Washington State Department of Health

Monkeypox

<table>
<tr><td>Signs and Symptoms</td><td colspan="3">• Prodrome: does not always occur; if present, may be fever, chills, headache, muscle aches, backache, swollen lymph nodes, and exhaustion, cough or a sore throat.
• Rash: follows 1 to 3+ days after prodrome (if any), may be on any part of the body and may spread. Isolated genital lesions (which can ulcerate) or rectal inflammation may also occur. Typically lesions progress over about 2 weeks: macule, papule, vesicle, pustule, scab but rash may be atypical, particularly on mouth or anogenital.</td></tr>
<tr><td>Incubation</td><td colspan="3">Usually 7−14 days, range 5−21 days</td></tr>
<tr><td rowspan="2">Case classification</td><td colspan="3">Clinical criteria: new rash, fever, other consistent symptoms
Epi criteria: contact of a case or person with rash; man having regular in-person intimate close contact with men; travel to risk region; contact with exotic animal</td></tr>
<tr><td>Confirmed: positive PCR OR Next-Generation sequencing OR positive culture for monkeypoxvirus</td><td>Probable: No other Orthopox risk AND positive lab test for orthopoxvirus</td><td>Suspect: New characteristic rash OR epi criterion and high clinical suspicion for monkeypox</td></tr>
<tr><td>Differential diagnosis</td><td colspan="3">Smallpox, chickenpox, shingles, measles, coxsackievirus, molluscum contagiosum, drug allergy, insect bites, scabies, rubella, syphilis, mononucleosis, impetigo, scarlet fever; for genital lesions: syphilis, herpes, chancroid; monkeypox can occur with another infection</td></tr>
<tr><td>Treatment</td><td colspan="3">Encourage antiviral agents (investigational); post-exposure vaccine may prevent infection</td></tr>
<tr><td>Duration</td><td colspan="3">2-4 weeks or longer; contagious until scabs shed and healthy skin appears</td></tr>
<tr><td>Exposure</td><td colspan="3">Person-to-person; rarely contact with exotic animal</td></tr>
<tr><td>Laboratory testing at PHL</td><td colspan="3">Clinical testing available. Local health jurisdiction (LHJ) can also arrange testing for cases. Serology available through CDC.
• Washington State Public Health Laboratories performs PCR on swabs
• Best specimens: swab 2 to 4 lesions with synthetic swabs, each in viral (not universal) transport medium or in dry vial; label each: name, birthdate, collection date, body site

Specimen shipping (Section 4):
• Refrigerate within an hour. Keep all specimens cold if will arrive within 24 hours, otherwise freeze and ship frozen (except for serum). Include a BT form for each specimen: https://doh.wa.gov/sites/default/files/legacy/Documents/5230//302-018-BioterrorismSpecimen.pdf?uid=62942c8563327
• Specimen Collection and Submission Instructions: http://www.doh.wa.gov/Portals/1/Documents/5240/SCSI-Cbot-tox-V1.pdf and https://doh.wa.gov/sites/default/files/2022-06/420%20416%20Monkeypox%20Specimen%20Testing.pdf?uid=6297e8f61c21e</td></tr>
<tr><td>Public health actions

URGENT</td><td colspan="3">LHJ should immediately report suspected or confirmed cases to CDEpi (206-418-5500).
• Isolate potential case, obtain full clinical information, other test results, and if available digital photographs, and consult with CDEpi for testing a/o treatment
• Identify close contacts; if case tests positive, interview contacts and conduct symptom monitoring for 21 days

Infection Control (home and healthcare settings):
https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-home.html
https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-healthcare.html</td></tr>
</table>

Monkeypox

1. DISEASE REPORTING

A. Purpose of Reporting and Surveillance

1. To understand the epidemiology of monkeypox in Washington State residents and to inform public health and healthcare organizations about conditions that have been diagnosed in residents.
2. To assist in the diagnosis and treatment of cases.
3. If applicable, to identify potentially exposed close contacts, healthcare workers, and laboratory personnel and to provide counseling.
4. To identify sources of transmission and to prevent further transmission.
5. To raise the index of suspicion of a possible bioterrorism event if no natural exposure source is identified.

B. Legal Reporting Requirements

1. Health care providers: **immediately notifiable to local health jurisdiction**
2. Health care facilities: **immediately notifiable to local health jurisdiction**
3. Laboratories: **immediately notifiable to local health jurisdiction**
4. Local health jurisdictions: **immediately notifiable to the Washington State Department of Health (DOH) Office of Communicable Disease Epidemiology (CDE) at 206-418-5500 or 877-539-4344.**

C. Local Health Jurisdiction Investigation Responsibilities

1. Begin follow up investigation immediately.
2. Report any case to CDE through the Washington Disease Reporting System (WDRS) as a Rare Disease of Public Health Significance, including entering the 'Rare disease of public health significance' in the Clinical and Laboratory tab.

