

## DEFINITION

- Exposure to someone who has monkeypox.
- Patient has no fever, rash, or swollen lymph nodes.
- Questions about monkeypox.

Definition of **EXPOSURE** to monkeypox, any of the following:

- Skin-to-skin contact (e.g., hugging, kissing, massaging, having sex) with someone with monkeypox;
- Contact with materials (e.g., bed linens, clothing, sex toys) contaminated with monkeypox;
- Recent travel to a country where monkeypox is endemic (e.g., Central and West Africa).
- Not wearing a facemask during prolonged close contact (e.g., within 6 feet or 2 meters, for 3 hours or longer) with an unmasked person with monkeypox.

**Updated:** August 2, 2022 (version 2)

## TRIAGE ASSESSMENT QUESTIONS

### See More Appropriate Protocol

**Monkeypox Exposure** in past 21 days (e.g., direct skin contact such as sex, recent travel to West or Central Africa) and **Any Symptoms of Monkeypox** (e.g., rash, fever, muscle aches, or swollen lymph nodes)

[Go to Protocol: Monkeypox - Diagnosed or Suspected \(Adult\)](#)

At risk for monkeypox (men-who-have-sex-with-men) and possible exposure (e.g., multiple sex partners in past 21 days) and **Any Symptoms of Monkeypox** (e.g., rash, fever, muscle aches, or swollen lymph nodes)

[Go to Protocol: Monkeypox - Diagnosed or Suspected \(Adult\)](#)

Diagnosed with monkeypox by doctor (or NP/PA)

[Go to Protocol: Monkeypox - Diagnosed or Suspected \(Adult\)](#)

Widespread rash and last exposure to monkeypox > 21 days ago

[Go to Protocol: Rash or Redness - Widespread \(Adult\)](#)

Localized rash and last exposure to monkeypox > 21 days ago

[Go to Protocol: Rash or Redness - Localized \(Adult\)](#)

### Callback by PCP Today

**Monkeypox Exposure** in past 21 days (e.g., direct skin contact such as sex, recent travel to West or Central Africa) and NO symptoms

*Reason: Determine degree of exposure (e.g., high, intermediate, low) and whether post-exposure prophylaxis (PEP using smallpox vaccine) is indicated. Monitor for symptoms.*

**Monkeypox Exposure** in past 21 days and exposed person is a healthcare worker who was NOT using all recommended personal protective equipment (e.g., a respirator-N95 mask, gloves and NO symptoms

*Reason: Determine degree of exposure (e.g., high, intermediate, low) and whether post-exposure prophylaxis (PEP using smallpox vaccine) is indicated. Monitor for symptoms.*

## Discuss With PCP and Callback by Nurse Today

At risk for monkeypox (men-who-have-sex-with-men) and possible exposure (e.g., multiple sex partners in past 21 days) and NO symptoms

*Reason: No symptoms of monkeypox. Refer for counseling, consider vaccination.*

## Home Care

**Monkeypox Exposure** > 21 days ago (over 3 weeks)

Monkeypox, questions about

## HOME CARE ADVICE

### Known or Possible Monkeypox Exposure in Past 21 Days (Doctor Evaluation Needed)

- Note to Triager - Post-Exposure Prophylaxis (Vaccination):**
  - There are two smallpox vaccines that can also be used for **post-exposure (after an exposure)** prevention.
  - Vaccination works better the sooner it is given. Ideally, it should be given within 4 days of exposure. Vaccination can be considered for up to **14 days after an exposure** according to the CDC.
  - Vaccination may be indicated in people with intermediate to high-risk exposures.
- Note to Triager - Alternate Dispositions:**
  - Other sources of medical care include **telemedicine** and the local **public health department**.
  - Healthcare workers who are exposed to monkeypox should contact the employee health department in their healthcare organization.
  - Triager should follow local public health and call center guidelines.
- Monkeypox:**
  - Monkeypox is a rare disease caused by the monkeypox virus.
  - Monkeypox can be spread from person-to-person by direct skin contact. For example, spread can occur during intimate contact and sex.
  - Nearly all of the current monkeypox cases occur in adult men. Most cases occur in men who have sex with men.
- Monkeypox - Symptoms:**
  - Initial symptoms are chills, fatigue, **fever**, headache, muscle aches, back pain, and **swollen lymph nodes**. These symptoms last 1 to 5 days.
  - About 1 to 4 days after the fever subsides a **rash** appears. The rash is often on the genitals (penis, testicles, labia, and vagina) or anus. However, it can be on other areas such as the face, feet, hands, chest, and mouth. Each monkeypox sore is about 0.5 cm to 1 cm wide. Each sore goes through several stages: small red spot (macule), small red bump (papule), small water blister (vesicle), small cloudy blister (pustule). Then, the sore crusts over and the scab falls off after about a week.
  - Sometimes people get the rash first and afterwards other symptoms. Some people get just the rash.

