Immunize Colorado education series: State of monkeypox in Colorado



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Overview

Monkeypox (MPX) virus is an orthopoxvirus (OPX) (like smallpox, cowpox).

Characterized by a severe rash that typically goes away without treatment. In rare cases, it can lead to severe illness or death.

Smallpox vaccine was effective against other orthopoxviruses. Waning immunity may be a factor.

Two clades of monkeypox. Current outbreaks are Clade II (West African clade): less transmissible and causes less severe illness.



Signs and symptoms

- Incubation period: 6-13 days (range 5-21 days).
- Swollen lymph nodes (lymphadenopathy)- generally develops before rash, along with fever, pain, fatigue.
- Typical rash of monkeypox similar smallpox.
 - Starts with macules (lesions with flat base), progresses to papules (raised firm lesions), to vesicles (filled with clear fluid), to pustules (filled with yellow fluid), to crusts or scabs.
 - Affects face (95% of cases), palms and soles of feet (75%), mouth (70%), genitalia (30%), eyes (20%)



Transmission

- Monkeypox can be transmitted when someone who has monkeypox has close contact with someone else.
 - Close contact: Physical contact with sores, bumps, or lesions of someone who has monkeypox, including sex.
- Touching bed linens or clothing of someone who has monkeypox.
- Transmission is unlikely in brief interactions without physical contact.



History

- 1958: First identified in colonies of monkeys being used for research.
- 1970: Detected in humans in the Democratic Republic of Congo during smallpox eradication campaigns. Rodent species likely reservoir.
- 1970-2003: Most cases reported from rural, rainforests regions of Congo Basin, particularly in the Democratic Republic of the Congo.
- 2003: Outbreak of 47 cases in six U.S. states (not Colorado) through animal contact.
 - \circ Import of Gambian Pouched rats for pets, commingled and infected pet prairie dogs.
- Since 2017 Nigeria has experienced a large outbreak.
 - 2018-2022: Travel associated cases in Israel, United Kingdom, and U.S. (2 unrelated cases, Maryland and Texas)



Current situation

- Spring 2022: Multiple outbreaks reported in several European countries with evidence of community transmission (predominantly among MSM).
- May 2022: Canada reported outbreak in Montreal.
- May 17, 2022: First U.S. case detected in Massachusetts.
- May 25, 2022: First case in Colorado detected.



CDPHE's monkeypox strategy

- Slow transmission in communities most at risk.
- Increase awareness among health care providers.
- Engage and educate high-risk communities.
- Increase access to testing.
 - Build external testing capacity via commercial labs.
 - State lab to support public health and urgent situations.
- Increase access to vaccination.



Public health roles (epidemiology)

Interviewing case patients, notifying contacts.

Recommending post-exposure prophylaxis, providing guidance on isolation.

21 days of monitoring for high/intermediate risk contacts who consent.

Infection control guidance for health care and other settings (schools, correctional facilities, etc.).



Epidemiology and trends



Updated Monkeypox Cases (updated daily, last updated 9/21/2022)

Date of presentation	Number of human cases
May 2022	2
June 2022	6
July 2022	66
August 2022	157
September 2022	60
Total	291



Updated Monkeypox Numbers (updated 9/14/2022 at 4 p.m.)

Hospitalizations	9
Deaths	0 deaths among cases in Colorado 2 deaths in the US (<u>Texas</u> , <u>California</u>)
Denver Metro Area	202
Cases reporting MSM	232
Persons experiencing homelessness	12
Healthcare Personnel	6 *no HCPs were exposed occupationally



Case Demographics continued (as of 9/7/2022)

Gender Identity

Male (Cisgender)	245	93.5%
Female (Cisgender)	6	2.3%
Another Gender Identity	3	1.1%
Non Binary	2	0.8%
Transgender Female	1	0.4%
Transgender Male	1	0.4%
Unknown	1	0.4%
Missing	3	1.1%

Sexual Orientation

Lesbian or gay	201	76.7%
Bisexual	24	9.2%
Heterosexual	17	6.5%
l use a different term	8	3.1%
Unknown	4	1.5%
Prefer not to answer	1	0.4%
Missing	7	2.7%