2. THE DISEASE AND ITS EPIDEMIOLOGY

A. Etiologic Agent

Monkeypox virus, a DNA virus in the genus *Orthopox*. There are two clades: central African and west African; the west African clade causes milder illness. There can be various strains within a clade Related viruses are variola virus (cause of smallpox), vaccinia virus (smallpox vaccine), and cowpox virus.

B. Description of Illness

The illness often but not always begins with a prodrome including fever, chills, headache, muscle aches, backache, lymphadenopathy, and exhaustion, as well as cough or a sore throat. Lymphadenopathy can involve the neck, armpits, or groin, and be on one or both sides of the body, but is not always present. Either genital lesions (which can ulcerate) or rectal inflammation without external rash may occur without a febrile prodrome.

From 1 to 3 or more days after the prodrome (if present), a rash develops. The typical rash has deep-seated well-circumscribed firm discrete lesions but smaller less typical lesions have also been described in the 2022 outbreak. Lesions often but not always start on the face and then spread to other body areas, particularly the extremities. Lesions can be: asynchronous (multiple stages on a body site), scattered, or diffuse, limited to one body part (e.g., face, anogenital), disseminated (particularly with immunosuppression), shallow rather than deep-seated, or under a nail. Spread is generally system, not by direct transfer of viral material. Typical but not all rash lesions progress through stages synchronously on a body site:

- Macule: spot with change in skin coloring
- Papule: raised (palpable) solid lesion
- Vesicle: circumscribed elevated lesion filled with clear fluid
- Pustule: circumscribed elevated lesion filled with opaque pus
- Scab: dry, dark

Vesicular or pustular lesions may ulcerate or umbilicate in the center and the surrounding skin may redden. Keratitis or pneumonia may occur. Secondary bacterial infection can cause abscesses. Penile lesions can result in phimosis or balanitis. Lesions are often quite painful, while scabs are itchy. Scabs may leave pitted scars or altered pigment.

The total duration of symptoms is 2−4 weeks. Case fatality rates during outbreaks in Africa have reached 10%, with higher risk for children. Few deaths are reported in 2022.

Clinicians should consider other conditions causing rashes including: chickenpox, shingles, measles, coxsackievirus (hand foot mouth disease), scabies, drug allergy, insect bites, rubella, syphilis, molluscum contagiosum, mononucleosis, impetigo, scarlet fever, erythema toxicum, smallpox; for genital lesions: syphilis, herpes simplex virus infection, chancroid, varicella zoster. Note that multiple concurrent infections can occur (e.g., herpes and monkeypox).

For general FAQ see: https://www.cdc.gov/poxvirus/monkeypox/faq.html

For clinicians see: https://www.cdc.gov/poxvirus/monkeypox/clinicians/faq.html and https://www.cdc.gov/poxvirus/monkeypox/clinicians/clinical-recognition.html

For infections during pregnancy see: https://www.cdc.gov/poxvirus/monkeypox/clinicians/pregnancy.html

C. Monkeypox in Washington State

Prior to 2022 no cases had been detected. In May 2022 at least four cases in Washington were identified during an international outbreak involving the west African strain. During the first month of the outbreak, cases were identified in Europe, North America (US data: U.S. Monkeypox 2022: Situation Summary | Monkeypox | Poxvirus | CDC), South America, the Middle East, and Australia. Very few deaths occurred. For a global update see: https://www.who.int/health-topics/monkeypox#tab=tab_1

D. Reservoirs

Although first recognized in a research monkey colony, the reservoir for the virus in Central and West African countries is unknown. Several species of primates and rodents

are known to be susceptible to infection with monkeypox virus. Person-to-person transmission occurs with close or intimate contact, or through fabrics or material with lesion or scab contamination.

E. Modes of Transmission

Monkeypox is acquired by close contact with an infected animal or with an infected person. The virus is present in the rash, scabs and scab fragments, and, if there are oral lesions, in saliva. Contact with clothing or bedding contaminated with lesion fluid or scabs can result in transmission. Transplacental transmission can occur. Virus occurs in the mouth and throat but droplet transmission alone is rarely implicated, so prolonged face-to-face contact is likely necessary for spread. Transmission during an air flight has not been documented. Transmission in a healthcare setting may have occurred through contaminated bedding: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7101111/pdf/19-1164.pdf. Also see: https://www.cdc.gov/poxvirus/monkeypox/transmission.html

F. Incubation Period

The incubation period (time from infection to symptoms) for monkeypox is usually 7−14 days but can range from 5−21 days.