- For most people, the symptoms of monkeypox last 2 to 4 weeks.

#### 5. **Monkeypox - How It Is Spread:**

- Monkeypox can be spread from person-to-person. Most spread appears to occur from **direct contact** with infected sores, scab, and body fluids. In North America, most spread occurs by direct skin contact **during sex** (anal, oral, vaginal).
- Monkeypox can also be spread by respiratory droplets between people with close face-to-face encounters. It can also be spread by touching objects that have infectious body fluids on them (e.g., bedding, towels).
- People can also get monkeypox from infected animals (in Central and West Africa).
- *Incubation period:* Symptoms usually start between 1 to 2 weeks after exposure. Range is from 4 to 21 days.
- *Contagious period:* A person can spread monkeypox to others from when the first rash appears until the rash has crusted over and the scabs fall off (usually 7 to 14 days).

#### 6. **Monkeypox Exposure - Watch for Symptoms:**

- You should watch for symptoms of monkeypox for 21 days after exposure.
- Check your temperature two times a day.
- If **fever** or **rash** occurs, you should stay at home (isolate) and contact your doctor (or NP/PA) or the Public Health Department.
- Call your doctor if **other symptoms occur**, such as chills, back pain, lymph node swelling, or unusual fatigue.
- You can continue to work or go to school if you do not have symptoms of monkeypox.

#### 7. **Monkeypox Exposure - Home Isolation Needed If Symptoms Occur:**

- Isolation will be needed **if you develop symptoms** within 21 days of monkeypox exposure.
- Stay at home (isolate) until all of the scabs have fallen off the monkeypox spots and the skin is healing. Stay in a separate area from other household members and pets. If able, use a separate bathroom from others. Only leave home as needed for emergencies and medical care.
- Avoid any skin-to-skin contact. This includes:
  - ... Do not have sex (anal, oral, vaginal).
  - ... Do not cuddle, hug, or kiss.
  - ... Do not give or receive massages.
  - ... Do not share bedding, cups, eating utensils, or towels.
- Avoid face-to-face contact. Wear a mask when within 6 feet (or 2 meters) of others.
- Wash hands frequently with soap and water, or use hand sanitizer.
- Clean and disinfect high touch surfaces daily (such as phones, remote controls, counters, tabletops, doorknobs).
- Keep the rash covered. For example, with a bandage, long sleeves, or long pants

#### 8. **Call Back If:**

- Fever or chills
- Lymph node swelling
- Rash
- You have other questions or concerns

### **Monkeypox Exposure Over 21 Days Ago**

#### 1. **Reassurance and Education - Exposure to Monkeypox Over 3 Weeks Ago:**

- The time from exposure until monkeypox occurs (incubation period) is typically 14 days (range 10 to 21 days).
- Since over 21 days has passed since your exposure, it is unlikely that you will get monkeypox.

- *Here is some care advice and health information that should help.*

## 2. **Monkeypox:**

- Monkeypox is a rare disease caused by the monkeypox virus.
- Monkeypox can be spread from person-to-person by direct skin contact. For example, spread can occur during intimate contact and sex.
- Nearly all of the current monkeypox cases occur in adult men. Most cases occur in men who have sex with men.

