



UC Davis Health Antimicrobial Stewardship Program

Cunninghamella is a filamentous fungus found in soil and plant material, particularly at Mediterranean and subtropical zones. In addition to being a common contaminant, *Cunninghamella* is an opportunistic fungus that may cause infections in immunocompromised hosts.

<http://thunderhouse4-yuri.blogspot.com/2011/04/cunninghamella-species.html>

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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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Cholecystitis and Cholangitis

Diagnosis

In the absence of signs and symptoms of infection, patients with isolated jaundice, non-obstructing gallstones, or biliary colic (i.e. RUQ pain lasting 1-3 hours that resolves) do not require antibiotics.

Acute cholecystitis: Right upper quadrant (RUQ) pain, fever, nausea/vomiting. Gallstones are usually present on imaging.

- Blood cultures should be obtained in patients with cholecystitis that have concomitant sepsis

Cholangitis: RUQ pain, fever, nausea/vomiting, +/- jaundice (50%). Gallstones & biliary obstruction are usually present on imaging.

- Blood cultures should be obtained in all patients with cholangitis
- Bile cultures should be obtained if the biliary tree is accessed via ERCP or percutaneous drain

Treatment

Non-severely ill patients with community-acquired infections

- Ceftriaxone*/Metronidazole first line therapy at UCDMC
 - *Only consider levofloxacin in patients with a severe beta-lactam allergy

Microbiology Note: Coverage is for Enterobacteriaceae and anaerobes. Staphylococcus aureus and Pseudomonas aeruginosa are generally not biliary pathogens in community acquired cases and in

non-severely ill patients do not require empiric coverage. Enterococcus spp. may be found in the biliary tree but are generally of low virulence and similarly do not require empiric coverage in this population.

Patients with severe illness, hospital-acquired infection, or prior extensive biliary tract manipulation

- Review any prior biliary cultures to target empiric therapy
- Cefepime*/Metronidazole first line therapy at UCDCM
 - *Only consider levofloxacin in patients with a severe beta-lactam allergy
 - Consider using piperacillin/tazobactam in patients with a recent history of abdominal surgery
 - Consider adding vancomycin in patients with risk factors for or known colonization with MRSA

Microbiology Note: Broader coverage for P. aeruginosa and resistant enterics is necessary for severely ill, hospital-acquired, and prior biliary tract manipulation cases. Additionally consider coverage for Enterococcus spp. and Staphylococcus aureus in patients at risk.

Narrowing and oral therapy

- Narrow based on available culture data
- Consider transition to oral therapy when clinical improvement (usually by 48–72 hours) and source control are achieved

Duration

| | |
|------------------------------------------------------------------------------------------------------|------------------------------|
| Acute cholangitis and source control | 3 days after source control |
| Acute cholangitis and source control with concomitant bacteremia | 7 days |
| Uncomplicated acute cholecystitis, medical management, clinical response | 7 days |
| Uncomplicated acute cholecystitis, surgical management | No antibiotics after surgery |
| Complicated acute cholecystitis (e.g., perforation, fistula), surgical management for source control | 4 days after surgery |

References

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Got GAS? Treatment Algorithms for Group A Strep

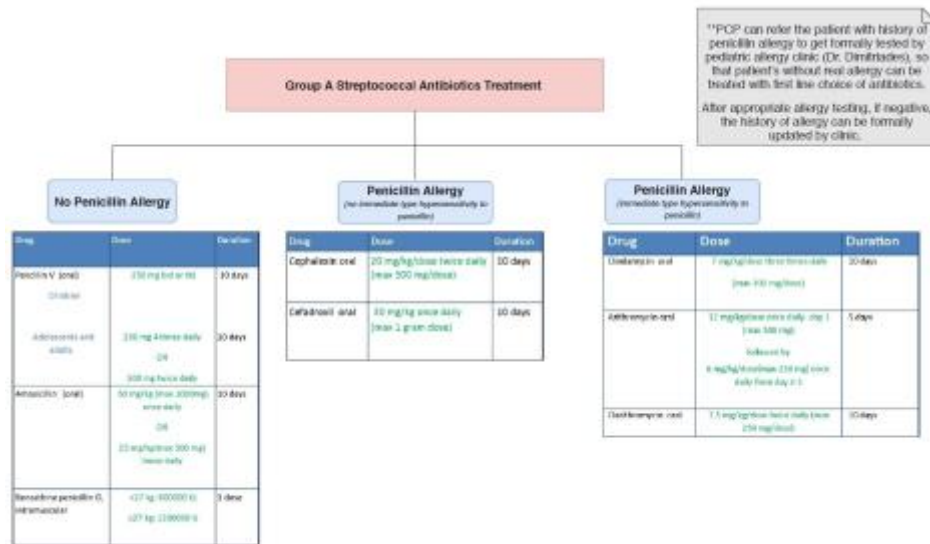
Q: What is the correct treatment choice and duration for a pediatric patient with confirmed Group A Strep pharyngitis?