G. Period of Communicability

Communicable from onset of the first symptom until the last scab separates with healthy skin below. Scabs can retain infectious virus. Shed scabs and fabrics contaminated with scabs should be handled in a safe manner. Virus may persist for weeks in fabrics.

H. Treatment

Antiviral agents approved for treatment of smallpox can be considered to prevent severe illness or complications, particularly for persons at increased risk for severe infection or with mucosal lesions (eye, mouth, anogenital area). There may be an applicable Expanded Access Investigational New Drug Protocol needed. Women who are pregnant should be prioritized for treatment. See:

https://www.cdc.gov/poxvirus/monkeypox/treatment.html

https://www.cdc.gov/poxvirus/monkeypox/clinicians/treatment.html

https://www.cdc.gov/poxvirus/monkeypox/clinicians/obtaining-tecovirimat.html

https://www.cdc.gov/poxvirus/monkeypox/clinicians/pregnancy.html

Antibiotics may be appropriate if lesions develop secondary bacterial infections.

Vaccination may be appropriate for post-exposure prophylaxis of close contacts (also see Section 7 for pre-exposure vaccination).

3. CASE DEFINITIONS

The situation is currently still evolving and case definitions may change in the future.

A. Case Definition (June 1, 2022)

Note that a person's categorization may change as the investigation continues (e.g., a person may go from Suspect to Probable).

Suspect case:

- New characteristic rash* OR
- Meets one of the epidemiologic criteria and has a high clinical suspicion for monkeypox; clinical suspicion may exist if presentation is consistent with illnesses confused with monkeypox (e.g., secondary syphilis, herpes, and varicella zoster

Probable case:

- No suspicion of other recent *Orthopoxvirus* exposure (e.g., *Vaccinia virus* in ACAM2000 vaccination) AND demonstration of the presence of:
  - *Orthopoxvirus* DNA by polymerase chain reaction of a clinical specimen OR
  - *Orthopoxvirus* using immunohistochemical or electron microscopy testing methods OR
  - o Demonstration of detectable levels of anti-orthopoxvirus IgM antibody during the period of 4 to 56 days after rash onset

Confirmed case:

- Demonstration of the presence of Monkeypox virus DNA by polymerase chain reaction testing or Next-Generation sequencing of a clinical specimen OR isolation of Monkeypox virus in culture from a clinical specimen

B. Epidemiologic Criteria for Diagnosis

Within 21 days of illness onset:

- Reports having had contact with a person who had a similar-appearing rash or who received a diagnosis of confirmed or probable monkeypox OR
- Had close or intimate in-person contact with individuals in a social network experiencing monkeypox activity, this includes men who have sex with men (MSM) who meet partners through an online website, digital application ("app"), or social event (e.g., a bar or party) **OR**
- Traveled outside the US to a country with confirmed cases of monkeypox or where Monkeypox virus is endemic **OR**
- Had contact with a dead or live wild animal or exotic pet that is an African endemic species or used a product derived from such animals (e.g., game meat, creams, lotions, powders, etc.)

C. Exclusion Criteria

A case may be excluded as a suspect, probable, or confirmed monkeypox case if:

- An alternative diagnosis* can fully explain the illness **OR**
- An individual has symptoms consistent with monkeypox but does not develop a rash within 5 days of illness onset **OR**
- A case's specimens do not demonstrate the presence of orthopoxvirus or Monkeypox virus or antibodies to orthopoxvirus as described in the laboratory criteria above

* The characteristic rash associated with monkeypox lesions involve the following: deep-seated and well-circumscribed lesions, often with central umbilication; and lesion progression through specific sequential stages—macules, papules, vesicles, pustules, and scabs; this can sometimes be confused with other diseases that are more commonly encountered in clinical practice (e.g., secondary syphilis, herpes, and varicella zoster). Historically, sporadic accounts of patients co-infected with Monkeypox virus and other infectious agents (e.g., varicella zoster, syphilis) have been reported, so patients with a characteristic rash should be considered for testing, even if other tests are positive. However, during the 2022 outbreak atypical rashes occurred that tested positive for the virus so the characteristic rash is not a requirement for testing.

https://www.cdc.gov/poxvirus/monkeypox/clinicians/case-definition.html

4. DIAGNOSIS AND LABORATORY SERVICES

A. Diagnosis

Testing for monkeypoxvirus is done at Washington State Public Health Laboratories (WAPHL) and various clinical laboratories. The decision to test is based on the provider's assessment. WAPHL does preliminary testing (identifying Orthopoxvirus and a Probable case). Some specimens positive for Orthopoxvirus are forwarded to CDC for confirmation as monkeypoxvirus. Clinical laboratories can confirm monkeypoxvirus.