## 3. **Monkeypox - Symptoms:**

- Initial symptoms are chills, fatigue, **fever**, headache, muscle aches, back pain, and **swollen lymph nodes**. These symptoms last 1 to 5 days.
- About 1 to 4 days after the fever subsides a **rash** appears. The rash is often on the genitals (penis, testicles, labia, and vagina) or anus. However, it can be on other areas such as the face, feet, hands, chest, and mouth. Each monkeypox sore is about 0.5 cm to 1 cm wide. Each sore goes through several stages: small red spot (macule), small red bump (papule), small water blister (vesicle), small cloudy blister (pustule). Then, the sore crusts over and the scab falls off after about a week.
- Sometimes people get the rash first and afterwards other symptoms. Some people get just the rash.
- For most people, the symptoms of monkeypox last 2 to 4 weeks.

## 4. **Monkeypox - How It Is Spread:**

- Monkeypox can be spread from person-to-person. Most spread appears to occur from **direct contact** with infected sores, scab, and body fluids. In North America, most spread occurs by direct skin contact **during sex** (anal, oral, vaginal).
- Monkeypox can also be spread by respiratory droplets between people with close face-to-face encounters. It can also be spread by touching objects that have infectious body fluids on them (e.g., bedding, towels).
- People can also get monkeypox from infected animals (in Central and West Africa).
- *Incubation period:* Symptoms usually start between 1 to 2 weeks after exposure. Range is from 4 to 21 days.
- *Contagious period:* A person can spread monkeypox to others from when the first rash appears until the rash has crusted over and the scabs fall off (usually 7 to 14 days).

## 5. **Monkeypox - Diagnosis:**

- A doctor (or NP/PA) can suspect the diagnosis of monkeypox based on a person's symptoms and confirm the diagnosis with testing.
- Two main types of tests are available for diagnosing monkeypox:
- ... A healthcare worker can take a **swab of a monkeypox lesion** and send it to a laboratory for virus testing (e.g., monkeypox DNA PCR test). Virus testing can be performed by LabCorp (<https://www.labcorp.com/infectious-disease/monkeypox>) and an expanding number of other laboratories (Aegis, Mayo Clinic Laboratories, Quest Diagnostics, and Sonic Healthcare).
- ... A blood test that shows **anti-orthopoxvirus IgM antibody** during the period of 4 to 56 days after rash onset.

## 6. **Monkeypox - Treatment:**

- Currently there is no prescription medicine that has been proven to cure this infection or help a person get better sooner.
- For **most healthy people** with monkeypox, prescription medicines are usually not needed. People can treat the symptoms at home using over-the-counter medicines for fever and pain.
- However, there are some medicines (e.g., tecovirimat) that were developed for treating smallpox that may help treat monkeypox. Patients with monkeypox who are at **higher risk of severe illness** should be considered for treatment after their doctor (or NP/PA) consults with the

CDC or the local health department.

7. **How Can You Protect Yourself From Getting Monkeypox?**
  - Avoid contact with materials (e.g., bed linens, clothing, sex toys) contaminated with monkeypox.
  - Avoid skin-to-skin contact with people who have monkeypox or have a rash that might be monkeypox. This includes:
    - ... Do not have sex (anal, oral, vaginal).
    - ... Do not cuddle, hug, or kiss.
    - ... Do not give or receive massages.
    - ... Do not share bedding, cups, eating utensils, or towels.
  - Wash your hands with soap and water. If soap and water are not available use a hand sanitizer.
  - Wear a well-fitted mask if you need to come in close contact with or care for someone suspected of having monkeypox.
8. **Call Back If:**
  - Fever or chills
  - Lymph node swelling
  - Rash
  - You have other questions or concerns

## Monkeypox - Questions About

1. **Monkeypox:**
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  - Sometimes people get the rash first and afterwards other symptoms. Some people get just the rash.
  - For most people, the symptoms of monkeypox last 2 to 4 weeks.
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  - Monkeypox can also be spread by respiratory droplets between people with close face-to-face encounters. It can also be spread by touching objects that have infectious body fluids on them (e.g., bedding, towels).
  - People can also get monkeypox from infected animals (in Central and West Africa).
  - *Incubation period:* Symptoms usually start between 1 to 2 weeks after exposure. Range is from 4 to 21 days.

