

UC Davis Health Antimicrobial Stewardship Program - Vol 2 Issue 2

Lactophenol cotton blue mount from the colony of Trichosporon inkin showing blastoconidia, pseudohyphae and rectangular arthroconidia in a case of co-isolation of T. inkin and Candida parapsilosis from scalp white piedra in Qatar.

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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.

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Diverticulitis



Diverticulitis Diagnosis

- Abdominal pain (usually left lower quadrant, ~90%), low-grade fever (~90%)
- Diagnostic testing: computed tomography (CT) scan of abdomen for diagnosis and complications (e.g., abscess, perforation)
- Microbiology: *Escherichia coli*, *Klebsiella pneumoniae*, *Bacteroides fragilis*;
 - *Staphylococcus aureus* is generally not a pathogen in intra-abdominal infections
- Blood cultures only for severe illness

Diverticulitis Treatment

- **Acute, uncomplicated diverticulitis** (CT-confirmed left colonic disease without abscess, perforation, fistula; patient can have fever and/or elevated white blood cell count)

- In patients with acute uncomplicated diverticulitis, trials suggest that antibiotics do not reduce time to improvement or prevent complications, and American Gastroenterological Association Guidelines recommend selective rather than routine antibiotic use
- Oral therapy (preferred if antibiotics are given): Amoxicillin-clav 875/125 mg PO q8h
 - Intravenous therapy: Ceftriaxone 1 g IV q24h + Metronidazole 500 mg IV q8h
- **Complicated diverticulitis** (CT-confirmed diverticulitis associated with abscess, fistula, obstruction, perforation, peritonitis) in a stable patient
 - Source control via percutaneous drain or operation when possible
 - Ceftriaxone 1 g IV q24h + Metronidazole 500 mg IV q8h
 - If penicillin allergic: Clindamycin 900 mg IV q8h + Aztreonam 1 g IV q8h
- **Diverticulitis in a severely ill patient**
 - Broader coverage for *Enterobacteriaceae spp.* and *Pseudomonas aeruginosa*
 - Piperacillin-tazobactam 4.5 g IV q6h + Vancomycin 1 g (dosed per pharmacy)
 - If penicillin allergic: discuss with your friendly ASP provider

- **Narrowing and oral therapy**

- Narrow based on available culture data
- Consider transition to oral therapy when patient shows clinical improvement (usually by 48–72 hours) and source control is achieved
- Oral therapy: Amoxicillin-clavulanate 875/125 mg PO q8h

- **Surgical management**

- Obtain immediate surgical consultation for presence of perforation, peritonitis, obstruction

- Obtain surgical consultation during admission for failure of medical therapy, abscess (generally ≥ 5 cm) that cannot be drained percutaneously, fistula or stricture, recurrent episodes of diverticulitis

Diverticulitis Treatment Duration

- Acute, uncomplicated: 4 days
- Complicated or initial severe illness with source control: 4 days after source control
- Complicated with small abscess not drained: 7–14 days depending on clinical response

References

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ASP Website Launched

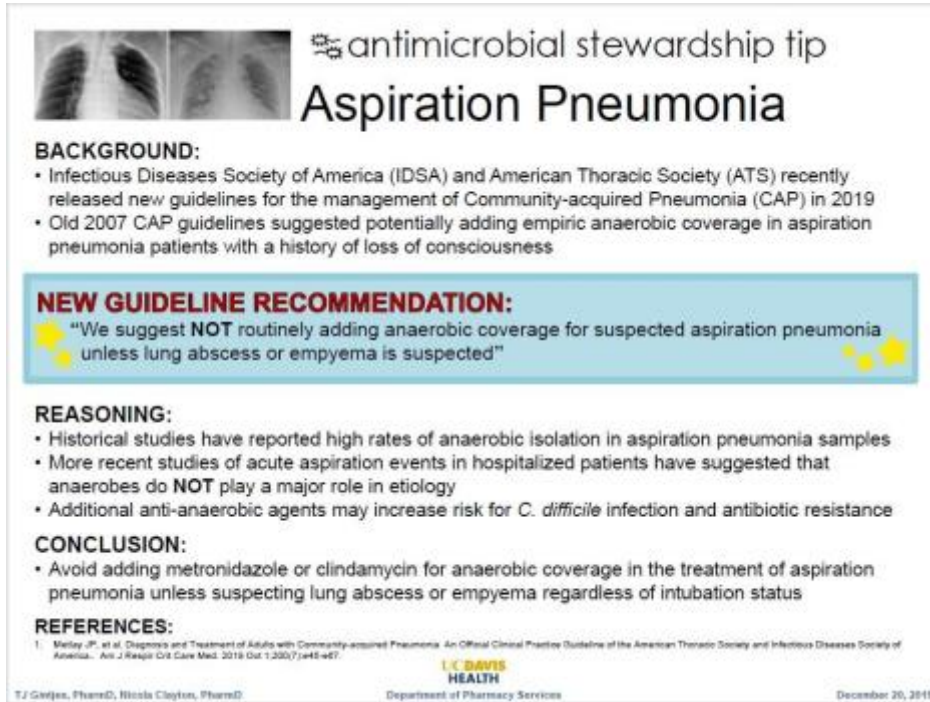


UC Davis Medical Center's ASP has launched its own antimicrobial stewardship homepage accessible at work and at home. With links to current national and local guidelines, quick topic reviews, infection prevention material, and convenient email access to an ASP team member, it's a one stop antimicrobial stewardship shop.

