

**\*ID consultation recommended for mod-severe or complicated infections**

## EMPIRIC CHOICES

- ✦ **Not infected** – Do not treat (not all foot ulcers in diabetics are infected and absence of purulence or other features of inflammation make infection unlikely)
- ✦ **Cellulitis** (without ulcer) – cefazolin 1 g iv q8h or cephalexin 500 mg p.o. QID
- ✦ **Mild to Moderate** – cefazolin 1-2 g iv q8h or cephalexin 500 mg p.o. QID
- ✦ **Severe** – several options, choice depends on concern for MDR pathogens; choose one of following:
  - ceftriaxone + metronidazole
  - piperacillin-tazobactam 4.5 g iv q8h +/- vancomycin
  - meropenem +/- vancomycin
  - **NB:** vancomycin can be discontinued if patient is not colonized with MRSA
- ✦ **Chronic** – usually requires more formal evaluation to allow targeted therapy, ID consultation recommended

## ROUTE

- ✦ Initial therapy intravenously if moderate to severe, oral step-down if improving and reliable oral option

## DURATION

- ✦ Duration guided by clinical response, with shorter courses being sufficient for quick to respond infections
  - **Cellulitis** – 5-7 days
  - **Mild to Moderate** – 5-14 days
  - **Severe** – 7-14 days
  - **Underlying osteomyelitis** – 6 weeks

## DOSAGE ADJUSTMENTS

- ✦ Concurrent renal disease is common, dosage adjustments depend on antimicrobial agent
- ✦ Higher doses (e.g., cefazolin 2 g q8h or cephalexin 750-1000mg p.o. qid) may be required for patients with elevated BMI ( $\geq 30$ )

## MOST COMMON ORGANISMS

- ✦ Mild to Moderate
  - *S. aureus*,  $\beta$ -hemolytic streptococci
- ✦ Severe or Chronic
  - Gram-positives (e.g., *S. aureus*,  $\beta$ -hemolytic streptococci), Gram-negatives, anaerobes
  - Increased risk for resistant pathogens (e.g., MRSA, *P. aeruginosa*, MDR gram-negatives)

## CURRENT RESISTANCE ISSUES

- ✦ Patients with chronic infections and multiple prior courses of antibiotics are more likely to have polymicrobial infections
- ✦ Patients colonized with resistant organisms (e.g., MRSA, ESBL/AMP-C producers) may require coverage for these pathogens; however, these organisms may simply colonize wound rather than cause infection

## IMMUNOCOMPROMISED HOST CONSIDERATION

- ✦ Similar empiric coverage

## ADDITIONAL DIAGNOSTIC AND THERAPEUTIC COMMENTS

- ✦ Superficial swabs of wound are **NOT** recommended and are prone to contamination with colonizing organisms
- ✦ When possible, sterile wound cultures should be obtained prior to starting antibiotics when multiple pathogens or osteomyelitis is suspected
- ✦ Imaging to confirm osteomyelitis – foot X-ray; MRI or bone/gallium scan if inconclusive; CT imaging may also be of benefit
- ✦ Management includes multidisciplinary approach: wound care and debridement as needed, pressure off-loading, chiropody, improved glycemic control, formal vascular evaluation of limb (+/- Vascular Surgery assessment)
- ✦ Infections in those with poor vascular supply may have higher rates of treatment failure with Abx alone

**Table 1:** Classification of severity and microbiological considerations in diabetic foot infection<sup>1,2</sup>

Severity	Characteristics	Common causative pathogens
<b>Mild</b>		
Local infection involving epidermis and subcutaneous tissue	Local signs of inflammation in the absence of systemic signs and symptoms	Aerobic gram-positive cocci
<b>Moderate</b>		
Infection involving tissue deeper than epidermis and subcutaneous tissue	Local signs of inflammation with erythema > 2 cm in the absence of systemic signs	Acute, less extensive: aerobic gram-positive cocci Chronic, more extensive: gram-positive and gram-negative organisms, anaerobes
<b>Severe</b>		
Local infection with signs of systemic inflammatory response syndrome*	Hemodynamic compromise, metabolic disturbances (severe hyperglycemia, new onset renal insufficiency)	Gram-positive organisms (including MRSA), gram-negative organisms, anaerobes
<b>Special considerations</b>		
	Exposure to antibiotic agents in the previous 1 mo	Gram-negative bacilli
	Previous history of MRSA infection or colonization within the last year, high local prevalence of MRSA, severe infection or prolonged wound	MRSA
	Frequent exposure to water, high local prevalence, warm climate	<i>Pseudomonas aeruginosa</i>

Note: MRSA = methicillin-resistant *Staphylococcus aureus*.

\*The presence of more than 2 of the following signs and symptoms: temperature higher than 38°C or lower than 36°C; heart rate faster than 90 beats/min; respiratory rate faster than 20 breaths/min; partial pressure of carbon dioxide less than 32 mm Hg; leukocyte count greater than 12 or less than 4 cells/mL, or more than 10% bands.

**References:**

Lipsky BA, Berendt AR, Cornia PB, et al. 2012 Infectious Diseases Society of America clinical practice guideline for the diagnosis and treatment of diabetic foot infections. *Clin Infect Dis* 2012;54:e132-73.

Craig J, Moayed Y, & Bunce PE. A purulent foot ulcer in a man with diabetes mellitus. *CMAJ* 2013; 185:579-80.