

A petri dish containing a bacterial culture on XLD Agar. The medium is red, and there is a dark, branching, tree-like structure of bacterial growth. Below the main growth, there is a cluster of yellow, fuzzy bacterial colonies. The background is a light blue gradient.

UC Davis Health Antimicrobial Stewardship Program

Volume 3, Issue 6
November 2021

The UC Davis Antimicrobial Stewardship Program (ASP) was first established in 1986 and then expanded in pediatrics in 2011 and hospital wide in 2013 in response to the growing challenge of antibiotic resistance. Due to increasing antibiotic resistance, patients are at a higher risk for adverse effects and poor outcomes and treatment strategies become more complex.

Antibiotics are life-saving drugs, and their use has important implications for patient care and public health. With this in mind, the UC Davis Health ASP strives to ensure all patients receive optimal antibiotic therapy when indicated. We thank you for your support in putting this very important program into action.

Image: "Inquisitive deer in a bunch of flower," by Basanti Dalai. Xylose-Lysine Deoxycholate Agar (XLD Agar) is a selective and differential medium. Source: <https://www.flickr.com/photos/193578416@N07/51636273983/in/album-72157720133532900/>

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Cellulitis

Diagnosis

- Relatively sudden onset of redness, warmth, tenderness, and swelling of the skin
 - **Nonpurulent:** no evidence of abscess/phlegmon; most cases caused by β -hemolytic streptococci (usually group A strep but also B, C, G) that are susceptible to penicillin; ~10% of cases caused by methicillin-susceptible *Staphylococcus aureus* (MSSA)
 - **Purulent:** evidence of abscess/phlegmon; caused by *S. aureus*, often methicillin-resistant (MRSA)
- Almost always unilateral
- Fever in 22-71%; elevated white blood cell count in 35-50%
- Usually associated with skin surface disruption due to recent trauma, tinea pedis, cutaneous ulcer, past saphenous venectomy, or impaired venous or lymphatic drainage
- Blood cultures are low yield; consider for patients with severe illness or immunocompromise
- Obtain ultrasound if concern for abscess/phlegmon and physical exam is equivocal

Note: Several noninfectious conditions can mimic cellulitis including venous stasis dermatitis which is often bilateral, associated with skin hyperpigmentation, pitting edema, serous drainage, itchiness; minimal pain and absence of fever

Treatment

Elevate the affected extremity and treat underlying predisposing conditions.

- **Nonpurulent cellulitis**
 - Cover β -hemolytic strep and MSSA; MRSA coverage is not routinely indicated
 - Cephalexin 500 mg PO q6-8h, consider higher dosing in the morbidly obese
 - Cefazolin 1-2 g IV q8h, consider higher dosing in the morbidly obese
- **Purulent cellulitis**
 - Cover *S. aureus*, including MRSA
 - Skin abscess with minimal cellulitis: antibiotics are of modest benefit for patients with drained abscesses; antibiotics are recommended for patients with associated systemic illness, diabetes, severe immunocompromise, extremes of age, or location of abscess in an area where drainage is difficult
 - TMP-SMX and doxycycline are preferred anti-MRSA agents due to high levels of clindamycin resistance locally and nationally
 - Vancomycin IV dosed per weight and renal function
- **Narrowing and oral therapy**
 - Narrow based on available culture results
 - If initially started on IV transition to oral therapy when patient has clinical improvement; erythema may initially extend despite appropriate therapy but overall improvement (e.g., reduction of erythema and inflammation) generally occurs by day 3

Note: Patients who are critically ill, neutropenic, severely immunocompromised or with suspected necrotizing fasciitis should receive empiric broad-spectrum antibiotics. Patients with aquatic injuries, bites, and cellulitis associated with long-standing diabetic foot ulcers may also require alternative antibiotics. Discuss these cases with the antibiotic stewardship program and/or infectious diseases consultant.