HIV Status

HIV Negative	153	58.4%
HIV Positive	87	33.2%
Unknown	17	6.5%
Missing	5	1 .9 %



2022 National Epidemiology



Total U.S. Cases: 22,774 U.S. Deaths: 2 As of Sept. 15, 2022

Monkeypox cases reported to CDC: Age and Gender



Health Care Personnel Contact Monitoring (as of 9/14/2022)

Total Health Care Personnel exposed	483
Health Care Personnel contacts with ongoing monitoring	10
Vaccinated	47

*As of 8/22/22 CDC no longer recommends monitoring Health Care Personnel with low risk exposures. These Health Care Personnel are still notified of their exposure, but no longer reported to CDPHE.



Epi/Surveillance Updates (updated weekly on Wednesdays)

- Total 291 cases reported as of 9/21/2022
- Denver, Boulder, Jefferson, Douglas, El Paso, Larimer, Pueblo, San Juan Basin, Montezuma, Dolores, and Weld are doing CI/CT. We continue to transition monkeypox investigation work to additional LPHAs each week
- Case reports are still coming in at a steady rate (almost entirely from commercial labs) but the rate of new cases began to decline during the end of August. Case reports are lower in September than in August. Same trend being seen nationwide.
- Highest risk remains among adult men in the Denver metro area who report sexual contact with other men.
- Still no spread within congregate settings, despite individual cases in people experiencing homelessness (PEH) and incarcerated or detained people (IDP).







	Estimated percentage of Colorado population	Percentage of monkeypox cases	Percentage of monkeypox vaccine recipients
American Indian or Alaskan Native, NH	0.6%	0.4%	0.7%
Asian, NH	3.4%	1.2%	2.7%
Black or African American, NH	4.1%	11.8%	4.8%
Hispanic, all races	22.0%	35.1%	11.2%
Multi Race, NH	2.4%	3.3%	5.2%
Native Hawaiian/Pacific Islander, NH	0.2%	0.4%	0.1%
Other		22.0%	0.1%
Unknown		0.8%	3.4%
White, NH	67.3%	57.1%	71.8%



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COLORADO Department of Public Health & Environment

Tecovirimat (TPOXX)

- FDA-approved for treatment of smallpox disease, use for other orthopoxvirus infections, including monkeypox is via a CDC held non-research expanded access Investigational New Drug (EA-IND) protocol.
- May be considered for treatment in people infected with *Monkeypox virus*:
 - With severe disease.
 - Who are at high risk of severe disease:
 - People with immunocompromising conditions.
 - Pediatric populations, particularly patients younger than 8 years.
 - Pregnant or breast/chestfeeding.
 - People with a history or presence of atopic dermatitis, people with other active exfoliative skin conditions.
 - People with one or more complication.
 - With aberrant infections involving accidental implantation in eyes or other sites.
 - For severe pain management.
- Preliminary data show ~30% of Colorado cases have received TPOXX; disparities by age group race/ethnicity, gender identity and sexual orientation are very limited.



Case and TPOXX demographics (as of Sept. 14, 2022)

All monkeypox cases

Race

White	150	57.3%
Other Race	58	22.1%
African American or Black	30	11.5%
Multiple Races	10	3.8%
Asian	4	1.5%
American Indian/Alaska Native	2	0.8%
Native Hawaiian/Pacific Islander	1	0.4%
Declined to Answer	1	0.4%
Unknown Race	2	0.8%
Missing	4	1.5%

Ethnicity

Non-Hispanic or Latino	163	62.2%
Hispanic or Latino	92	35.1%
Declined to Answer	1	0.4%
Unknown	2	0.8%
Missing	4	1.5%

Cases receiving TPOXX

Race

White	40	57.1%
Other Race	14	20.0%
African American or Black	10	14.3%
Multiple Races	1	1.4%
Asian	1	1.4%
American Indian/Alaskan Native	1	1.4%
Native Hawaiian/Pacific Islander	1	1.4%
Declined to Answer	0	0.0%
Unknown Race	0	0.0%
Missing	2	2.9 %

