Classification System for Diabetic Foot Infection (DFI)
Created July 2022 with input from UAB Podiatry, Emergency Medicine, UAB Hospitalist, Infectious Diseases, and Wound Care.

The intent of this informational material is to provide education and guidance to aid clinical decision-making for patients with diabetes mellites who present to the emergency department with foot-related complaints.

UAB Grading	Definition	Consider Clinical Plan of:
Grade 1. **Non-infected**	Skin ulcer present. No signs of infection.	Referral to Podiatry Clinic.
Grade 2. **Mild Infection**	Presence of foot ulcer with evidence of localized Infection involving skin and/or subcutaneous tissue. If erythema present, must be < 2cm surrounding the ulcer.	Plain Film Radiographs Labs: WBC w/diff, CRP, ESR Oral Antibiotics 7-10 days Referral to Podiatry Clinic.
Grade 3. **Moderate Infection**	Presence of foot ulcer with evidence of localized Infection involving skin and/or subcutaneous tissue with surrounding erythema > 2cm or involving structures deeper than skin and subcutaneous tissue. No systemic inflammatory response signs.	Plain Film Radiographs Labs: WBC w/diff, CRP, ESR Administration of a dose of IV antibiotics in the ED. Discharge on 7 days oral antibiotics to bridge to clinic follow-up. Referral to Podiatry Clinic. Admission to hospital if: • Gas on X-ray (Make NPO) • Peripheral vascular disease present • Difficult home disposition
Grade 4. **Severe Infection**	Limb Infection with systemic signs of sepsis/SIRS. Infection refers to any part of the foot, not just of a wound or surrounding an ulcer.	Admission to Hospital • Patient NPO for possible surgery • Plain Film Radiographs • Labs: WBC w/diff, CRP, ESR, lactate, blood cultures. • Please see institutional guidelines for sepsis care and management.
Foot Ulcer with Underlying Osteomyelitis	Ulcer present for > 7 days with •Radiographs suggesting bone infection (acute or chronic osteomyelitis) •Ulcer probes to bone •ESR/CRP elevation •No further testing needed in the emergency department	Plain Film Radiographs Labs: WBC w/diff, CRP, ESR Discharge on 7 days oral antibiotics to bridge to clinic follow-up. Referral to Podiatry Clinic. Exclude patients who meet criteria for: • Grade 3 (Moderate infection with admission criteria) • Grade 4 (Severe infection)

Antibiotic Choice:
If prior related microbial culture data is available, can consider culture directed antibiotic therapy. If no related culture date is available reasonable empiric antibiotic choices are:

UAB Grading	Preferred Antibiotics	Alternative Antibiotics[a]
Grade 1. Non-infected	No antibiotics indicated	No antibiotics indicated
Grade 2. Mild Infection *Antibiotics targeting Staph and Strep infection*	Cefadroxil 500mg BID[b] Or Cephalexin 500mg QID[b]	(Provides MRSA coverage, if prior history) Trimethoprim-Sulfamethoxazole 2 DS (160mg-800mg) tabs BID[b] or Doxycycline 100mg BID
Grade 3. Moderate Infection *Antibiotics targeting Staph, Strep, and Gram-negative infection*	IV – Vancomycin (pharmacy to dose) plus Ceftriaxone 2g q24h PO at discharge – Doxycycline 100mg PO BID plus Amoxicillin-clavulanate 875-125mg PO BID[b]	IV- Vancomycin (pharmacy to dose) plus Moxifloxacin 400mg PO daily (preferred) PO at discharge - Doxycycline 100mg BID plus Moxifloxacin 400mg PO daily
Grade 4. Severe Infection *Antibiotics targeting Staph, Strep, Gram-negative (including Pseudomonas), and anerobic infection*	IV – Vancomycin (pharmacy to dose) plus extended infusion Cefepime 2g q8h[b] plus metronidazole PO 500mg TID Or Vancomycin (pharmacy to dose) plus extended infusion Piperacillin-tazobactam 4.5g q6h[b]	Vancomycin (pharmacy to dose) plus metronidazole PO 500mg TID And Ciprofloxacin 750mg PO BID[bc] (preferred) Or Ciprofloxacin 400mg IV TID[bc] Or Aztreonam 2g IV q8h[bc]

Grade 5. Osteomyelitis (does not meet criteria for Grade 3 or 4) *Antibiotics targeting Staph and Strep infection*	Cefadroxil 500mg BID[b] Or Cephalexin 500mg QID[b]	(Provides MRSA coverage, if prior history) Trimethoprim-Sulfamethoxazole 2 DS (160mg-800mg) tabs BID[b] or Doxycycline 100mg BID

[a]The choice of alternative antibiotics can be made by provider based on allergy, prior antibiotic intolerance, prior culture results, concern for hyperkalemia or worsening renal dysfunction. If a patient has a listed allergy to penicillin or beta-lactams referral to Allergy Clinic or if an inpatient to the Antibiotic Allergy APP for evaluation and clarification.
[b]Requires dose reduction for renal impairment
[c] Requires antimicrobial stewardship approval

Osteomyelitis of the Diabetic Foot

Characteristic of diabetic foot osteomyelitis on plain X-rays
• New or evolving radiographic features on serial radiographs, including:
- Loss of bone cortex, with bony erosion or demineralization
- Focal loss of trabecular pattern or marrow radiolucency (demineralization)
- Periosteal reaction or elevation
• Bone sclerosis, with or without erosion
• Presence of sequestruma: devitalized bone with radiodense appearance separated from normal bone
• Abnormal soft tissue density in the subcutaneous fat, or gas density, extending from skin towards underlying bone, suggesting a deep ulcer or sinus tract

In a patient with diabetes and suspected osteomyelitis of the foot use a combination of:
- probe-to-bone test,
- erythrocyte sedimentation rate
- C-reactive protein and/or procalcitonin), and
- Plain X-rays as the initial studies to diagnose osteomyelitis.

In a patient with diabetes and suspected osteomyelitis of the foot, if a plain X-ray, clinical and laboratory findings are most compatible with osteomyelitis, no further imaging of the foot is required to establish the diagnosis.

If the presence of osteomyelitis is suspected but remains in doubt after plain radiographs, further outpatient or inpatient work up may include an advanced imaging study, such as magnetic resonance imaging scan, ^{18}F-FDG- positron emission tomography/computed tomography (CT) or leukocyte scintigraphy (with or without CT).