- *Contagious period:* A person can spread monkeypox to others from when the first rash appears until the rash has crusted over and the scabs fall off (usually 7 to 14 days).

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#### 5. **Monkeypox - Treatment:**

- Currently there is no prescription medicine that has been proven to cure this infection or help a person get better sooner.
- For **most healthy people** with monkeypox, prescription medicines are usually not needed. People can treat the symptoms at home using over-the-counter medicines for fever and pain.
- However, there are some medicines (e.g., tecovirimat) that were developed for treating smallpox that may help treat monkeypox. Patients with monkeypox who are at **higher risk of severe illness** should be considered for treatment after their doctor (or NP/PA) consults with the CDC or the local health department.

#### 6. **How Can You Protect Yourself From Getting Monkeypox?**

- Avoid contact with materials (e.g., bed linens, clothing, sex toys) contaminated with monkeypox.
- Avoid skin-to-skin contact with people who have monkeypox or have a rash that might be monkeypox. This includes:
  - ... Do not have sex (anal, oral, vaginal).
  - ... Do not cuddle, hug, or kiss.
  - ... Do not give or receive massages.
  - ... Do not share bedding, cups, eating utensils, or towels.
- Wash your hands with soap and water. If soap and water are not available use a hand sanitizer.
- Wear a well-fitted mask if you need to come in close contact with or care for someone suspected of having monkeypox.

#### 7. **Call Back If:**

- You have more questions

## FIRST AID

N/A

## BACKGROUND INFORMATION

### Key Points

- Monkeypox is a rare disease caused by the monkeypox virus.
- Monkeypox can be spread from person-to-person by direct skin contact. For example, spread can

occur during intimate contact and sex.

- Nearly all of current monkeypox cases occur in adult men. Most cases occur in men who have sex with men.
- Fever and rash occur in nearly all people who get monkeypox.
- An outbreak of monkeypox began in May, 2022. In July, 2022 the World Health Organization (WHO) declared monkeypox a global health emergency.

## Symptoms

Monkeypox usually starts off with **initial symptoms** lasting 1 to 5 days:

- Back pain
- Chills
- Fatigue
- **Fever**
- Headache
- **Muscle aches**
- Respiratory symptoms (e.g., cough, nose stuffiness, sore throat)
- **Swollen lymph nodes**

About 1 to 4 days after the fever subsides a **rash** appears. The rash is often on the genitals (penis, testicles, labia, and vagina) or rectal area. However, it can be on other areas such as the face, feet, hands, chest, and mouth. Each monkeypox sore is about 0.5 cm to 1 cm (about 1/4 inch) wide. Each monkeypox sore goes through the following stages:

- Small red spot (macule)
- Small red bump (papule)
- Small water blister (vesicle)
- Small cloudy blister (pustule)
- Then the sore crusts over and the scab falls off after about a week.

A person can have just a few or several hundred monkeypox sores. Sometimes people get the rash first and afterwards other symptoms. Some people get just the rash.

Fever and rash occur in nearly all people who get monkeypox.

For most people the symptoms of monkeypox last 2 to 4 weeks.

## Causes

Monkeypox is caused by the monkeypox virus.

## How It Is Spread (Transmission)

Monkeypox can be spread from person-to-person. Most spread appears to occur from **direct contact** with infected sores, scab, and body fluids. In North America, most spread occurs by direct skin contact during **sex** (anal, oral, vaginal). Monkeypox can also be spread by respiratory droplets between people with close face-to-face encounters. It can also be spread by touching objects that have infectious body fluids on them (e.g., bedding, towels).

- *Incubation period:* Symptoms usually start between 1 to 2 weeks after exposure. Range is from 4 to 21 days.
- *Contagious period:* A person can spread monkeypox from the time symptoms start until all the

monkeypox sores have crusted over and fallen off (usually 7 to 14 days).

### **Risk Factors**

The main risk factor is known exposure to monkeypox. Other risk factors are:

- Men who have sex with men
- Recent travel to Central and West Africa

### **Complications**

Nearly all adults (99%) who get monkeypox will survive. People can sometimes develop scars or pockmarks from the monkeypox sores.