Duration

- 5-7 days if clinical response by day 3

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Clinical Practice Guideline by the Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA): 2021 Focused Update Guidelines on Management of *Clostridioides difficile* Infection in Adults


The IDSA/SHEA guidelines for *C. difficile* were recently updated to include conditional recommendations for **fidaxomicin** and **bezlotoxumab** in the treatment of C diff. Previously the high costs of these medications prohibited their routine use given their marginal benefit and limited evidence. Although still expensive, additional data and cost benefit analyses suggests they are cost effective, particularly in high-risk instances. **UC Davis has updated its C diff treatment guidance to account for these updated recommendations.**

Checkout the “C diff Infection (CDI) in Adults” guide on the CRC or ASP websites now:

- ❖ <https://health.ucdavis.edu/antibiotic-stewardship/guidelines.html>

Per the updated UC Davis treatment guidance...

Treatment Recommendations for CDI

Clinical Severity/Stage	First Line Regimen	Alternative Regimen	Adjunct Therapy
Initial Episode, Non-severe	Vancomycin 125 mg PO q6h x 10 days	Fidaxomicin 200 mg PO BID x 10 days	
Initial Episode, Severe	Vancomycin 125 mg PO q6h x 10 days	Fidaxomicin 200 mg PO BID x 10 days	
Fulminant	Vancomycin 500 mg PO/NG q6h + Metronidazole 500 mg IV q8h		Rectal Vancomycin ^a
First Recurrence	Fidaxomicin 200 mg BID x 10 days	Vancomycin 125 mg PO q6h x 10 days OR Vancomycin 125 mg q6h x 10 – 14 days, then BID x 7 days, then once daily x 7 days, then every 2-3 days x 2-8 weeks	Bezlotoxumab 10 mg/kg IV once during treatment  if no fidax

Test Your Knowledge

Would you like to win a \$10 gift certificate to the Sunshine Café? Complete the following post-newsletter quiz and submit to hs-ASP@ucdavis.edu to be entered into a raffle for a free lunch!

A 50-year-old man with morbid obesity (130 kg) presents to the ED with left calf swelling and redness along with increasing pain. The patient saw his PCP 2 days ago and was given clindamycin 450mg q8hrs but the redness continued to worsen, and he reported subjective fever. Abscess is ruled out via ultrasound. No purulence is noted at the site of infection and the patient is admitted for IV antibiotics. He has no history of MRSA and is not known to be colonized.

1. What empiric IV antibiotic regimen is most appropriate at this time?
 - a. Vancomycin 1 g q12hrs + Cefepime 2 g q8hrs
 - b. Cefazolin 2 g q8hrs
 - c. Vancomycin 1 g q12hrs
 - d. Clindamycin 900 mg q8hrs
2. True or False: Cellulitis is almost always unilateral and bilateral cellulitis should raise suspicion for non-infections mimickers of cellulitis including venous stasis dermatitis.
3. Approximately what percentage of *S. aureus* isolates are clindamycin-resistant at UCD?
 - a. 1-5%
 - b. 5-10%
 - c. 10-25%
 - d. 25-35%
 - e. 35+%
4. True or False: Fidaxomicin is still cost prohibitive and is not currently recommended at UC Davis for the treatment of C diff infection at this time.

Answers to last Newsletter's quiz: 1. A, 2. True, 3. A., 4. True

ASP Gold Star Winners for November 2021



The following staff have been recognized by the ASP team for their dedication to combatting antimicrobial resistance and commitment to the principles of antimicrobial stewardship:

- TJ Gintjee (Pharm)

Fun Microbe Fact:

Sixty-five percent of antibiotics used in the US in recent years, over 13 million pounds, are used in livestock.

Source: <https://www.nrdc.org/experts/david-wallinga-md/most-human-antibiotics-still-going-us-meat-production>

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Antibiotic questions? Contact us.

See the On-Call Schedule for the ASP attending/fellow of the day

Contact the ASP Pharmacist at 916-703-4099 or by Vocera "Infectious Disease Pharmacist"