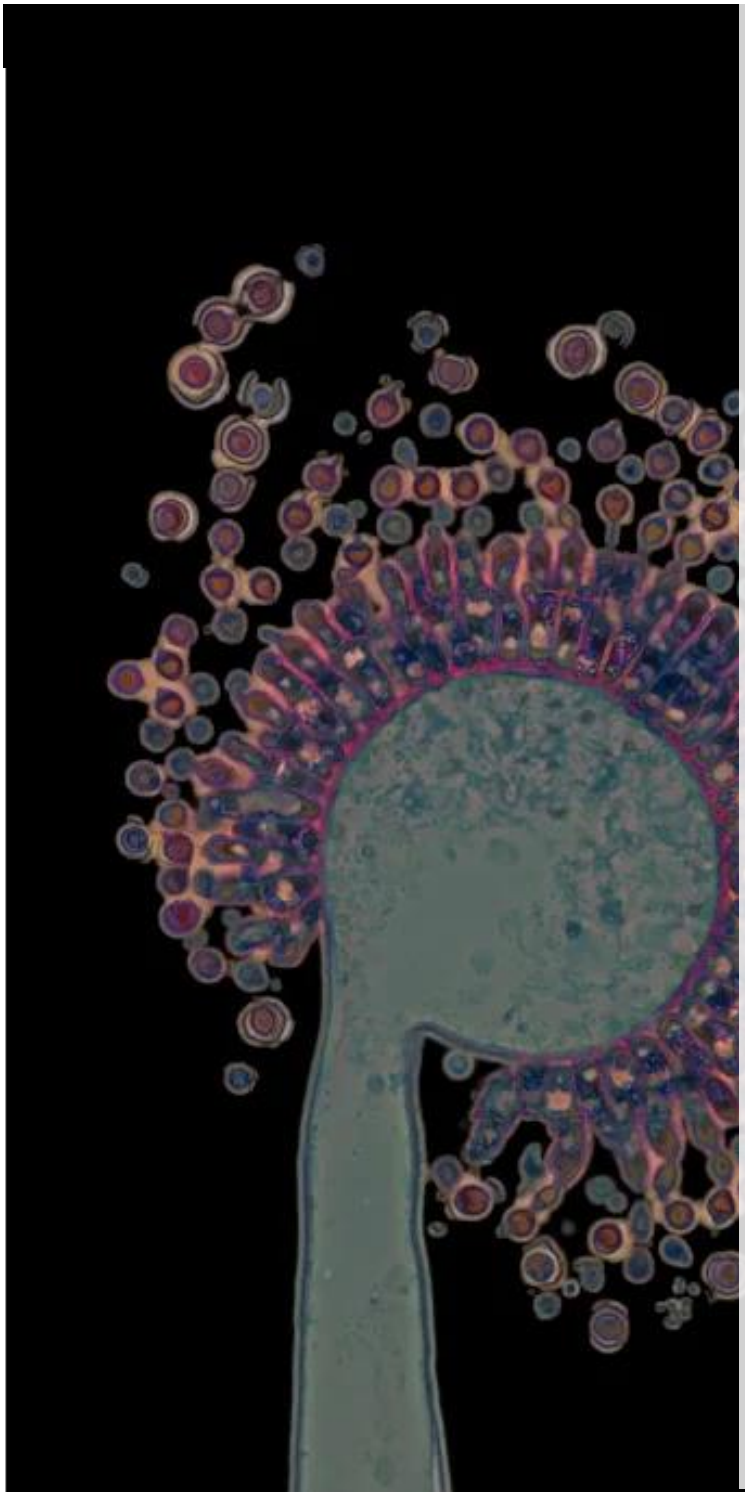

UC Davis Health Antimicrobial Stewardship Program

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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.

Image: Stained cross section showing a conidiophore of Aspergillus oryzae viewed using a light microscope. https://news.harvard.edu/gazette/story/2017 /11/photos- reveal-strange-beauty-of-microbes/

In This Issue

Hospital-Acquired Pneumonia (HAP)

Diagnosis

- Clinical symptoms of pneumonia (e.g., fever, cough, dyspnea, pleuritic chest pain) **PLUS** hypoxia **PLUS** a new radiographic infiltrate that develops at least 48 hours after hospitalization
- Microbiology: either community-associated (e.g., *Streptococcus pneumoniae*, *Haemophilus influenzae*) or healthcare-associated pathogens (e.g., *Enterobacteriaceae* spp., *Pseudomonas aeruginosa*, *Staphylococcus aureus*); *Legionella* is an uncommon cause
  - *Enterococcus* spp. and *Candida* spp. that grow in sputum cultures are highly likely to be colonizers and do not require treatment
- Obtain sputum Gram-stain and culture whenever possible
- Obtain blood cultures for severely ill patients
- Consider obtaining *Legionella* urine antigen in patients with immunocompromise or severely ill
- Consider obtaining viral respiratory testing during respiratory virus season
- Consider non-infectious causes such as pulmonary embolism, volume overload, atelectasis

