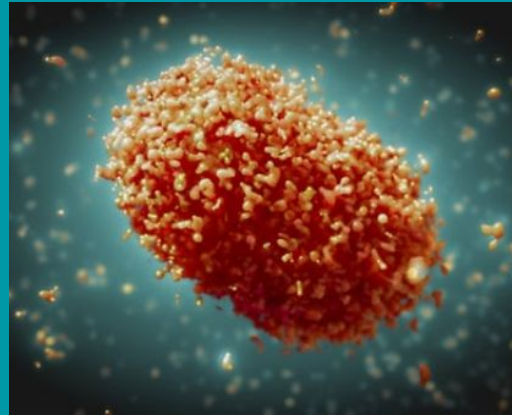


# Monkeypox Update

## emRIC ECHO

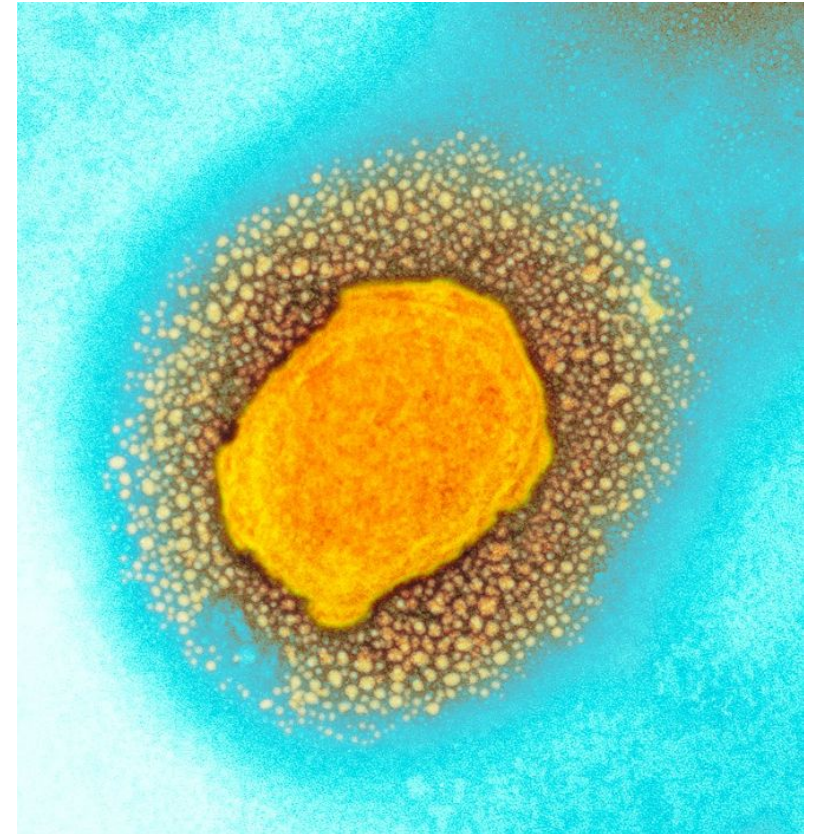


**Miranda Durham, MD**  
**Infectious Disease Bureau Medical Director**  
**September 19, 2022**



# Monkeypox Virus

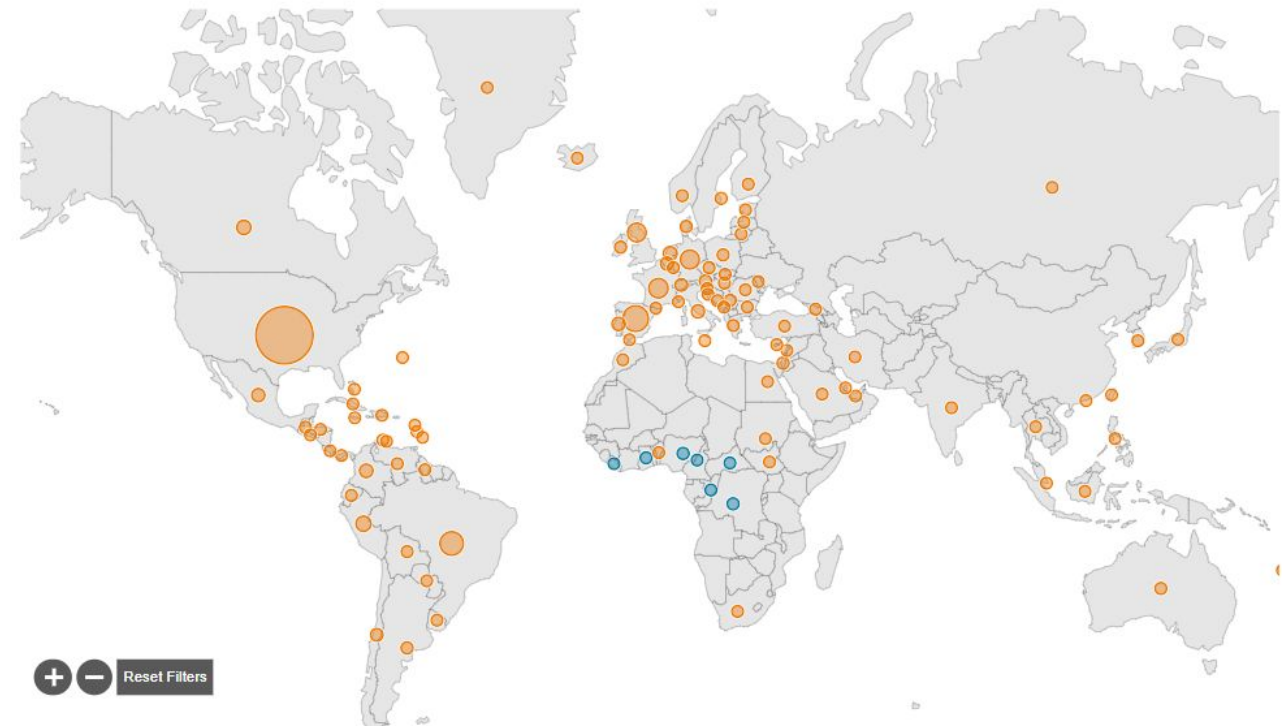
- 1958 - Monkeypox was discovered in research monkeys in a lab in Copenhagen, Denmark
- 1970 - First human case was reported in a 9 month old in DRC
- 2003 - US reports first case outside of Africa during a small outbreak related to contact with infected pet prairie dogs
- July 23, 2022 - WHO declares monkeypox a public health emergency of international concern