Ethnicity

Non-Hispanic or Latino	42	60.0%
Hispanic or Latino	24	34.3%
Unknown Ethnicity	0	0.0%
Missing	3	4.3%
Declined to Answer	1	1.4%



CDPHE.Colorado.Gov/Monkeypox

- CDPHE website includes clinical information:
 - Testing guidelines.
 - Infection prevention.
 - Guidance for clinicians in different settings.
 - Guidance on HCW monitoring.
 - Important information to share with patients



CDPHE.Colorado.Gov/Monkeypox

- Information for the community:
 - Sample collection locations for those without insurance.
 - Where to obtain Jynneos vaccine.
 - Home isolation.
 - Home cleaning.
 - FAQs.



Guidance for special settings



Schools and child care are considered low risk

General guidelines for preventing transmission among the general population also apply in schools and child care.

Schools and child care facilities should have basic infection control strategies in place.



M O N K E Y **P O X**

4 things you can do if you are exposed to monkeypox:

> Talk to a healthcare provider about the monkeypox vaccine





Watch for symptoms for 3 weeks



See a healthcare provider if you develop a rash

Prevent spreading monkeypox to others





CDC's FAQs for Schools, ECE, and other settings serving children

Key messages:

- Monkeypox is a rare, but serious disease. Schools and ECE settings considered low risk settings for monkeypox at this time.
- Monkeypox virus can infect anyone including children who has close, personal, often skin-to-skin contact with someone who has monkeypox.
- In this current outbreak, most case are adults, and have been exposed through sexual contact.
- Monkeypox can also be spread, although less commonly, through fomites or touching contaminated objects or surfaces that have been used by someone with monkeypox.
- Read more about <u>monkeypox transmission</u>.



https://www.cdc.gov/poxvirus/monkeypox/schools/faq.html

CDC's FAQs for Schools, ECE, and other settings serving children

Key messages:

Schools and ECE settings should <u>continue their infectious disease protocols</u>, stay home when sick, ensure access to handwashing, maintain routine cleaning, sanitizing, and disinfecting practices, identify private spaces for symptomatic children to be assessed and away from others, have PPE on hand for those caring for children who may be ill with an infectious illness, work with public health to prevent transmission.



Should parents, teachers, or students get VACCINATED for monkeypox?

CDC recommends <u>vaccination</u> for people who have been *exposed* and people who may be more likely to get monkeypox, including people who:

- Have been identified by public health officials as a contact of someone with monkeypox.
- Known sexual partners in the past two weeks has been diagnosed with monkeypox.
- Multiple sexual partners in the past two weeks in an area with known monkeypox. (<u>recently expanded</u>)



https://www.cdc.gov/poxvirus/monkeypox/schools/fag.html

Should a parent, teacher, or student get VACCINATED for monkeypox?

At this time, there is no need for widespread vaccination for monkeypox among children or staff at K-12 schools or early childhood settings. For more information on vaccination against monkeypox see the <u>frequently asked questions about vaccination</u>.



https://www.cdc.gov/poxvirus/monkeypox/schools/faq.html

Should we allow someone in our setting WHO HAS BEEN EXPOSED to monkeypox?

- Children, staff, and volunteers exposed to a person with monkeypox do not need to be excluded from an educational setting in most cases.
- In some cases, if contact tracing may not be possible and there was a high degree of <u>exposure</u>, public health may consider limiting an individual's participation in activities.
 - Public health will consider the age of the individual and their ability to recognize or communicate symptoms, the types of interactions in the environment, and the risk of more severe disease to others in the setting.
- Settings that have children in residence, like boarding schools, overnight camps, or other residential environments, should follow <u>considerations for congregate settings</u>.



Should I get TESTED IF I have been EXPOSED to someone with monkeypox?

Public health provides guidance for people exposed to monkeypox on how to monitor for symptoms. Unless a rash develops after exposure, there is not currently a test for monkeypox.