Treatment

- **Empiric therapy**
  - Coverage for *Enterobacteriaceae* spp., *P. aeruginosa*, streptococci, and *S. aureus* with an anti-pseudomonal β-lactam; consider combination therapy with an aminoglycoside with pseudomonal activity if severely ill
  - Coverage for methicillin-resistant *S. aureus* (MRSA) should be considered if the patient has known history of MRSA colonization or infection, intravenous drug use, necrotizing pneumonia, a recent stay in a nursing home or skilled nursing facility, or prolonged hospitalization with unknown MRSA colonization status
  - For all: Cefepime 2 g IV q8hrs
  - Add MRSA coverage if indicated or critically ill: Vancomycin per pharmacy
  - Add a 2nd empiric gram negative antibiotic if critically ill: Amikacin 10-15 mg/kg IV x 1

- **Narrowing and oral therapy**
  - If an alternate diagnosis is identified, stop HAP-targeted therapy
  - Use sputum culture results to narrow therapy
    - Discontinue antibiotics directed at MRSA and *Pseudomonas* spp. if not recovered
  - If cultures have not been obtained, base the decision to de-escalate therapy on clinical judgement and individual patient risk factors
  - After clinical improvement is observed and oral medications can be tolerated, consider conversion from intravenous to oral therapy
  - Levofloxacin 750 mg PO q24hrs

Duration

- 7 days if clincial response by day 3

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UCDAVIS HEALTH

August 22, 2022

Monkeypox Tip Sheet

DIAGNOSIS

Rash progression:
macules→papules→vesicles→pustules→crusts. Lesions are deep-seated, firm, well-circumscribed and may umbilicate or become confluent. Lesions are often painful, though at crusting stage can become itchy.

Clinical presentation can (but does not always) include prodromal fevers, chills, body aches, malaise, myalgias, localized lymphadenopathy. Occasionally systemic symptoms follow onset of rash. Rash in current outbreak frequently involve the genital and/or perianal area but can involve any area of the body including the face, arms, legs, and trunk.

Differential: HSV, VZV, Syphilis, Molluscum, Chancroid, acne, bacterial infections

For more information please see: Case Definitions† for Use in the 2022 Monkeypox Response Monkeypox | Poxvirus | CDC

Providers are NO LONGER required to notify public health of suspect or rule out monkeypox. DO CONTINUE TO NOTIFY Infection Prevention.

MONKEYPOX VIRUS SEND OUT TESTING – QUEST DIAGNOSTICS

ORDER: QUEST MONKEYPOX VIRUS DNA, QUAL RTPCR

Any provider can order Monkeypox testing.

Swab: Copan Floqswab
Media: Remel M4RT or BD

- Isolation flag "Rule out Monkeypox" will automatically be added for the patient once the order has been collected and isolation BPA will fire. Once test is resolved as negative the flag will auto remove. If positive the flag will convert to "Monkeypox-Confirmed.

ISOLATION

- Isolate and mask patients suspected of having monkeypox. Cover any exposed skin lesions with gown or sheet
- Initiate Airborne, Droplet, and Contact precautions
- PPE: Health care personnel evaluating patient should wear gloves, gown, and PAPR/N95 or elastomeric respirator with eye protection.
- If AGP and negative air room is not available, a HEPA unit should be used in patient room.
- Routine hospital disinfectants are sufficient for cleaning

Discharge isolation instructions: Isolation clearance can be determined by primary provider.

Patients are considered infectious until crusts fall off and new skin is present. Isolation generally lasts between 2 and 4 weeks.

COLLECTION AND TRANSPORT

- Any provider may collect the monkeypox specimen.
- Swab the pustule/lesion vigorously and place the swab into a viral culture media tube.
- If clinically indicated, consider submitting additional swabs if multiple lesions with different stages are present. Each lesion to be swabbed ONE TIME ONLY.
- Each specimen must be labeled with at 2 identifiers.
- IMPORTANT:
  - If multiple specimens collected on a single patient, EACH specimen should have a SEPARATE order. Package EACH specimen in a SEPARATE bag and seal the bag. Place sealed specimen bag inside another bag containing ice or an ice pack, seal bag AND then transport.