- August 4, 2022 - US declares monkeypox a public health emergency



Credit: UK Health Security Agency/Science Photo Library

# World Health Organization Renames Variants 8/12/22

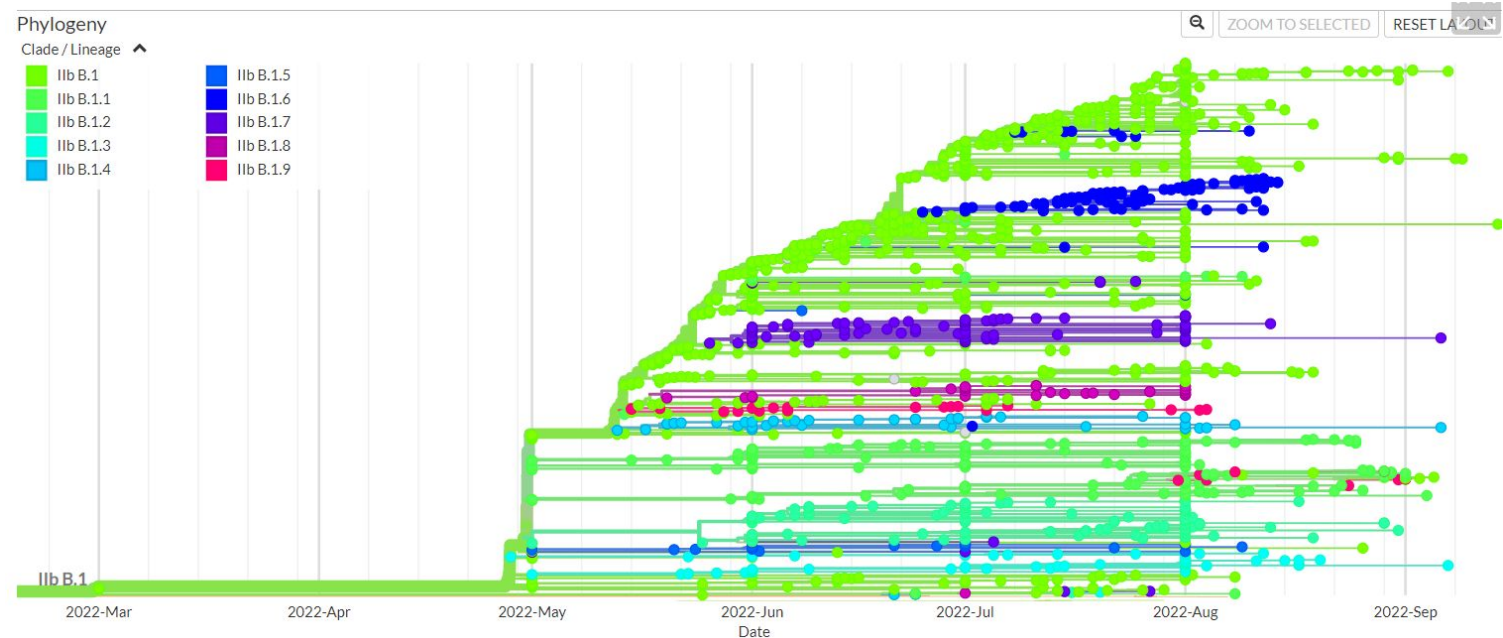
- Current best practice is that newly-identified viruses, related disease, and virus variants should be given names with the aim to avoid causing offense to any cultural, social, national, regional, professional, or ethnic groups, and minimize any negative impact on trade, travel, tourism or animal welfare
- Congo Basin clade → Clade I
- West African clade → Clade IIa and IIb
- Work on renaming is ongoing



