abscess, legionella)	Duration variable up to several weeks (ID consult recommended); 7-21 days for Legionella based on severity
HAP/VAP (empiric treatment OR isolation of specific pathogen such as MRSA, Pseudomonas, MDRO, etc.) [See IDSA/ATS 2016 HAP/VAP guidelines for details]	Approximately 7 days (ID input suggested for complicated cases or if double coverage being considered)
Bacterial Meningitis	7-21 days depending on organism isolated (ID consult recommended)
HSV Encephalitis	14-21 days (ID consult recommended)
Catheter-related bloodstream infection (catheter removal recommended for source control) For *Staph aureus,* Pseudomonas, Yeast, and/or recurrent bacteremias – ID consult recommended	**CoNS**: 5-7 days if transient ***S. aureus***: up to 4-6 weeks **GNB** (not Pseudomonas): 7-14 days if neg BCx and source controlled ***Candida spp.*:** at least 14 days from first neg BCx
Influenza	Oseltamivir 5 days; up to 7-10 days only if critically ill
Uncomplicated UTI Pyelonephritis/complex UTI	3-5 days 7-10 days; ≥14 days if abscess (ID consult rec.)
Intra-abdominal source	4-7 days **if source controlled**
Skin and Soft Tissue (if discrete lesion drained, often no further abx needed)	Pathogen/case specific; 5 to ≥ 14 days if systemic illness, deep infection, non-healing, unusual pathogen, compromised host – ID and Surgery input suggested
Neutropenic fever (ID consult suggested)	Hold Abx once afebrile ≥ 48h with negative cultures, resolving neutropenia; if documented source, treat accordingly for site and organism
C. difficile colitis	Initial episode & 1st recurrence: 10 days 2nd recurrence: PO Vancomycin x 14 days, then taper over several weeks – see ASP homepage for details