B. Services Available at the Washington State Public Health Laboratories (WAPHL)

WAPHL can confirm *Orthopox* and rule out smallpox to give a Probable monkeypox case. Additional testing such as monkeypox confirmation for some specimens, serology, microscopy, and culture is done at CDC.

Note that WAPHL require all clinical specimens have two patient identifiers, a name **and** a second identifier (e.g., date of birth) both on the specimen label and on the submission form. Due to laboratory accreditation standards, specimens will be rejected for testing if not properly identified. For swabs also include the specific body site (e.g., left arm).

For CDC information see:

https://www.cdc.gov/poxvirus/monkeypox/clinicians/prep-collection-specimens.html and https://www.cdc.gov/smallpox/lab-personnel/specimen-collection/specimen-collection-procedures.html

C. Specimen Collection

Use appropriate person protective equipment when collecting specimens. Take correct specimens. For WAPHL obtain 2-4 swabs or scab specimens from separate lesions. Scrub the lesion firmly with the swab to collect human cells – it is not necessary to unroof the lesion. If no lesions exist, scabs can be tested with prior approval – call 206-418-5562 if this is the only specimen collection option. Oral or rectal swab are **not** acceptable specimens unless there is a visible lesion to swab. Place in screw-top vial with viral transport medium (**not** universal transport medium – CDC will not confirm specimens in UTM) or into a dry vial. Refrigerate specimens within one hour of collection. If specimen will **arrive** within 24 hours of collection, specimens can be shipped refrigerated. Otherwise freeze all specimens (except serum, which can be refrigerated if it will arrive within seven days of collection). Ship serum cold and all other specimens frozen.

For details of specimen collection including storage and shipping temperatures see: https://doh.wa.gov/sites/default/files/2022-06/420%20416%20Monkeypox%20Specimen%20Testing.pdf?uid=6297e8f61c21e

Label each specimen with two identifiers (e.g., name and date of birth), collection date, and the body site of the lesion (e.g., "palmer left hand second digit"). Each specimen should be packaged with its form in a separate bag. Multiple specimen bags can be combined in a secondary bag or container. For each specimen please enclose a completed WAPHL BT form available at: https://doh.wa.gov/sites/default/files/legacy/Documents/5230//302-018-BioterrorismSpecimen.pdf?uid=62942c8563327

5. ROUTINE CASE INVESTIGATION

Routine case investigation: notify CDE immediately for suspected or confirmed case. Interview the case and others who may be able to provide pertinent information and review available medical records including digital photographs of a rash.

A. Evaluate the Diagnosis

The local health jurisdiction should obtain information regarding:

- Symptoms preceding the rash including the first symptom and the date it occurred. Did the person have a fever, headache, muscle aches, backache, swollen lymph nodes, malaise/exhaustion, cough?
- Description of the rash? (Deep-seated and well-circumscribed? What stage/stages? Progression from macular and popular to vesicular and pustular? Lesions on a body part occur at the same stage? Painful or itchy?)
- Body part where the first lesion occurred
- Body parts now affected and which parts have the most lesions
- Underlying medical conditions, particularly any immunosuppression
- Any history of smallpox vaccination? If so, date and type?
- Providers can order testing through clinical laboratories without consultation. Prior to submitting specimens for testing at Washington State Public Health Laboratories, local health jurisdictions should contact Office of Communicable Disease Epidemiology (206-418-5500) for approval prior to submitting specimens for testing at DOH. Provide a full clinical history (onset, symptoms, rash description, travel and other potential exposures), results of other tests for rash illnesses (e.g., syphilis, herpes), and if possible also submit de-identified digital photographs of the lesions with a photo release. release (https://www.cdc.gov/tb/worldtbday/pdf/photo-release-form.pdf).

Advise the provider to consider and test for alternative diagnosis such as syphilis, herpes, or chickenpox. While testing and evaluation are being conducted, the person should be in home isolation (see Section D below).

Advise use of appropriate personal protective equipment when evaluating the patient and obtaining specimens for monkeypox and for other potential causes (see: https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-healthcare.html). Note that dual infections can occur (e.g., herpes and monkeypox).

The person should be in home isolation until testing is done. If orthopoxvirus testing is positive, the person should continue home isolation through the end of their contagious period. If orthopoxvirus testing is negative, an alternative diagnosis should be pursued, and continued home isolation determined based on clinical suspicion or alternate diagnosis (e.g., varicella). The end of isolation for monkeypox is based on resolution of all lesions with shedding of all scabs and formation of a fresh layer of skin at scab sites.

The person should be provided information about infection prevention including measures to reduce further spread of the rash to themselves or others (see Section 5E).