If a rash develops, an individual should follow <u>isolation and prevention</u> <u>practices</u> until (1) the rash can be evaluated by a HCP, (2) testing is performed, if recommended by the HCP, and (3) results of testing are available and are negative.



Should a parent, teacher, or student with a RASH GET TESTED for monkeypox?

Children and adults can develop a rash and fever for a variety of reasons, including hand-foot-mouth disease and chickenpox.

If an individual without a known exposure to monkeypox presents with a fever and a rash, they should be evaluated by a HCP and the school or child care should follow standard illness policies.



Should a parent, teacher, or student with a RASH GET TESTED for monkeypox?

Teachers, staff, and parents should know the <u>symptoms of monkeypox</u> and see a HCP if they are concerned. Adults with symptoms should also:

- Avoid close contact, including sexual contact with anyone, until they have been checked by a HCP.
- Visit a PH clinic near them if they don't have a HCP or insurance.
- Well a well-fitting mask when seeking medical assessment and care.



Should a parent, teacher, or student with a RASH GET TESTED for monkeypox?

If an individual with a known monkeypox exposure is being monitored and develops a fever and a rash, follow "<u>What should we do if a person</u> <u>who has been exposed to monkeypox develops symptoms while in our</u> <u>setting</u>?" for what to do in these situations.

A HCP will determine appropriate treatment and testing.



What do we do if there is a CASE OF MONKEYPOX in our setting?

- If someone with monkeypox has been in your facility, <u>follow your everyday</u> <u>operational guidance for reducing the transmission of infectious disease</u> <u>and add enhanced cleaning and disinfection.</u>
- Classroom/space clean and disinfect the areas where the person with monkeypox spent time. Focus on items and surfaces that were in direct contact with skin.



What do we do if there is a CASE OF MONKEYPOX in our setting?

- Follow guidance for <u>Disinfecting the Home or Other Non-Healthcare Settings</u> to clean and disinfect surfaces, floors, shared items (toys, learning materials, sports equipment, uniforms, etc.)
- Utensils and toys that may be mouthed should be cleaned and *sanitized*.
- Linens or towels that a person with monkeypox used should be laundered. Items that cannot be cleaned, disinfected, or laundered should be thrown away.

Keep the area cordoned off and unoccupied while cleaning and disinfecting.



What do we do if there is a CASE OF MONKEYPOX in our setting?

- Notify public health if a person with monkeypox has been in your facility and cooperate with contact tracing efforts.
- Communicate to staff, students (when age appropriate), and parents/guardians, when there has been a case using facts and <u>non-stigmatizing language</u>, provide information on <u>prevention</u>.



When can someone with monkeypox RETURN TO OUR SETTING?

Monkeypox causes a rash with lesions that eventually scab over. People with monkeypox should prioritize <u>isolation and prevention practices</u> until all scabs fall off, and a fresh layer of healthy skin forms. This may take as long as four weeks after symptoms began. Caregivers should work with a HCP and public health to decide when the child or adolescent can return to the educational setting.

Staff or volunteers who have monkeypox should isolate and be restricted from the workplace according to CDC's <u>isolation and prevention practices</u>. Employers should provide flexible, non-punitive sick leave policies for staff members.



Additional content included in the FAQ

What should we do if a parent or caregiver has monkeypox?

What should parents do if their child was exposed to monkeypox?

What should a parent with monkeypox do if they can't isolate away from their children?

What should we tell parents and caregivers if there is a case of monkeypox in our setting?



https://www.cdc.gov/poxvirus/monkeypox/schools/faq.html

CDPHE Monkeypox Resources for Schools and ECE Settings

ECE and school specific monkeypox guidance is not expected from CDPHE, instead we will point to CDC's FAQ and future guidance for these settings

New Infectious Disease Manual chapter on monkeypox added

Parent Notification Letters:

- Low risk exposure letter and instructions for monitoring
- Intermediate/high risk letter and instructions for monitoring, with additional information on treatment and testing
- Isolation instructions for cases of monkeypox

AAP: <u>Red Book Online Outbreak: Monkeypox Virus Outbreak Resource</u> CDC's <u>Monkeypox Toolkit for IHE</u>



Prevention through vaccination



Jynneos vaccine

- Originally licensed in 2019 for persons 18 years of age and older for the prevention of smallpox and monkeypox.
- Based on a live, attenuated non-replicating orthopoxvirus, Modified Vaccinia Ankara (MVA).
- CDC recommends that vaccination with Jynneos be considered for people determined to be at high risk for infection to prevent monkeypox.
- Jynneos vaccine is a series of two doses administered 28 days apart.