Rare complications include:

- Bacterial skin infections such as an abscess, cellulitis, pyomyositis, and lymphangitis
- Cervical lymphadenopathy
- Dehydration
- Encephalitis
- Ocular lesions
- Pneumonia
- Sepsis and septic shock

### **Diagnosis**

A doctor (or NP/PA) can suspect the diagnosis of monkeypox based on a person's symptoms and confirm the diagnosis with testing.

Two types of tests are available for diagnosing monkeypox.

- A healthcare worker can take a **swab of a monkeypox lesion** and send it to a laboratory for virus testing (e.g., monkeypox DNA PCR test). Virus testing can be performed by LabCorp (<https://www.labcorp.com/infectious-disease/monkeypox>) and an expanding number of other laboratories (Aegis, Mayo Clinic Laboratories, Quest Diagnostics, and Sonic Healthcare).
- A blood test that shows **anti-orthopoxvirus IgM antibody** during the period of 4 to 56 days after rash onset.

### **Treatment**

Currently there is no prescription medicine that has been proven to cure this infection or help a person get better sooner.

For **most healthy people** with monkeypox, prescription medicines are usually not needed. People can treat the symptoms at home using over-the-counter medicines for fever and pain.

However, there are some medicines (e.g., tecovirimat) that were developed for treating smallpox that may help treat monkeypox. Patients with monkeypox who are at **higher risk of severe illness** should be considered for treatment after their doctor (or NP/PA) consults with the CDC or the local health department. People at higher risk include:

- People who have a chronic skin condition (e.g., atopic dermatitis).
- People who have a weak immune system (e.g., HIV positive, cancer chemo, splenectomy, organ transplant, chronic steroids).

- Women who are pregnant or breastfeeding.

## Prevention

How can a person protect themselves from getting monkeypox?

- Avoid contact with materials (e.g., bed linens, clothing, sex toys) that might be contaminated with monkeypox.
- Avoid skin-to-skin contact with people who have monkeypox or have a rash that might be monkeypox. This includes:
  - ... Do not have sex (anal, mouth, vaginal).
  - ... Do not cuddle, hug, or kiss.
  - ... Do not give or receive massages.
  - ... Do not share bedding, cups, eating utensils, or towels.
- Wash your hands with soap and water. If soap and water are not available use a hand sanitizer.
- Wear a well-fitted mask if you need to come in close contact with or care for someone suspected of having monkeypox.

How can a person with monkeypox protect others from getting monkeypox?

- Stay at home (isolate) until all of the scabs have fallen off the monkeypox spots and the skin is healing. Stay in a separate area from other household members and pets.
- Avoid any skin-to-skin contact. This includes:
  - ... Do not have sex (anal, oral, vaginal).
  - ... Do not cuddle, hug, or kiss.
  - ... Do not give or receive massages.
  - ... Do not share bedding, clothes, cups, eating utensils, or towels.
- Avoid face-to-face contact. Wear a mask when within 6 feet (2 meters) of others.
- Wash hands frequently with soap and water, or use a hand sanitizer.
- Clean and disinfect high touch surfaces daily (such as phones, remote controls, counters, tabletops, doorknobs).
- Keep the rash covered. For example, with a bandage, gloves, long sleeves, or long pants.

Information on cleaning clothes and disinfecting the home is available at <https://www.cdc.gov/poxvirus/monkeypox/specific-settings/home-disinfection.html>.

The smallpox vaccine confers about 85% immunity against monkeypox. Monkeypox infection in those vaccinated against smallpox may result in milder infection. Routine smallpox vaccination ended in 1972 and those vaccinated typically have a post vaccine scar on upper arm.

## Prevention - Post-Exposure

There are two smallpox vaccines that can also be used for **post-exposure (after an exposure)** prevention of monkeypox.

- **ACAM2000 Vaccine (U.S.):** This is a live vaccine. It has more serious side effects than the MVA vaccine.
- **MVA Vaccine (IMVAMUNE in Canada, JYNNEOS in U.S.):** It is **preferred** over the ACAM2000. The most common side effects are itching, pain, redness, and swelling at the injection site. People may also have minor reactions such a feeling tired, headache, a mild fever, and muscle aches. Severe reactions (e.g., allergic reaction, anaphylaxis) are rare.