The website can be found at: <https://health.ucdavis.edu/antibiotic-stewardship/>

Or type "**antibiotics**" into your Internet Explorer address bar from a work computer to be linked directly!

Aspiration Pneumonia - No More Metro



antimicrobial stewardship tip

Aspiration Pneumonia

BACKGROUND:

- Infectious Diseases Society of America (IDSA) and American Thoracic Society (ATS) recently released new guidelines for the management of Community-acquired Pneumonia (CAP) in 2019
- Old 2007 CAP guidelines suggested potentially adding empiric anaerobic coverage in aspiration pneumonia patients with a history of loss of consciousness

NEW GUIDELINE RECOMMENDATION:

“We suggest **NOT** routinely adding anaerobic coverage for suspected aspiration pneumonia unless lung abscess or empyema is suspected”

REASONING:

- Historical studies have reported high rates of anaerobic isolation in aspiration pneumonia samples
- More recent studies of acute aspiration events in hospitalized patients have suggested that anaerobes do **NOT** play a major role in etiology
- Additional anti-anaerobic agents may increase risk for *C. difficile* infection and antibiotic resistance

CONCLUSION:

- Avoid adding metronidazole or clindamycin for anaerobic coverage in the treatment of aspiration pneumonia unless suspecting lung abscess or empyema regardless of intubation status

REFERENCES:

1. Mellow JP, et al. Diagnosis and Treatment of Adults with Community-acquired Pneumonia: An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America. *Am J Respir Crit Care Med*. 2019 Oct 1;200(7):e42-e67.

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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 and diabetes presents to the ED with chest pain and is found to have a STEMI. He is admitted for further treatment. Nearing the end of his admission he develops 3 out of 10 poorly localizing abdominal pain and nausea with a few episodes of vomiting for which he undergoes CT imaging of his abdomen and pelvis. Diverticulitis is noted by the radiologist without further comment. He is otherwise stable and afebrile though his WBC count trended up from 8.5 to 10 this morning. He is started on intravenous antibiotics.

1. Which antibiotic regimen would be most appropriate?

- a. Ceftriaxone 1g IV q24h + metronidazole 500 mg IV q8h
- b. Vancomycin 1g IV dosed by pharmacy + ceftriaxone 1g IV q24h + metronidazole 500 mg IV q8h
- c. Meropenem 1g IV q8h
- d. Levofloxacin 750 mg IV q24h + metronidazole 500 mg IV q8h

2. True or False: The patient's nurse asks whether the patient needed to have been treated with antibiotics at all. Given the patient's stability, mild illness, and absence of diverticulitis complications he could have been safely observed without any antibiotic interventions.

3. The patient rapidly improves and he is ready for discharge by the next hospital day. He has tolerated his antibiotics and is now tolerating a full cardiac diet without event. Which regimen would be best to complete his antibiotic treatment for his diverticulitis?

- a. Continue his intravenous antibiotics, place a PICC line, and complete a 7 day total course
- b. Switch his antibiotics to levofloxacin 750 mg PO q24h and metronidazole 500 mg PO q8h, and complete a 7 day total course
- c. Switch his antibiotics to amoxicillin-clavulanate 875/125 mg PO q8h, and complete a 4 day total course
- d. Stop all antibiotics and wish him well

4. A 59 year old male with CKD stage III, paroxysmal atrial fibrillation, and chronic alcohol dependence presents to the ER with fever and cough after an aspiration even a few days prior. His chest x-ray shows lower lobe consolidation. Procalcitonin is 1.51. He is started on empiric antibiotics. What antibiotic is least likely to be of benefit?

- a. Ceftriaxone
- b. Azithromycin
- c. Doxycycline
- d. Metronidazole

Answers to last newsletter's quiz: 1. B, 2. True, 3. C, 4. D

ASP Gold Star Recognition



With the SARS-CoV-2 pandemic monopolizing everyone's time the Stewardship team's priorities have been on optimizing care for COVID-19 patients. No new Gold Stars have been awarded since last newsletter. More to come!

Meet the Stewardship Team



Natascha Tuznik is the newest member of the division of Infectious Diseases where she attends on the antimicrobial stewardship service. She joins us after spending 3 years at the University of Texas Health Science Center, prior to which Natascha was an active duty Air Force physician for 6 years stationed at San Antonio Military Medical Center, where she also completed her ID fellowship in 2013. She comes to the great state of California by way of her husband who is an active duty Air Force Physician now stationed at Travis Air Force Base. Natascha's areas of focus include transplant medicine, travel/tropical medicine, and infection prevention in addition to ASP. When not working, she enjoys being outdoorsy with her boys and is a passionate animal rights advocate. She has personally rescued over 20 cats, dogs, and other species in past years and touts the self-proclaimed title of "foster failure."

Fun Microbe Fact

Your thanatomicrobiome -- the microbes that predominate in your microbiome after your death -- is a poorly researched area of microbial ecology. Until now. Researchers at Alabama State University investigated the microbiome of 11 cadavers after death. Over time increasingly more anaerobic organisms were identified with Clostridia species eventually predominating. While most cadavers retained a similar collection of microorganisms there was otherwise no consistent pattern of what microbes could be found when or where between individuals.

Read more: <https://www.newscientist.com/article/mg22329842-500-your-death-microbiome-could-catch-your-killer/#ixzz6L2l4K1qK>

Contact Us

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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 Vocera "Infectious Disease Pharmacist"