CDC issued special clinical considerations for persons who are:

- HIV infected: Rash may be atypical (e.g., disseminated, confluent.) Promptly offer treatment if infected or vaccine prophylaxis if a close contact. Monitor cases closely, particularly for secondary bacterial infections if the HIV infection is inadequately treated. Never give ACAM2000 (replicating vaccine) to any person with HIV infection or to their close contacts. For details see: https://www.cdc.gov/poxvirus/monkeypox/clinicians/people-with-HIV.html and https://www.cdc.gov/mmwr/volumes/71/wr/mm7132e4.htm?s_cid=mm7132e4_e&ACSTrackingID=USCDC_921-DM87245&ACSTrackingLabel=MMWR%20Early%20Release%20-%20Vol.%2071%2C%20August%205%2C%202022&deliveryName=USCDC_921-DM87245
- Children and adolescents: Avoid household contact between a case and children. Lesions could be confused with varicella (chickenpox); hand, foot, and mouth disease; measles; scabies; molluscum contagiosum; herpes; allergic skin rashes; syphilis; and drug eruptions. Data for pediatric infections are limited but rare complications could include abscess, airway obstruction due to severe lymphadenopathy, cellulitis, corneal scarring, keratitis, encephalitis, pneumonia, or sepsis. For details see: https://www.cdc.gov/poxvirus/monkeypox/clinicians/pediatric.html
- Pregnant or breastfeeding: Other Orthopox infections are known to be more severe during pregnancy. Prioritize pregnancy and breastfeeding persons for treatment. The rash could be confused with polymorphic eruption of pregnancy, varicella zoster or sexually transmitted infections. Viral transmission can occur in utero or perinatally, or with close contact during breast feeding. Stillbirth, preterm delivery, and neonatal infections have been reported. For details see: https://www.cdc.gov/poxvirus/monkeypox/clinicians/pregnancy.html

Treatment of confirmed or suspected infection is with antiviral agents under protocols for Expanded Access Investigational New Drugs (EA-IND), which requires informed consent and various forms. Patient visits can be conducted via telemedicine and laboratory testing is optional. Forms required under the EA-IND can be returned to CDC after treatment begins. CDC is available for consultation if needed for prescribing tecovirimat (TPOXX), which can be given in oral or IV form. Tecovirimat can be prescribed for children >3 kg and adults, with the IV formulation contraindicated for creatinine clearance <30 ml/min. See:

https://www.cdc.gov/poxvirus/monkeypox/clinicians/obtaining-tecovirimat.html. For ocular complications an option is trifluridine (Viroptic) which requires CDC consultation.

Encourage antiviral treatment for persons with:

- Severe disease (e.g., hemorrhagic disease, confluent lesions, sepsis, encephalitis, or other conditions requiring hospitalization)
- High risk of severe disease:
  - Immunocompromise (e.g., human immunodeficiency virus/acquired immune deficiency syndrome infection, leukemia, lymphoma, generalized malignancy, solid organ transplantation, therapy with alkylating agents, antimetabolites, radiation, tumor necrosis factor inhibitors, high-dose corticosteroids, being a recipient with hematopoietic stem cell transplant <24 months post-transplant or ≥24 months but with graft-versus-host disease or disease relapse, or having autoimmune disease with immunodeficiency as a clinical component)
  - Pediatric, particularly patients younger than 8 years of age
  - History or presence of atopic dermatitis, persons with other active exfoliative skin conditions (e.g., eczema, burns, impetigo, varicella zoster virus infection, herpes simplex virus infection, severe acne, severe diaper dermatitis with extensive areas of denuded skin, psoriasis, or Darier disease [keratosis follicularis])
  - Current pregnancy or breastfeeding women
  - One or more complications (e.g., secondary bacterial skin infection; gastroenteritis with severe nausea/vomiting, diarrhea, or dehydration; bronchopneumonia; concurrent disease or other comorbidities)
- Aberrant infections that include accidental implantation in eyes, mouth, or other anatomical areas where monkeypox virus infection might constitute a special hazard (e.g., the genitals or anus)
- Progressing disease, particularly if patient requires pain control

Treatment can be started early for a high risk patient, even before testing is done. Each healthcare facility needs to follow the IND protocol which includes providing contact information to CDC for IND follow-up and sending serum specimens to CDC. There is also separate PK testing of plasma at an outside laboratory (Alturus).

It is recommended that providers who will be prescribing TPOXX work through their local health jurisdiction. CDEpi can assist local health jurisdictions with obtaining TPOXX, which can be pre-positioned in certain situations (e.g., confirmed and probable cases, or highly likely suspect cases).

