MONKEYPOX CASES
(See also MONKEYPOX OUTBREAKS)

1. **Agent:** Monkeypox virus, belongs to the *Orthopoxvirus* genus in the family *Poxviridae*.

2. **Identification:**
   
a. **Symptoms:** In humans, the symptoms of monkeypox are similar to but milder than the symptoms of smallpox. Monkeypox symptoms can include fever (≥100.4°F), headache, muscle aches, backache, swollen lymph nodes, chills, exhaustion, rash and sometimes sore throat and cough. The main difference between symptoms of smallpox and monkeypox is that monkeypox shows pronounced lymphadenopathy. The swelling of the lymph nodes may be generalized or localized to several areas.

   The illness typically begins with fever, headache, muscle aches, backache, swollen lymph nodes, chills, and exhaustion. The development of these initial symptoms marks the beginning of the prodromal period. Shortly after the prodrome, lesions typically develop in the mouth and on the body. Cases can also present with a rash in the genital or perianal area with or without a prodrome. These lesions typically begin to develop simultaneously and evolve together on any given part of the body. Lesions progress through the following stages before falling off:

   1. Enanthem: first lesions develop on the tongue and in the mouth.
   2. Macules (1-2 days): starting on the face and spreading to the arms and legs and then to the hands and feet, including the palms and soles. The rash typically spreads to all parts of the body within 24 hours becoming most concentrated on the face, arms, and legs (centrifugal distribution).
   3. Papules (1-2 days): by the third day of rash, lesions have progressed from macular (flat) to papular (raised).
   4. Vesicles (1-2 days): by the fourth to fifth day, lesions have become vesicular (raised and filled with clear fluid).
   5. Pustules (5-7 days): by the sixth to seventh day, lesions have become pustular (filled with opaque fluid), sharply raised, usually round, and firm to the touch (deep seated). Lesions will develop a depression in the center (umbilication). Pustules will remain for approximately 5-7 days before beginning to crust.
   6. Scabs (7-14 days): by the end of the second week, pustules have crusted and scabbed over. Scabs will remain for about a week before beginning to fall off.

   The illness typically lasts for 2-4 weeks. If vaccinated for smallpox or monkeypox, the rash may be more pleomorphic and not in a uniform stage of development.

   b. **Differential Diagnosis:** Although there are other causes of generalized rash illness which present as vesicles and pustules, the severe prodrome along with the nature of the rash, lymphadenopathy and its evolution distinguishes monkeypox from other diseases. The diseases, which can look similar to monkeypox, include: smallpox, Tanapox, orf, bovine stomatitis, varicella, disseminated herpes simplex, disseminated herpes zoster, drug eruptions, contact dermatitis, measles, bacterial skin infections, syphilis, scabies, parapoxvirus infection, and anthrax.

   c. **Diagnosis:** Definitive diagnosis can be made with laboratory confirmation. Diagnostic tests include PCR and virus isolation by cell culture, ELISA and antigen tests can detect exposure to the virus.

   d. **Incubation:** usually 7-14 days but can range from 5-21 days.

   e. **Reservoir:** Human infections have been documented through the handling of infected monkeys, Gambian giant rats and squirrels, and rodents (most likely reservoir). Eating inadequately cooked meat of infected animals is a possible risk factor.
f. **Source:** Macules, papules, vesicles, pustules, and scabs on the skin and tongue and in the mouth of humans. Also, direct contact with body fluids or lesion material of infected animal or indirect contact with lesion material, such as through contaminated bedding.

g. **Transmission:** Transmission occurs when a person comes into contact with the virus from an animal, human, or materials contaminated with the virus. The virus enters the body through broken skin (even if not visible), respiratory tract, or the mucous membranes (eyes, nose, or mouth).

Human-to-human transmission can occur through: direct contact with infectious rash, scabs or bodily fluids, respiratory secretions during prolonged, face-to-face contact, or during intimate physical contact such as kissing, cuddling or sex, and indirect contact with lesion material, such as through contaminated clothing or linens. Pregnant people can spread the virus to their fetus through the placenta.

