



UC Davis Health Antimicrobial Stewardship Program

Volume 3, Issue 4
July 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: "Hungarian Folk Art," Zita Pöstényi, Microbiologist, SYNLAB Hungary Ltd., Budapest, Hungary.

Source: <https://asm.org/Events/ASM-Agar-Art-Contest/Previous-Winners>

In This Issue

- Aspiration Pneumonitis: What You Need to Know
- When Less is More: The Outpatient BioFire GI Panel
- Test Your Knowledge
- ASP Gold Star Winners for July 2021
- Meet the Stewardship Team

Diagnosis

- Aspiration pneumonitis is an abrupt chemical injury caused by inhalation of sterile gastric contents.
 - It can progress quickly to a decline in respiratory status followed by rapid improvement within 48 hours of the insult.
 - Chest x rays can look like multifocal pneumonia is present.
- Patients with aspiration events are usually unlikely to produce significant sputum, making the utility of sputum cultures low.
 - Sputum Gram-stain and cultures should be considered when the diagnosis is unclear, if purulent sputum is being produced, or if antibiotic treatment is initiated in a hemodynamically unstable patient.

Treatment

- **Hemodynamically stable patients with aspiration events**
 - Antibiotics are not warranted, and supportive care is the mainstay of therapy.
 - Prophylactic antibiotics have not been shown to be helpful in preventing the development of pneumonia after aspiration events.
- **Hemodynamically unstable patients with aspiration events**
 - Treat with regimens for community-acquired pneumonia (CAP) (e.g., ampicillin-sulbactam, ceftriaxone) if the event occurred within 72 hours of admission to hospital.
 - Treat with regimens for healthcare-acquired pneumonia (HAP) (e.g., cefepime, piperacillin-tazobactam) if the event occurred 72 hours after admission to hospital.
 - Coverage for methicillin-resistant *Staphylococcus aureus* (MRSA) can be considered if the prevalence of MRSA in the hospital is high or the patient has known history of MRSA colonization or infection, intravenous drug use, a recent stay in a nursing home or skilled nursing facility, or prolonged hospitalization with unknown MRSA colonization status
 - It is not necessary to add additional anaerobic or atypical coverage.
 - Reassess at 48 hours.
 - If clinical symptoms resolve, antibiotics can be discontinued.
 - If no or minimal improvement & bacterial pneumonia is suspected, treat for 5–7 days.
- **Patients with aspiration events not treated initially with no improvement in 48–72 hours**
 - A small proportion of patients (10–20%) may develop bacterial pneumonia 48–72 hours after an aspiration event.
 - If there is no improvement or there is clinical worsening within the first 48–72 hours, consider a course of antibiotic therapy (as above).

References

1. Bynum LJ, Pierce AK. Pulmonary aspiration of gastric contents. *Am Rev Respir Dis.* 1976 Dec;114(6):1129-36. PMID: 1008348.
2. Murray HW. Antimicrobial therapy in pulmonary aspiration. *Am J Med.* 1979 Feb;66(2):188-90. PMID: 425963.
3. Dragan V, Wei L, Elligsen M, et al. Prophylactic antimicrobial therapy for acute aspiration pneumonitis. *Clin Infect Dis.* 2018 Feb 9;[Epub ahead of print]. PMID 29438467.

When Less is More: BioFire GI Panel Testing

The **BioFire GI Panel** is a multiplex PCR which can **detect 22 pathogens** from a single stool sample with a **turnaround time of 1 hour**. Most of these pathogens, however, cause benign, self-limited disease and **patient charges for a single sample can exceed \$10,000** in the outpatient context with limited insurance coverage. In most cases conservative, symptom-focused management is sufficient. In returning travelers with moderate to severe disease some experts recommend an empiric 3-day course of azithromycin¹. A recent review of GI panel utilization at UCD revealed:

Tests ordered 4/15/2019 - 12/12/2019

Location	Total tests ordered	% tests ordered	Positive tests	% positive tests
Emergency	93	6%	29	32%
Inpatient	476	23%	98	21%
Outpatient	1,058	55%	122	12%
Outreach	53	3%	7	13%
Total	1,680	100%	256	

- Most GI Panels were run in the outpatient clinics
- GI Panel yield was lowest in the outpatient clinics
- The majority (~60%) were benign E. colis (ETEC, EPEC, EAEC)
- A small number were likely false positives

What's New: Due to the low yield and lower value of most outpatient GI Panel tests, a new clinical decision support tool has been built into the Epic GI Panel order to help guide outpatient testing. Additional outpatient stool orders are also now available in a new "Diarrhea" order panel for more targeted and lower cost testing. Consider symptomatic management in low risk and low acuity patients.

1. Riddle M, DuPont H, Connor B. *Am J Gastroenterol* 2016; 111:602–622;

Meet the Stewardship Team

Jen Curello is one of the newest members of the ID pharmacy team at UC Davis. She earned her Pharm.D. from UCSD in 2010, then completed her PGY1 in Acute Care at Stanford Medical Center (2011), and her PGY2 in Infectious Diseases at UCSF (2012). Prior to joining the team at UC Davis in 2019, Jen worked as an ID/antimicrobial stewardship pharmacist at UCLA Ronald Reagan Medical Center in Los Angeles, CA. Her research interests include antimicrobial resistance, antimicrobial stewardship, and antimicrobial PK/PD. In her free time, she enjoys traveling, cooking, and running marathons.



If you see Dr. Curello, say hi to one of the newest members of the team!

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!

1. A 63-year-old female is hospitalized for acute kidney injury secondary to viral gastroenteritis. On hospital day 4 she sundowns overnight which is complicated by an aspiration event. She is placed on 2L supplemental oxygen via nasal cannula, and a CXR is performed revealing multifocal infiltrates. She remains otherwise hemodynamically stable and afebrile. What empiric antibiotic course is most appropriate for this patient?
 - a. Cefepime + Vancomycin for possible HAP
 - b. Cefepime + Vancomycin + Metronidazole for possible HAP and anaerobic coverage
 - c. None. Observe patient and manage symptomatically
2. True or False: When aspiration pneumonitis is complicated by aspiration pneumonia, anaerobic coverage is necessary.
3. The following day the patient's altered mental status resolves. She remains afebrile. By the following morning (approximately 36 hours after her aspiration event) she is back on room air. Aside from a non-productive cough she has no complaints. How long should any empiric antibiotics that were started be continued?
 - a. Stop them now as she has significantly improved within 48 hours of the aspiration event
 - b. Complete a 5-day course for uncomplicated CAP
 - c. Complete a 7-day course for uncomplicated HAP
4. True or False: The BioFire GI Panel can sometimes result in >\$10,000 in patient charges when ordered as an outpatient depending on insurance.

Answers to last Newsletter's quiz: 1. B, 2. False, 3. A., 4. T

ASP Gold Star Winners for July 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:

- Amy Crandall

Fun Microbe Fact:

99.9 percent of the unique genes in your body are bacterial, and only about 0.1% are human.

Contact Us

The Antimicrobial Stewardship Program team members

Adult ASP Physicians:

Stuart Cohen, MD
Archana Maniar, MD
Sarah Waldman, MD
Scott Crabtree, MD
Natascha Tuznik, DO
Christian Sandrock, MD
Larissa May, MD
Angel Desai, MD
Naomi Hauser, MD
Alan Koff, MBBS

Pediatric ASP Physicians:

Natasha Nakra, MD
Jean Wiedeman, MD
Ritu Cheema, MD
Elizabeth Partridge, MD

ASP Pharmacists:

Monica Donnelley, PharmD
Nicola Clayton, PharmD
Jen Curello, PharmD
James Go, 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 by Vocera "Infectious Disease Pharmacist"