See:

https://www.cdc.gov/poxvirus/monkeypox/clinicians/treatment.html and
https://www.cdc.gov/poxvirus/monkeypox/clinicians/obtaining-tecovirimat.html

B. Identify Potential Sources of Infection

Ask about exposures 5-21 days before onset:

1. Travel particularly outside the United States including to a country with confirmed cases or with endemic monkeypox

a. Determine dates and locations of travel including: country, city, and any large gatherings or special events attended

b. Obtain air travel information: date, time, flight number, city of departure, city of arrival, seat number, if known names of those in adjacent seats

2. Man who regularly has close or intimate in-person contact with other men
3. Contact with a known monkeypox case or with a person having a similar rash
4. Recently received or in contact with a person who received smallpox vaccination

C. Identify Potentially Exposed Persons

Have the person under investigation identify close contacts (including household members, sexual partners and contacts during travel or healthcare visits). For air travel, obtain air travel information: date, time, flight number, city of departure, city of arrival, seat number, if known names of those in adjacent seats. If the person tests positive for non-smallpox Orthopox virus, conduct interviews with close contacts and report air travel to CDE. Assess a contact's degree of exposure and also their health status for risk of severe disease to determine whether prompt post-exposure prophylaxis (PEP) with vaccination is appropriate (see Section D below). (https://www.cdc.gov/poxvirus/monkeypox/clinicians/monitoring.html)

1. High degree of exposure – monitor for 21 days, recommend PEP:
   - Unprotected contact between a person's skin or mucous membranes and the skin, lesions, or bodily fluids from a patient (e.g., any sexual contact, inadvertent splashes of patient saliva to the eyes or oral cavity of a person, ungloved contact with patient), or contaminated materials (e.g., linens, clothing) OR
   - Being inside the patient's room or within 6 feet of a patient during any procedures that may create aerosols from oral secretions, skin lesions, or resuspension of dried exudates (e.g., shaking of soiled linens), without wearing an N95 or equivalent respirator (or higher) and eye protection OR
   - Exposure that, at the discretion of public health authorities, was recategorized to this risk level (i.e., exposure that ordinarily would be considered a lower risk exposure, raised to this risk level because of unique circumstances)
2. Intermediate degree of exposure – monitor for 21 days, consider PEP:
   - Being within 6 feet for 3 hours or more of an unmasked patient without wearing, at a minimum, a surgical mask OR
   - Activities resulting in contact between sleeves and other parts of an individual's clothing and the patient's skin lesions or bodily fluids, or their soiled linens or dressings (e.g., turning, bathing, or assisting with transfer) while wearing gloves but not wearing a gown OR
   - Exposure that, at the discretion of public health authorities, was recategorized to this risk level because of unique circumstances (e.g., if the potential for an aerosol exposure is uncertain, public health authorities may choose to decrease risk level from high to intermediate)
3. Low/uncertain degree of exposure – monitor for 21 days:

- Entered the patient room without wearing eye protection on one or more occasions, regardless of duration of exposure OR
- During all entries in the patient care area or room (except for during any procedures listed above in the high-risk category), wore gown, gloves, eye protection, and at minimum, a surgical mask OR
- Being within 6 feet of an unmasked patient for less than 3 hours without wearing at minimum, a surgical mask OR
- Exposure that, at the discretion of public health authorities, was recategorized to this risk level based on unique circumstances (e.g., uncertainty about whether Monkeypox virus was present on a surface and/or whether a person touched that surface)

Exposed contacts who remain asymptomatic can continue routine daily activities (e.g., go to work, school, etc.) but should monitor for symptoms and check their temperature as detailed below. However, they should not donate blood, cells, tissue, breast milk, semen, or organs during the symptom monitoring period (21 days since last exposure). Additionally, contacts with a high degree of exposure (based on the above framework) should not travel on commercial air flights during their monitoring period.

Contacts who are not healthcare workers should monitor their temperature twice daily for 21 days from last exposure. If fever or rash develop they should self-isolate and contact the local health jurisdiction. If chills or swollen lymph nodes occur the contact should remain in self-isolation and monitor for fever and rash. If symptoms persist without fever or rash the person should consult with their clinician.

Contacts who are healthcare workers with unprotected (not using proper personal protective equipment) exposure to a case should undergo 21 days of active surveillance with at least twice daily temperature checks. In addition the worker should be evaluated before each work shift regarding evidence of fever or rash.

D. Post-exposure Vaccine

Prompt **post-exposure prophylaxis (PEP)** with vaccine can reduce the chance of infection or severe illness in exposed persons. Consider PEP vaccination for asymptomatic persons including close contacts or healthcare personnel who had direct contact with lesions, crusts, or bodily fluids or who had over 3 hours of unprotected respiratory exposure. Greatest efficacy is within 4 days but up to 14 days of exposure. No information is available yet on the effectiveness of the vaccines in the current outbreak.