Animal-to-human transmission may occur by bite or scratch, eating or preparation of bush meat or using products from an infected animal.

h. **Communicability:** A person is infectious from the time symptoms start until all scabs have separated, the rash has fully healed, and a fresh layer of skin has formed. The illness typically lasts 2-4 weeks. People who do not have monkeypox symptoms cannot spread the virus to others.

i. **Specific treatment:** There are no treatments specifically for monkeypox virus infections. However, monkeypox and smallpox viruses are genetically similar, which means that antiviral drugs and vaccines developed to protect against smallpox may be used to prevent and treat monkeypox virus infections. Antivirals, such as tecovirimat (TPOXX), may be recommended for people who are more likely to get severely ill, like patients with weakened immune systems. Please note, TPOXX should be taken within 30 minutes after a full meal containing moderate or high fat, so supporting clients to ensure they are aware and have consistent access to high fat foods may be needed.

j. **Immunity:** Unknown at this time, pending more research data.

k. **Risk Factors for Severe Disease:** Although most monkeypox cases have been self-limited, occurrences of severe manifestations and death have been observed in the United States, particularly in persons with AIDS (CD4<200). In cases with severe disease, or with ongoing disease despite treatment, providers may need to extend tecovirimat (TPOXX) treatment beyond 14 days and escalate therapy to include other available treatments. For cases with HIV disease who are not on antiretroviral therapy (ART), providers should initiate ART as soon as possible. All sexually active cases with suspected or confirmed monkeypox should be tested for HIV at the time of testing for monkeypox, or as soon as possible once diagnosed if not already done at time of monkeypox testing, unless the case is already known to have HIV infection.

**REPORTING PROCEDURES**

1. **Report all monkeypox or orthopoxvirus infections, hospitalizations, and deaths within 1 working day from identification** (Title 17, Section 2500. *California Code of Regulations*).

   A. Report cases online via the LAC DPH secure monkeypox reporting portal: [https://dphredcap.ph.lacounty.gov/survey?s=DMRYFCC3TM](https://dphredcap.ph.lacounty.gov/survey?s=DMRYFCC3TM)

   B. **If hospitalized patients are worsening clinically,** such as being admitted to the ICU, providers are asked to please contact the LAC DPH healthcare provider line for clinical consultation and to access additional therapeutic options.

      - Weekdays 8:30am-5pm: call 213-240-7941.
      - Weekends and holidays 8:00am-5pm: call 213-974-1234 and ask for the physician on call.
      - Evenings for urgent situations only: call 213-974-1234 and ask for the physician on call.

   C. Confidential Morbidity Report may be submitted via fax if cannot submit online. See instructions on
Acute Communicable Disease Control Manual (B-73)
Revised 11.8.22

PART IV: Acute Communicable Diseases

MONKEYPOX CASES — page 3

http://publichealth.lacounty.gov/acd/monkeypox/#reporting

D. Contact LAC DPH Public Health Laboratory (PHL) Bioterrorism Response Unit at 562-658-1360 for specific questions on specimen packaging and submission to PHL. After-hours County Operator: 213-974-1234 (ask for Public Health Lab Director). PHL test request forms can be downloaded at http://www.lapublichealth.org/lab/.

E. Any laboratory that receives a specimen for monkeypox testing is required to report to the California Department of Public Health Microbial Diseases Laboratory immediately (Title 17, Section 2505, California Code of Regulations).

2. Report Forms:

Monkeypox REDCap Case Interview Form – See REDCap link in IRIS under Case Manage DI tab

Monkeysx Contact Listing Form1 (used during case interview)

Monkeypox REDCap Contact Monitoring Form – See REDCap link in IRIS under Case Manage CI tab

3. Epidemiologic Data:

a. Exposure to a suspect, probable or confirmed human case of monkeypox.

b. Attendance at social gatherings, events or venues where there is direct, personal, often skin-to-skin contact and/or intimate sexual contact

c. Healthcare worker occupational exposure

d. Exposure to an exotic or wild mammalian pet with clinical signs of illness (e.g. conjunctivitis, respiratory symptoms, and/or rash).

e. Exposure to an exotic or wild mammalian pet with or without clinical signs of illness that has been in contact with a case of monkeypox either in a mammalian pet; or a human with monkeypox.

f. History of travel in 21 days prior to onset, returning from endemic regions. https://www.cdc.gov/poxvirus/monkeypox/about.html or countries experiencing an outbreak (see CDC Monkeypox Outbreak Global Map).

