AHRQ Safety Program for Telemedicine: Improving Antibiotic Use

Cellulitis – Clinician Guide

Diagnosis[1]

- Acute bacterial infection of the skin and subcutaneous tissues.
- Typical presentation is acute onset of unilateral erythema, warmth, swelling, and tenderness.
- Fever and mild systemic symptoms (e.g., malaise) may occur.
- A CBC is typically not necessary if symptoms appear mild; if concerned enough to obtain a CBC, an in-person visit is probably necessary for a full evaluation of the affected area.
- Distinguish cellulitis from mimics such as venous stasis dermatitis, lymphedema, deep vein thrombosis, contact dermatitis, and peripheral vascular disease.
- Non-purulent cellulitis: absence of drainage or fluctuance; typically caused by β-hemolytic *Streptococci* (e.g., Group A *Streptococcus*) or, less commonly, methicillin-susceptible *Staphylococcus aureus* (MSSA).
- Purulent cellulitis: involves pus or fluctuance; caused by *Streptococci*, MSSA, or methicillin-resistant *S. aureus* (MRSA).

Populations where in-person visits are preferred for a comprehensive physical examination and probable diagnostic testing[1]

- Ill-appearing or systemically unwell patients (e.g., confusion, high fever, rapid spread, necrosis, bullae)
- Recurrent cellulitis or failure of prior antibiotic therapy
- Involvement of sensitive areas (e.g., face, groin)
- Underlying conditions increasing risk for complications: uncontrolled diabetes, immunocompromised state, hardware or foreign body at site, severe hepatic or renal disease
- Concern for alternate diagnosis (e.g., deep vein thrombosis)

Treatment[2-5]

- Antibiotic selection is typically determined by non-purulent versus purulent, adverse event profile, and any previous culture and antibiotic susceptibility results.
- Antibiotics listed as indicated for purulent cellulitis can be used for non-purulent cellulitis in settings of severe penicillin allergies.
- Duration of therapy is approximately 5 days; adverse events in table below rare with ≤7 day courses and laboratory monitoring not generally necessary.

Antibiotic	Indication	Dosage	Notes
Cephalexin	Non-purulent cellulitis	500 mg orally four times daily	Cross-allergenicity between penicillin and cephalosporins <5%
Cefadroxil	Non-purulent cellulitis	500 mg orally twice daily	
Dicloxacillin	Non-purulent cellulitis	500 mg orally four times daily	~10% develop nausea, diarrhea, or abdominal pain
Amoxicillin-clavulanate	Non-purulent cellulitis	875 mg/125 mg orally twice daily	~20% experience diarrhea
Doxycycline	Purulent cellulitis	100 mg orally twice daily	Notable adverse events (all up to 10%): gastrointestinal upset, photosensitivity, increased intracranial pressure (headaches), pill esophagitis
Trimethoprim-sulfamethoxazole (TMP-SMX)	Purulent cellulitis	1-2 double-strength tablets (160 mg TMP 800 mg SMX) twice daily	Notable adverse events (all up to 10%): hypersensitivity reactions, bone marrow suppression, acute kidney injury, hyperkalemia

Clindamycin	Purulent cellulitis	300 mg orally three times daily	Clindamycin-resistance increasing; active against ~80% of Group A *Streptococcus* and ~60% of MRSA isolates; risk of *Clostridioides difficile* (*C. diff*) infection
Linezolid	Purulent cellulitis	600 mg orally twice daily	Notable adverse events (all <5% for short courses): bone marrow suppression, optic and peripheral neuropathy, serotonin syndrome, lactic acidosis

Followup

- Symptoms should begin to improve within 48–72 hours of starting antibiotics.
- Instruct patients to outline the erythematous area and monitor for spread.
- Advise elevation of the affected limb and use of analgesics (acetaminophen or ibuprofen).
- Seek in-person care if worsening symptoms, new drainage, systemic illness, or no improvement by day 3.

References

1. Stevens DL, Bisno AL, Chambers HF, et al. Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the Infectious Diseases Society of America. Clin Infect Dis. 2014 Jul 15;59(2):147-59. PMID: 24947530

2. Talan DA, Mower WR, Krishnadasan A, et al. Trimethoprim-sulfamethoxazole versus placebo for uncomplicated skin abscess. N Engl J Med. 2016 Mar 3; 374(9):823-32. PMID: 26962903.

3. Pulia M, Fox B. Antibiotics should not be routinely prescribed after incision and drainage of uncomplicated abscesses. Ann Emerg Med. 2019 Apr;73(4):377-8. PMID: 30902165.

4. Lipsky BA, Senneville E, Abbas ZG, et al. Guidelines on the diagnosis and treatment of foot infection in persons with diabetes (IWGDF 2019 update). Diabetes Metab Res Rev. 2020 Mar;36 Suppl 1:e3280. PMID: 32176444.

5. Senneville É, Albalawi Z, van Asten SA, et al. IWGDF/IDSA guidelines on the diagnosis and treatment of diabetes-related foot infections (IWGDF/IDSA 2023). Diabetes Metab Res Rev. 2024 Mar;40(3):e3687. Epub 2023 Oct 1. PMID: 37779323.