If vaccine is available, e**xpanded post-exposure prophylaxis (expanded PEP or PEP++)** is individual-directed PEP aiming to reach those with greater likelihood to have been recently exposed to monkeypox even without documented exposure to a suspected or confirmed case. Also consider PEP for persons with multiple sexual partners in the past two weeks in an area with known monkeypox cases.

Non-replicating vaccine (JYNNEOS also known as Imvamune or Imvanex) is a 2-dose series that can be given unless there is allergy to any vaccine component. Limited doses are available. *Replicating vaccine* is contraindicated for those with immunodeficiency. Due to risk of severe infection with replicating vaccine virus (progressive vaccinia), it should **not** be given to a contact with weakened immune systems, including patients with

leukemia, lymphoma, organ transplantation, generalized malignancy, HIV/AIDS, cellular or humoral immune deficiency, radiation therapy, or treatment with antimetabolites, alkylating agents, high-dose corticosteroids (>10 mg prednisone/day or equivalent for ≥ 2 weeks) or other immunomodulatory drugs. Persons with atopic dermatitis, eczema or other exfoliative skin conditions should also use a non-replicating vaccine. Vaccine safety is unknown for pregnant, breastfeeding, and pediatric persons. Individual approval is needed from FDA for use in a person under 18 years, under protocols for Expanded Access Investigational New Drugs (EA IND).

Consultation with CDC is not needed to decide whether a person should receive post-exposure vaccine. To obtain vaccine for post-exposure prophylaxis, contact Office of Communicable Disease Epidemiology.

See: https://www.cdc.gov/poxvirus/monkeypox/considerations-for-monkeypox-vaccination.html
https://www.cdc.gov/poxvirus/monkeypox/clinicians/smallpox-vaccine.html and
https://www.cdc.gov/vaccines/hcp/vis/vis-statements/smallpox-monkeypox.html

Report vaccine adverse events to VAERS: https://vaers.hhs.gov/

For pre-exposure vaccination see Section 7B.

E. Infection Prevention Recommendations

A person should isolate until test results are available. Except for follow-up medical care, a case testing positive should isolate at home until all scabs are dried and shed, and healthy skin has formed (2-4 weeks). The person should cover lesions as much as possible with clothing. The virus spreads in the body systemically, but theoretically auto-inoculation could occur into cuts or mucous membranes. Recommend that the case not use contact lenses while lesions are present, or adhere to strict thorough hand hygiene when touching the lens or eye. The case should consider not shaving, since small cuts could be infected by contaminated towels or garments.

A person in isolation should take steps to prevent transmission. Wear a tight-fitting mask when around others at home. Follow strict hand hygiene, particularly after touching lesions or potentially contaminated fabric or items. Do not share dishes or utensils. Clean and disinfect counters, surfaces, light switches, and handles frequently with appropriate household disinfectants (below). Avoid shaking out dirty fabric. Wash potentially contaminated clothing or bedding separately with detergent in hot water, and hot air dry. Put shed scabs or bandages from lesions in a plastic zip bag, seal, and discard in a dedicated lined trash can, then clean any potentially contaminated surface. Consider use of disposable gloves if there are lesions on the hands. Waterproof mattress covers, blankets, coversheets, or other barriers can be used on upholstered furniture.

In particular the case should avoid contact with anybody who has a weakened immune system, or who is pregnant or breast-feeding. The person should also avoid contact with wild or domestic mammals including pets (see Section F below). Household members should limit contact with the case, their garments, and their towels and bedding, and if possible not share a bathroom. Use an EPA-registered disinfectant (below) in shared spaces to clean a shower, toilet, sink, faucet, or counter.

For infection prevention at home see:
https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-home.html
https://www.cdc.gov/poxvirus/monkeypox/specific-settings/home-disinfection.html
https://www.cdc.gov/poxvirus/monkeypox/pdf/Monkeypox-Interim-Guidance-for-Household-Disinfection-508.pdf

Disinfectants: https://www.epa.gov/pesticide-registration/disinfectants-emerging-viral-pathogens-evps-list-q

For healthcare setting infection prevention see:
https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-healthcare.html

F. Zoonotic and Environmental Evaluation

1. Animal related issues

Infection has been documented in rodents and non-human primates, but all mammals should be considered susceptible to monkeypox. There is plausible risk of transmission from an infected person to mammals. Persons with monkeypox infection should take steps to avoid infecting pets, domestic animals, and wildlife. Notify Office of CDEpi Zoonotic Disease (206-418-5500) for an animal exposed to a human case. For detailed guidance see: https://doh.wa.gov/sites/default/files/2022-06/420%20421%20Guidance%20Monkeypox%20Animals.pdf?uid=62bcbbb9c2a4f and https://www.cdc.gov/poxvirus/monkeypox/veterinarian/index.html