CONTROL OF CASE, CONTACTS & CARRIERS

ACDC will coordinate with Community and Field Services (CFS) for all case and contact investigations for monkeypox. Personnel designated for case interviews and contact investigation should attempt to interview and case manage cases via phone calls. If a face-to-face visit is required, personnel must wear proper PPE for airborne and droplet precaution including gown, gloves, N95 or respirator, and eye protection when interviewing cases and contacts. Initial investigation will be conducted immediately upon notification by ACDC.

CASE:

1. Interview case by phone:
   - Places visited by the case during the exposure period, including; travel, social events, health care provider offices, clinics, emergency departments, work, school, and regular as well as occasional activities.
   - Places visited by the case during the infectious period, including; travel, social events, health care provider offices, clinics, emergency departments, work, school, and regular as well as occasional activities.
   - Sexual partners
   - Symptoms and onset date.

Contacts to Case:

- Detailed name and contact information for all persons (including sexual, intimate,

---

1 http://publichealth.lacounty.gov/acd/Diseases/EpiForms/MonkeypoxContactListing.xlsx
household, visitors to home, work, medical/dental including urgent care/clinics/hospitals, physical therapy, masseuse) with whom the case had contact during the infectious period.

- If case reports any visits to seek care at an acute care hospital during the infectious period, contact ACDC. ACDC will follow up with acute care hospital to identify HCWs who were exposed to the case. (all other contacts including high/intermediate risk sexual, household, intimate, work, or HCW exposure occurred while providing medical care at a healthcare facility including urgent care, clinic, etc. – send contact information to Morbidity to enter as a contact.

- CFS to investigate contacts in all other healthcare settings including urgent care, clinic, skilled nursing facility, long-term care facility, etc.
  - Nature of exposure should be obtained to determine risk level of the contacts. Refer to Appendix 1a or 1b.

- If case could not provide address of the contacts, Morbidity will search for their address in database. If no address is found, it will be sent back to CFS to call the contacts, obtain address, and resend the contact line list to Morbidity.

2. Educate the case on isolation and discontinuation of isolation.

3. Assess for wrap around services needed. Recommend HIV/STD testing every 3 months if sexually active MSM or transgender patient. Recommend HIV pre-exposure prophylaxis (PrEP) if case HIV negative. Referrals can be made to select DPH sexual health clinics or DPH funded PrEP Centers of Excellence at http://getprepla.com/centers-of-excellence/.

4. If case reports their lesions have resolved, the scabs have fallen off, and a fresh layer of intact skin has formed, case can discontinue isolation.

5. If no contact is made within 24 hours and 3 virtual attempts were made throughout the day and record search conducted, refer to MD/ND 144.

6. Single cases in certain settings (i.e. SNF, K-12 schools, early care and education (ECE) programs, camps, and other community settings serving children or adolescents such as sports leagues and after-school programs) may require additional follow-up if high or intermediate exposure occurred (refer to Appendix 1a) in consultation with AMD. Refer to the following for recommendations based on the setting:
  - SNF – refer to Guidance for Long Term Care Facilities (LTCFs): Skilled Nursing Facilities (SNFs) and Community Care Facilities (CCFs) http://publichealth.lacounty.gov/acd/docs/LTCF_MPX_Guidance.pdf
  - Schools, ECE, camps and other settings – refer to CDC: Schools, Early Care, and Education Programs and Other Settings Serving Children or Adolescents: https://www.cdc.gov/poxvirus/monkeypox/community/school-faq.html
  - Single case investigation to be done with venue to assess the situation, to ensure there are not more cases, and to offer vaccine where appropriate.
  - May warrant PEP vaccine at the site based on exposure risk levels and vaccine availability. Vaccine will be offered based on results of investigation.