Vaccination works better the sooner it is given. Ideally, it should be given within 4 days of exposure. Vaccination can be considered for up to **14 days after an exposure** according to the CDC. Vaccination may be indicated in people with intermediate to high-risk exposures, such as:

- Skin-to-skin contact (e.g., hugging, kissing, massaging, having sex) with someone with monkeypox;
- Contact with materials (e.g., bed linens, clothing, sex toys) contaminated with monkeypox;
- Or, not wearing an N-95 mask while being in a patient's room (or within 6 feet or 2 meters) during any procedure that may have created an aerosol of the monkeypox secretions.

For those that cannot receive the vaccine, vaccinia immune globulin may be an alternative treatment for post-exposure prevention.

## FAQs

*What other infections have similar symptoms as monkeypox?*

The two viral infections that most closely resemble monkeypox are:

- Chickenpox (varicella zoster)
- Smallpox

There are many other infections that should be considered in the differential diagnosis, including: bacterial skin infections, chancroid, dengue fever, herpes simplex, molluscum contagiosum, scabies, and others.

*Where on the body does the monkeypox rash occur?*

The rash tends to be centrifugal, starting on the face and moving out towards the palms and soles of the hands and feet. It can also involve the oral mucous membranes, conjunctiva, cornea, or genitalia.

*How do the symptoms of chickenpox and monkeypox compare?*

In people who have chickenpox...

- The fever usually begins at the same time as the rash.
- A rash on palms and soles is rare.
- The rash is more concentrated on the trunk.
- There are usually different stages of rash (e.g., red bumps, cloudy blisters, crusts) all present at the same time.
- Chickenpox typically occurs after exposure to a child with chickenpox.

In people who have monkeypox...

- Fever and other symptoms usually begin before the rash.
- Lymph node swelling is common.
- The rash is typically the same size and at the same stage on different areas of the body.
- Monkeypox typically occurs after exposure during intimate direct contact (e.g., kissing, hugging) or sex with an adult (usually male) who has monkeypox.

## Internet Resources

- *Canada.CA*: Monkeypox Outbreak Update. Available at <https://www.canada.ca/en/public-health/services/diseases/monkeypox.html>.

- *Johns Hopkins - Center for Health Security: Monkeypox.* Available at <https://www.centerforhealthsecurity.org/our-work/publications/monkeypox>.
- *U.S. Centers for Disease Control and Prevention (CDC): Monkeypox.* Available at <https://www.cdc.gov/poxvirus/monkeypox/index.html>.
- *U.S. Centers for Disease Control and Prevention (CDC): Monkeypox and Global Case Count.* Available at <https://www.cdc.gov/poxvirus/monkeypox/response/2022/index.html>.
- *U.S. Centers for Disease Control and Prevention (CDC): Monkeypox and Safer Sex. PDF handout.* Available at <https://www.cdc.gov/poxvirus/monkeypox/pdf/MonkeyPox-SaferSex-InfoSheet-508.pdf>.
- *U.S. Centers for Disease Control and Prevention (CDC): Smallpox/Monkeypox Vaccine (JYNNEOS) Vaccine Information Statement (VIS). PDF handout.* Available at <https://www.cdc.gov/vaccines/hcp/vis/vis-statements/smallpox-monkeypox.pdf>.
- *World Health Organization (WHO): Clinical Management and Infection Prevention and Control for Monkeypox. Interim Guidance June 2022.* Available at <https://www.who.int/publications/i/item/WHO-MPX-Clinical-and-IPC-2022.1>.

### Expert Reviewers

- David Wohl, MD, Professor of Medicine, Division of Infectious Diseases, University of North Carolina School of Medicine, Chapel Hill, North Carolina.
- The Author and Editorial Team are extremely grateful for this subject matter expertise and critical review.

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<b>Content Set:</b>	Office Hours Telehealth Triage Protocols   Adult
<b>Version Year:</b>	2022
<b>Last Revised:</b>	8/2/2022
<b>Last Reviewed:</b>	8/2/2022