Prairie dog outbreak: https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5227a5.htm and https://wwwnc.cdc.gov/eid/article/13/9/07-0175_article

2. Environmental issues (also see Section 5D above)

Persons in isolation should separate from others, do their own laundry, and safely dispose of scabs, bandages, and potentially contaminated materials. Virus may persist weeks or months. Standard household disinfectants should be used on contaminated surfaces, with frequent cleansing of counters, surfaces, light switches, and door handles. See:
https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-home.html
https://www.cdc.gov/poxvirus/monkeypox/specific-settings/home-disinfection.html

G. General resources

https://www.cdc.gov/poxvirus/monkeypox/ and
https://www.cdc.gov/poxvirus/monkeypox/response/2022/index.html

6. MANAGING SPECIAL SITUATIONS

A. Persons at risk

Persons with symptoms of monkeypox should contact their healthcare provider. Exposure risks include:

1. Traveled during the month before their symptoms began to countries where monkeypox cases have been reported recently (see: https://www.cdc.gov/poxvirus/monkeypox/response/2022/world-map.html and https://www.who.int/health-topics/monkeypox#tab=tab_1) including areas with confirmed cases of monkeypox OR

2. Had close contact (sexual contact, hugging, kissing) with a person with confirmed or suspected monkeypox or with contaminated material (fabric, towels) from the person OR
3. Is a man who regularly has close or intimate in-person contact with other men

Local transmission of monkeypox is occurring in the United States.

For general information see:

https://www.cdc.gov/poxvirus/monkeypox/response/2022/index.html

CDC info sheet: https://www.cdc.gov/poxvirus/monkeypox/pdf/MonkeyPox-sexually-active-InfoSheet-508.pdf

7. ROUTINE PREVENTION

A. Public Education

For information about safe social gatherings and safer sex see:

https://www.cdc.gov/poxvirus/monkeypox/specific-settings/social-gatherings.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fpoxvirus%2Fmonkeypox%2Fsexualhealth%2Fsocial.html and https://www.cdc.gov/poxvirus/monkeypox/sexualhealth/index.html

Avoiding stigma is essential. Work with community partners to establish effective messaging. See:

https://www.cdc.gov/poxvirus/monkeypox/reducing-stigma.html

B. Immunization Recommendations

Pre-exposure prophylaxis (PrEP) vaccination recommendations were issued for persons at risk for occupational exposure to Orthopoxviruses, including clinical laboratory personnel performing diagnostic testing for Orthopoxviruses, designated response team members, health care personnel who administer ACAM2000 (Smallpox [Vaccinia] Vaccine, Live), research laboratory personnel, those who care for patients infected with Orthopoxviruses, and those handling animals with Orthopox infections. Vaccine safety is unknown for pregnancy, breastfeeding, and pediatric patients.

See: https://www.cdc.gov/mmwr/volumes/71/wr/mm7122e1.htm?s_cid=mm7122e1_w and https://www.cdc.gov/vaccines/hcp/vis/vis-statements/smallpox-monkeypox.html

Once there are sufficient supplies of vaccine, vaccination may be available for anybody who considers themselves at risk.
https://www.cdc.gov/poxvirus/monkeypox/considerations-for-monkeypox-vaccination.html

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UPDATES

June 2022: Separated from Rare Disease guideline and expanded

June 10, 2022: More details provided about symptoms (Section 2B); for case definition positive IgM also requires no suspicion of other recent Orthopox exposure, exclusion criterion for negative tests requires high-quality specimens (Section 3); swab specimens suggested 2-4, shipping changed to Category B (Section 4); updated recommendations for isolation, contact monitoring, and completion of isolation (Section 5C); zoonoses information expanded (Section 5F), public education added (Section 7A)

June 29, 2022: clinical description updated in Section 2B to include symptoms apart from typical presentation (can be shallow lesions, few lesions, multiple stages); specimen collection updated testing without unroofing lesions (Section 4); added antiviral and vaccine information (Section 5A, 5D); zoonotic information previously in Section 5F removed due to development of a separate guidance.

July 26, 2022: new CDC link for infection during pregnancy (Section 2B); added information about clinical testing outside of PHL (Section 4A); expanded details about appropriate patients for antiviral treatment (Section 5A); summary of CDC's more streamlined protocol for obtaining TPOXX (Section 5D); expanded infection prevention in the home including avoiding self-inoculation (Section 5E): additional resources for preventing transmission (Section 6A).

August 5, 2022: changes to viral transport medium preferred to dry vial for PHL testing, scabs tested only with prior laboratory approval (Section 4)