**MONITORING CONTACTS:**

1. Contacts should be actively monitored for symptoms (fever \( \geq 100.4 \), lymphadenopathy, rash) for 21 days after last exposure. (See Appendix 1 for schedule based on risk level)
   - High and Intermediate Risk – on 3 separate occasions:
     i. Initial calls to newly identified High or Intermediate Risk contacts will be made by CFS.
     ii. 10-14 days from last exposure, ACDC sends a text message to assess symptom development
     iii. 21 days from last exposure, ACDC sends a text message to assess symptom development
   - Low-no monitoring

2. Determine risk level and determine need of post-exposure prophylaxis (PEP) of contact.
3. Phone contact to confirm exposure to the case, determine risk level, and determine the presence or absence of symptoms and offer PEP if meets criteria (High or Intermediate Risk). Refer to Appendix 1a or 1b for PEP recommendations for different risk levels.

4. Instruct contact to monitor temperature twice daily and to contact PHI immediately if symptoms develop.

5. If contact is or becomes symptomatic, instruct contact to self-isolate and assess for which symptoms the contact is reporting (fever, rash, lymphadenopathy) and refer to MD/ND 144.

6. CFS will be notified immediately if symptoms are reported on Day 10-14 and Day 21 text message assessment.

7. If no contact is made within 3 days and record search conducted, refer to MD/ND 144.

8. If case reports seeking care at an acute care hospital while infectious, do NOT contact the hospital. Contact ACDC. ACDC will follow up with acute care hospital HCW exposures.

9. CFS to investigate contacts in all other healthcare settings including urgent care, clinic, skilled nursing facility, long-term care facility, etc.

10. For PEH PUI, refer to MD/ND 144.

11. Recommend HIV/STD testing every 3 months if sexually active MSM or transgender patient. Recommend HIV pre-exposure prophylaxis (PrEP) if contact not known to be HIV positive. Referrals can be made to select DPH sexual health clinics or DPH funded PrEP Centers of Excellence at http://getprepla.com/centers-of-excellence/

CARRIERS: Not applicable.

PREVENTION-EDUCATION

ACAM2000 and JYNNEOS™ are the two currently licensed vaccines in the U.S. to prevent smallpox and both may be effective in preventing or reducing the symptoms of monkeypox. See Vaccination section below for more information.

Educate all cases and contacts regarding the transmission and communicability of monkeypox and the actions required to prevent further transmission.

Cases
Provide isolation instructions to cases, including duration, use of PPE, hand hygiene and cleaning. http://publichealth.lacounty.gov/acd/Monkeypox/docs/MonkeypoxIsolation.pdf

Cases with pets in the home should receive education (see CDC website regarding Pets in the Home: http://publichealth.lacounty.gov/media/monkeypox/docs/Monkeypox_FAQ_PetOwner.pdf)

Provide information on decontamination of household surfaces – Standard household cleaning/disinfectants may be used in accordance with the manufacturer’s instructions.

Contacts
Provide guidance to exposed individuals http://publichealth.lacounty.gov/acd/docs/MonkeypoxGuidanceforExposedIndividuals.pdf

OUTBREAK DEFINITION

Five or more laboratory-confirmed cases of monkeypox in persons associated with a sex-on-premises venue/event OR three or more laboratory-confirmed cases at shelters, correctional facilities, group homes, similar settings within a 21-day period.

Refer to B73 Monkeypox Outbreaks for outbreak investigations.

INFECTION CONTROL IN HOSPITAL AND HOME SETTING

1. Infection Control in Hospital

Standard Precautions should be applied for all patient care, including for patients with suspected monkeypox. Activities that could resuspend dried material from lesions, e.g., use of portable fans, dry dusting, sweeping or vacuuming should be avoided. Place a suspect or confirmed monkeypox patient in a single-person room; special air handling is not required. Keep door closed. The patient
should have a dedicated bathroom. Limit transport and movement outside of room to medically essential purposes. If transporting outside of room, have patient wear a medical mask and cover any exposed skin lesions with a sheet or gown. Intubation/extubation or any procedure likely to spread oral secretions should be done in airborne isolation room. PPE for healthcare workers entering room should include gown, gloves, eye protection (google or face shield) and NIOSH-approved particulate respirator equipped with N95 filters or higher. Maintain isolation for the duration of disease until all lesions have resolved, and a fresh layer of skin has formed.