TREATMENT

Most cases of monkeypox in the current outbreak are self-limited. Tecovirimat is an investigational drug that can be offered for high-risk or serious cases. Currently treatment is being offered to patients with lesions in sensitive locations (genitals, face), disseminated disease, or at the discretion of Infectious Disease.

- Treatment is only available after Orthopox confirmation
- Treatment is only available for confirmed cases within normal business hours.

If otherwise medically stable, can be discharged from the ED. If patient is unable to isolate for any reason, please contact ID.

TREATMENT OR QUESTIONS

For treatment or questions resources

Call Antimicrobial Stewardship (on-call) M-F 8AM-5PM with the patient MRN.

NOTE: Oral Tecovirimat is currently being provided through Sacramento County Public Health in conjunction with UCD Infectious Diseases only.

Pediatric patients, please contact Pediatric Infectious Diseases On-Call

Infection Prevention questions, call UC Davis Infection Prevention 7AM-5PM.

After 5PM, contact Infectious Diseases Fellow (on-call) for emergencies only. Do not send e-consult regarding exposures or treatment as this may delay care, please follow workflow as below.

PROPHYLAXIS

Pre-exposure Prophylaxis: Consider for high-risk patients as determined by Sacramento County DPH which are listed below

- Men who have sex with men and/or transgender individuals who meet at least 1 of the following criteria:
  - Have tested positive for sexually transmitted infections in the past 2 months
  - Had 2 or more sexual partners in the last 3 weeks
  - Attended or work at a commercial sex venue in the 3 weeks
  - Had anonymous sex in the last 3 weeks
  - Engaged in transactional sex in the last 3 weeks
- Female and/or transgender individuals engaged in transactional sex
- Pre-exposure Prophylaxis is currently available through Sacramento County DPH or Pucci's Pharmacy. UCD is in the process of rolling out pre-exposure prophylaxis-Updates to follow.

County Vaccine clinics:
https://dhs.saccounty.gov/PUB/Pages/Communicable-Disease-Control/Monkeypox.aspx

Post-Exposure Prophylaxis: Jynneos Vaccine (age > 18 years old) within 4 days to prevent infection and 14 days to reduce severity of symptoms following high-risk exposure

- If a healthcare worker has been exposed, please contact Employee Health x4-3572 to determine if the exposure meets criteria for post-exposure prophylaxis
- If a patient has been exposed, please contact UCD Infection Prevention x4-0448 to determine if the patient meets criteria for post-exposure prophylaxis

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 diabetes presents to the ED from home with chest pain and is found to have a STEMI. He is admitted for further treatment. Nearing the end of his admission he develops fevers, chills, and cough. CXR shows a right-sided infiltrate. He is otherwise stable though his WBC count trended up from 8.5 to 10 this morning. He has no history of prior infections or drug use. His MRSA nasal swab was negative 5 days prior. He is started on intravenous antibiotics.

1. Which antibiotic regimen would be most appropriate?
   a. Meropenem 1 g IV q8hrs
   b. Cefadroxil 500 mg IV q12hrs
   c. Ceftriaxone 2 g IV q24hrs + Azithromycin 500 mg IV x 1
   d. Cefepime 2 g IV q8hrs

2. True or False: The patient's nurse asks whether the patient needs vancomycin as well due to the pneumonia's hospital onset. Given his stability, mild illness, and absence of MRSA risk factors or colonization within the prior 7 days vancomycin was not necessary.

3. The patient rapidly improves, and he is ready for discharge the next hospital day. His most recent QTc on EKG is 410. Which regimen would be best to complete his antibiotic treatment for his hospital acquired pneumonia (HAP)?
   a. Linezolid 600 mg PO q12hrs x 14 day total antibiotic course
   b. Cefpodoxime 200 mg PO q12hrs x 14 day total antibiotic course
   c. Trimethoprim-sulfamethoxazole 1 DS tab PO q12hrs x 7 day total antibiotic course
   d. Levofloxacin 750 mg PO q24hrs x 7 day total antibiotic course

4. Monkeypox's rash in the current global pandemic typically presents on the..?
   a. Genitals / rectal area > trunk / extremities / face
   b. Trunk / extremities / face > genitals / rectal area
   c. As a diffuse whole body rash

Answers to last Newsletter's quiz: 1. B, 2. A, 3. False, 2nd line is Doxy!, 4. D

ASP Gold Star Winners for July 2022

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:

- Eric Signoff (IM)

Fun Microbe Fact:

Each of your hands has its own related but separate microbiome that can differ from the other by over 87%. Bacterial phylotypes additionally varied by sex, left or right handedness, and time since last hand washing.

https://www.pnas.org/doi/full/10.1073/pnas.0807920105

Contact Us

The Antimicrobial Stewardship Program team members

Adult ASP Physicians:

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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
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"