Jynneos vaccine

- Receiving vaccine after exposure to a virus (PEP).
 - CDC recommends vaccine be given within four days from the date of exposure in order to prevent onset of disease.
 - If given between 4-14 days after the date of exposure, vaccination may reduce the symptoms, but may not prevent.



<u>Current monkeypox vaccine eligibility in Colorado</u>

- Anyone (any sexual orientation or gender identity) who has had close physical contact with someone who has monkeypox in the last 14 days.
- Anyone (any sexual orientation or gender identity) who:
 - \circ Has multiple or anonymous sexual partners, or
 - Has close physical contact with other people in a venue where anonymous or group sex may occur, or
 - \circ $\;$ Was diagnosed with gonorrhea or syphilis in the past six months, or
 - Is living with HIV, or
 - Already uses or is eligible for HIV PrEP (medication to prevent HIV, e.g. Truvada, Descovy, or Apretude), or
 - Engages in commercial and/or transactional sex (e.g. sex in exchange for money, shelter, food, and other goods or needs).
- Anyone (any sexual orientation or gender identity) identified by public health as a known high-risk contact of someone who has monkeypox.





Contraindication	ACAM2000 Primary Vaccinees	ACAM2000 Revaccinees	ACAM2000 Household Contacts	JYNNEOS
History or presence of atopic dermatitis	X	х	Х	
Other active exfoliative skin conditions	Х	Х	Х	
Conditions associated with immunosuppression	X	Х	Х	
Pregnancy	X	Х	Х	
Aged <1 year	Х	Х	X	
Breastfeeding	X	Х		
Serious vaccine component allergy	X	х		х
Known underlying heart disease (e.g., coronary artery disease or cardiomyopathy)	х	х		
Three or more known major cardiac risk factors	X			

Since the onset of the outbreak and into August, the U.S. experienced increasing cases though limitations in vaccine supply





FDA issues emergency use authorization (EUA)

- <u>Jynneos EUA issued August 9</u> for intradermal (ID) administration for adults (alternative regimen).
- The EUA also includes **subcutaneous administration** for pediatrics (**standard regimen**).
- This has increased the total number of doses available for use
- Two doses 28 days apart are still needed.

Vaccination schedule for Jynneos vaccine

JYNNEOS vaccine regimen	Route of administration	Injection volume	Recommended number of doses	Recommended interval between 1st and 2nd dose	
Alternative regimen					
People age ≥18 years	ID	0.1 mL	2	28 days	
Standard regimen					
<u>People age</u> <18 years	Subcut	0.5 mL	2	28 days	
People of any age who have a history of developing keloid scars	Subcut	0.5 mL	2	28 days	

Keloid scars

- People of any age who have a history of developing keloid scars should follow the standard regimen, i.e.
 subcutaneous route of administration with a 0.5 mL dose.
- A keloid scar is a type of raised scar. Unlike other raised scars, keloids grow much larger than the wound that caused the scar.





About intradermal (ID) injections

- Most vaccines are administered by the intramuscular (IM) or subcutaneous (SC) route.
- Diagnostic tests such as the Tuberculin Skin Tests (TST) are performed intradermally.
- The ID route is a vaccine delivery method currently used in some countries for a small number of vaccines, specifically hepatitis B vaccine (for non responders), and BCG vaccine, and has been used for flu vaccine in the United States.



Clinical study supporting ID injection

- A <u>2015 clinical study</u> evaluated a two-dose series given intradermally (with one-fifth the dose volume) compared to subcutaneously.
- Intradermal (ID) administration produced a similar immune response to subcutaneous administration.
- Administration by the ID route resulted in more redness, firmness, itchiness and swelling at the injection site, but less pain. These side effects were reported as manageable.