Recommended additional precautions include: proper hand hygiene, correct containment and disposal of contaminated waste, care when handling soiled laundry, care when handling used patient-care equipment, and ensuring procedures are in place for cleaning and disinfecting environmental surfaces.

2. Infection Control in Home

Patients who do not require hospitalization for medical indications may be isolated at home using protective measures. The following factors need to be considered before implementing isolation:

a. If patient is a child or adult
b. The presence of additional infected or uninfected persons or pets in the home
c. The nature and extent of lesions in each case

Home Isolation

- Persons with extensive lesions that cannot be easily covered (excluding facial lesions), draining/weeping lesions, or respiratory symptoms (e.g. cough, sore throat, runny nose) should be isolated in a room or area separate from other family members when possible.
- Persons with monkeypox should not leave the home except for follow-up medical care.
- Household members who are not ill should limit contact with the case.
- Pets should be excluded from the case’s environment.

Use of PPE at Home

Persons with monkeypox should wear a surgical mask. Disposable gloves should be worn for direct contact with lesions. Skin lesions should be covered to the best extent possible to minimize risk of contact with others. Disposal of contaminated waste (such as dressings and bandages) should continue as normal. Recommend using a dedicated, lined trash receptacle in the room where case is isolating for disposal of contaminated waste.

Hand Hygiene and Cleaning

Hand hygiene (soap and water hand washing, alcohol-based hand rub) should be performed by infected persons and household contacts. Laundry may be washed in a standard washing machine with warm water and detergent. Dishes and other eating utensils should not be shared and washed with warm water and soap. Contaminated surfaces should be cleaned and disinfected using standard household cleaning or disinfectants in accordance with the manufacturer's instructions.

DIAGNOSTIC PROCEDURES

1. Culture: Culture of vesicular or pustular fluid or scabs is available through the CDC. Contact the LAC Public Health Laboratory for specific procedures prior to any attempt to obtain specimens from patients with suspected monkeypox.

Note: Healthcare provider must wear proper PPE including gown, gloves, fit-tested N95 or respirator, and eye protection when having direct or indirect contact with monkeypox cases or suspects. Photos of lesions must be taken; include photos of the palms and soles regardless of the presence of lesions. DPH staff may be deployed for this task.

---

https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-hospital.html
2. **Serologic Testing**: Acute and convalescent serologic testing is available through the CDC. 7-10 cc of blood should be drawn into a red/gray (marbled), gold, or red topped serum separator tube. Contact the LAC Public Health Laboratory prior to collection of serologic specimens from patients with suspected monkeypox.

3. **Electron Microscopy**: Because of the distinct appearance of poxviruses, electron microscopy can be helpful in the rapid diagnosis of monkeypox. This test is available through the CDC. Contact the Public Health Laboratory for information regarding this test. See [CDC Preparation and Collection of Specimens](http://publichealth.lacounty.gov/ip/providers_resources.htm).

### VACCINATION

Refer to B71: [http://publichealth.lacounty.gov/ip/providers_resources.htm](http://publichealth.lacounty.gov/ip/providers_resources.htm)

### ADVERSE EVENTS MONITORING AFTER VACCINATION

Refer to B71: [http://publichealth.lacounty.gov/ip/providers_resources.htm](http://publichealth.lacounty.gov/ip/providers_resources.htm)
### Appendix 1a. Recommendations for Management of Persons with Possible Exposure to Someone with MPX in community setting