A: The Infectious Diseases Society of America recommends all patients with confirmed, acute GAS pharyngitis should be treated with an appropriate antibiotic at an appropriate dose for a duration likely to eradicate the organism from the pharynx (usually 10 days).

The goal of treatment of streptococcal pharyngitis is to reduce the onset of rheumatic fever in children, which is extremely rare in this country. Notably, penicillin-based regimens are the mainstay of treatment as penicillin-resistant GAS has never been documented. Amoxicillin is often chosen over penicillin V, primarily because the taste of the amoxicillin suspension is more palatable.

The UC Davis Outpatient Antibiotic Stewardship Program has implemented new tools for the diagnosis and management of bacterial pharyngitis. To help guide your treatment of pediatric patients with confirmed Group A Strep pharyngitis, please see the following figure..

Please contact Dr. Larissa May, Director of ED and Outpatient Antibiotic Stewardship, at lsmay@ucdavis.edu or Dr. Ritu Cheema, Assistant Professor of Pediatric Infectious Diseases, at ritcheema@ucdavis.edu with any questions or comments.



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 ucdavisASP@gmail.com to be entered into a raffle for a free lunch. Congratulations to Allison Smith for winning last month's raffle!

A 45-year-old woman with no known allergies and without prior abdominal symptoms develops right upper quadrant pain, fever, leukocytosis, and nausea and vomiting. An abdominal ultrasound is done which shows a distended gallbladder with wall thickening greater than 3 mm and a non-mobile 7mm stone visualized in the gallbladder neck.

1. What empiric antibiotics should be initiated at this time?

- Ceftriaxone + Metronidazole
- Cefepime + Metronidazole
- Levofloxacin + Metronidazole
- Piperacillin-tazobactam

2. True or False: Blood cultures should be obtained in all patients with cholangitis and all patients with acute cholecystitis that have concomitant sepsis.

3. A 4-year-old patient with no known allergies is seen in the ED after a sudden onset of sore throat and fever. She has no conjunctivitis, coryza, or cough and has tonsillopharyngeal inflammation and patchy tonsillopharyngeal exudates. A rapid strep PCR is done and returns positive. What should be started as treatment and for how long?

- a. Nothing, most GAS pharyngitis does not require antibiotics
- b. Clindamycin 7 mg/kg three times daily for 5 days
- c. Amoxicillin 50 mg/kg once daily for 10 days
- d. Levofloxacin 10 mg/kg BID for 10 days

4. What fungal organism fundamentally changed the banana industry in the 1950's and may completely eradicate bananas as an agricultural crop in the future?

- a. *Cunninghamella elegans*
- b. *Fusarium oxysporum*
- c. *Pneumocystis jirovecii*
- d. I don't care. I hate bananas.

ASP Gold Star Recognition



The Antimicrobial Stewardship team would like to recognize the following team for their dedication to combatting antimicrobial resistance and commitment to the principles of antimicrobial stewardship:

Urology Residents

Meet the Stewardship Team



Niki Clayton started at UC Davis Medical Center as a pharmacy student in 2014, then completed a PGY-1 Acute Care Residency and a PGY-2 Infectious Diseases Pharmacy Residency at UCDMC before staying on as a staff pharmacist, and she recently took over as the pharmacist leader of the Antimicrobial Stewardship Program. Her interests include precepting learners on the antimicrobial stewardship rotation, mentoring pharmacy learners, and solving the great puzzle: culture versus technology, which has the greatest impact on limiting antimicrobial prescribing. In her spare time, she enjoys reading literature no one else likes, traveling to the most obnoxious tourist destinations, and wrangling her two daughters into wearing matching outfits.

Fun Microbe Fact

In the 1950s, a strain of *Fusarium oxysporum* wiped out almost all banana plantations in Central and South America. Despite the best efforts of growers, the Gros Michel variety of banana became virtually extinct all due to *Fusarium*! In the second half of the 1900s banana producers across the world switched to a different cultivar, the so-called the Cavendish. Although less tasty than Gros Michel, Cavendish was resistant to the type of *Fusarium* that was causing Fusarium Wilt.

As a result, following enormous investments in infrastructural changes required to accommodate the Cavendish's different growing and ripening needs, the banana industry was saved.

But not for ever... in the 1990s a new strain of *Fusarium* appeared and began to spread. Thousands of hectares of Cavendish have already been destroyed and the banana may become an extinct fruit if we are unable to find a way to save them from Fusarium Wilt.

Contact Us

The Antimicrobial Stewardship Program Team Members

Adult ASP Physicians:

- Stuart Cohen, MD
- Jay Solnick, MD
- Archana Maniar, MD
- Sarah Waldman, MD
- Jill Ahrens, MD
- Scott Crabtree, MD
- Christian Sandrock, MD
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Pediatric ASP Physicians:

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- Jean Wiedeman, MD
- Ritu Cheema, MD
- Elizabeth Partridge, MD

ASP Pharmacists:

- Monica Donnelley, PharmD
- Nicola Clayton, PharmD
- Matthew Davis, PharmD

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"