Intradermal (ID) vaccine administration training

- CDPHE hosted a <u>webinar</u> for vaccine providers who need initial and refresher training on intradermal injection techniques.
- CDC administration <u>training resources</u> (video and graphics).
 - Pre- and post-vaccination <u>counseling</u> for intradermal administration.
- CDPHE just in time training guide for ID administration.
- Recorded COCA Call/Webinar
 - Title: <u>CDC and FDA Update: Interim Clinical Considerations for</u> <u>Monkeypox Vaccination</u>





intradermally.

Interim clinical considerations for monkeypox

• Interim <u>clinical considerations</u> for monkeypox vaccination have been updated on the CDC website (updated Aug. 31, 2022).

- Interim Guidance
- Dosing intervals
- Evidence Quality
- Administration

- Interchangeability of dosing regimens
 - Coadministration
 - Safety
- Adverse event reporting



Clarification /updates to clinical guidance

Coadministration of Jynneos with Other Vaccines

• CDC interim guidance

- Jynneos typically* may be administered without regard to timing of other vaccines. This includes simultaneous administration of Jynneos and other vaccines on the same day, but at different anatomic sites if possible.
- In the setting of the outbreak:
 - *If <u>COVID vaccine</u> given prior: do not delay Jynneos
 - *If <u>COVID vaccine</u> is being considered, people, particularly adolescent or young adult males, may consider waiting four weeks prior to receipt of COVID vaccine.



Vaccine effectiveness

- The FDA has determined that the known and potential benefits of JYNNEOS outweigh the known and potential risks for the authorized uses.
- We will know more in the coming months about how effective the Jynneos vaccine is in the 2022 monkeypox outbreak. In the meantime, people who are vaccinated are encouraged to continue to <u>take steps to protect themselves</u>.



Where to get vaccinated for monkeypox



Expanding access to vaccination in Colorado

- To date, 93 sites are enrolled as vaccine providers.
- CDPHE is running clinics 7 days a week in metro area.
- Clinical partners can enroll in the vaccine program now!
 - <u>Review Minimum Requirements</u>
 - Program Application
 - Storage and Handling Agreement
 - NEW! <u>CDC Monkeypox Vaccination Program Provider Agreement</u> for review and awareness.
 - Email all application materials and questions to <u>cdphe_covidvax@state.co.us.</u>



Vaccine data as of September 20, 2022



Monkeypox vaccine administration (updated Sept. 14, 2022)

Total Vaccine Doses Administered and Reported to CDC



Colorado 13,052

Doses Administered

Data not yet reported to CDC	<u> </u>
501 - 1,000	0 1,001 - 5,000
5,001 - 10,000	1 0,001 - 50,000
> 50.000	

Colorado ranks 21 case counts and 10 in number of vaccines administered.

Monkeypox related resources

Epidemiology and trends

- Case counts in the United States
- Case counts globally
- Community exposure risk assessment and monitoring
- List of newly created and updated CDC guidance
- 2022 CDC monkeypox landing page

Vaccination resources

- Vaccination Strategies
- Colorado vaccination strategies
- Interim Clinical Considerations for Use of Jynneos
- Administration Considerations for Specific Populations
- ASPR: Jynneos MPX Distribution by Jurisdiction
 - ASPR: Operational Planning Guide
- COCA Call Interim Clinical Considerations
- Monkeypox vaccine administration U.S. map

Guidance for providers and the public

- Clinical considerations for pain management
- Monkeypox: What to look for (images))
- Household disinfection following a diagnosis of MPX
- Home isolation guidance for patients
- Guidance for hospitality service providers
- Notifying close contacts
- Isolation and Infection Control At Home
- Monitoring and Risk Assessment of Persons Exposed
- Interventions Services for People with or Exposed
- Considerations for children or adolescents
- Videos explaining MPX
- AAP Redbook MPX
- How to protect yourself from MPX
- Safer sex, social gatherings, and monkeypox



Questions?