<table>
<thead>
<tr>
<th>Degree of Exposure</th>
<th>Recommendations</th>
<th>PEP</th>
<th>Exposure Characteristics</th>
</tr>
</thead>
</table>
| **High**           | Three occasions:  
- During initial contact  
- Between 10-14 days from last exposure date  
- At 21 days from last exposure date | Recommended | - Those whose mucous membranes or broken skin came into contact with:  
  - Lesions or body fluids of a person with MPX; OR  
  - Materials that have contacted the lesions or body fluids of a person with MPX.  
- Examples  
  - any kind of sex, kissing, sharing cups, utensils, towels, clothing, and bedding. Providing or receiving physical care without using PPE. Engaging in sports with a very high degree of skin-to-skin contact.  
  - Include intimate partners, household members, physical care providers or recipients, and wrestling, grappling, or sparring partners. |
| **Intermediate**   | Three occasions:  
- During initial contact  
- Between 10-14 days from last exposure date  
At 21 days from last exposure date | Offered, if last exposure date was less than 14 days | - Those whose intact skin or clothing came into contact with:  
  - The lesions or body fluids of a person with MPX; OR  
  - Materials that have contacted the lesions or body fluids of a person with MPX.  
- Examples:  
  - Household members who might not otherwise be considered Exposed. (e.g., roommates)  
  - Persons who have gathered socially in crowded settings where limited clothing is worn.  
  - Persons who contacted the lesions or bodily fluids (or handled materials that contacted the lesions or body fluids) without using PPE (e.g., house cleaners, barbers, hairdressers, nail salon workers, massage therapists, and adult-care and child-care workers). |
| **Low/Uncertain**  | Not monitoring  
Not recommended |  | • Those who entered the living space of a person with MPX (regardless of whether the person with MPX was present), in the absence of meeting criteria to be considered Exposed or Potentially Exposed  
- Examples:  
  - Guests into homes, dormitories, or other living spaces of cases.  
  - Schools and workplaces without sleeping quarters are not considered living spaces. |
| None               | Not monitoring  
Not recommended |  | • No contact with the person with monkeypox, their potentially infectious contaminated materials, nor entry into their living space |
Appendix 1b. Recommendations for Management of **Healthcare Providers (HCP)** with Possible Exposure to Someone with MPX in **healthcare setting**

<table>
<thead>
<tr>
<th>Degree of Exposure</th>
<th>Recommendations Monitoring Frequency</th>
<th>PEP</th>
<th>Exposure Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High</strong></td>
<td>Three occasions:</td>
<td>Recommended</td>
<td>• Unprotected contact between an exposed individual’s broken skin or mucous membranes and the skin lesions or bodily fluids from a patient with monkeypox (e.g., inadvertent splashes of patient saliva to the eyes or mouth of a person), or soiled materials (e.g., linens, clothing) -OR- • Being inside the patient’s room or within 6 feet of a patient with monkeypox during any medical procedures that may create aerosols from oral secretions (e.g., cardiopulmonary resuscitation, intubation), or activities that may resuspend dried exudates (e.g., shaking of soiled linens), without wearing a NIOSH-approved particulate respirator with N95 filters or higher and eye protection</td>
</tr>
<tr>
<td></td>
<td>- During initial contact</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Between 10-14 days from last exposure date</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- At 21 days from last exposure date</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Intermediate</strong></td>
<td>Three occasions:</td>
<td>Offered, if last exposure date was less than 14 days</td>
<td>• Being within 6 feet for a total of 3 hours or more (cumulative) of an unmasked patient with monkeypox without wearing a facemask or respirator -OR- • Unprotected contact between an exposed individual’s intact skin and the skin lesions or bodily fluids from a patient with monkeypox, or soiled materials (e.g., linens, clothing) -OR- • Activities resulting in contact between an exposed individual’s clothing and the patient with monkeypox’s skin lesions or bodily fluids, or their soiled materials (e.g., during turning, bathing, or assisting with transfer) while not wearing a gown</td>
</tr>
<tr>
<td></td>
<td>- During initial contact</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Between 10-14 days from last exposure date</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- At 21 days from last exposure date</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Low/Uncertain</strong></td>
<td>Not monitoring</td>
<td>Not recommended</td>
<td>• Entry into the contaminated room or patient care area of a patient with monkeypox without wearing all recommended PPE, and in the absence of any exposures above</td>
</tr>
<tr>
<td><strong>None</strong></td>
<td>Not monitoring</td>
<td>Not recommended</td>
<td>• No contact with the patient with monkeypox, their contaminated materials, nor entry into the contaminated patient room or care area</td>
</tr>
</tbody>
</table>