<https://www.who.int/news/item/12-08-2022-monkeypox--experts-give-virus-variants-new-names>

# Monkeypox Virus

- Monkeypox virus is an enveloped double-stranded DNA virus that belongs to the *Orthopoxvirus* genus of the *Poxviridae* family.
- The Clade I typically causes more severe disease
- US/worldwide outbreak is largely Clade IIb



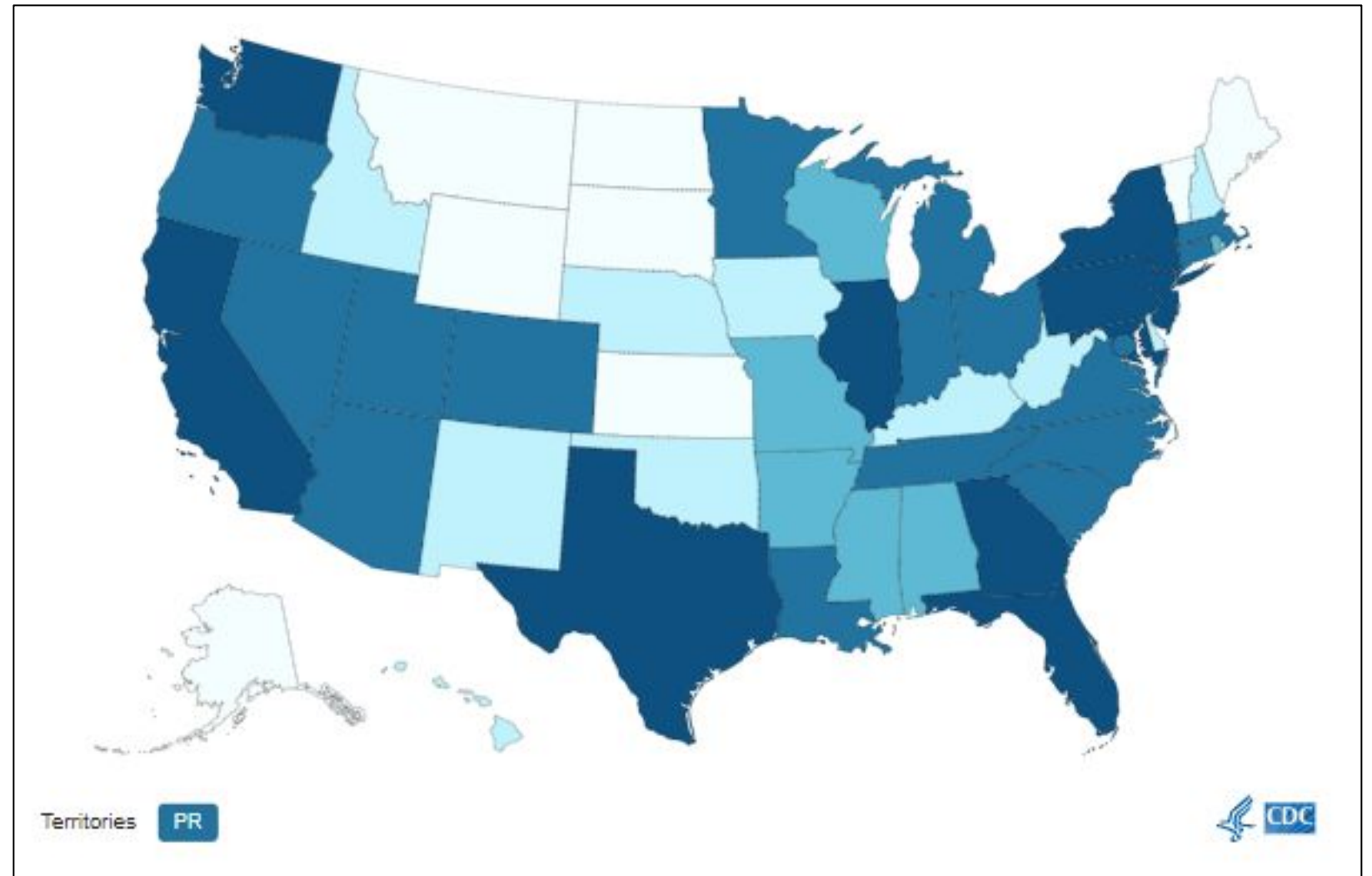
<https://gisaid.org/hmpxv-phylogeny/>

# MONKEYPOX

23,499 US cases

33 NM cases

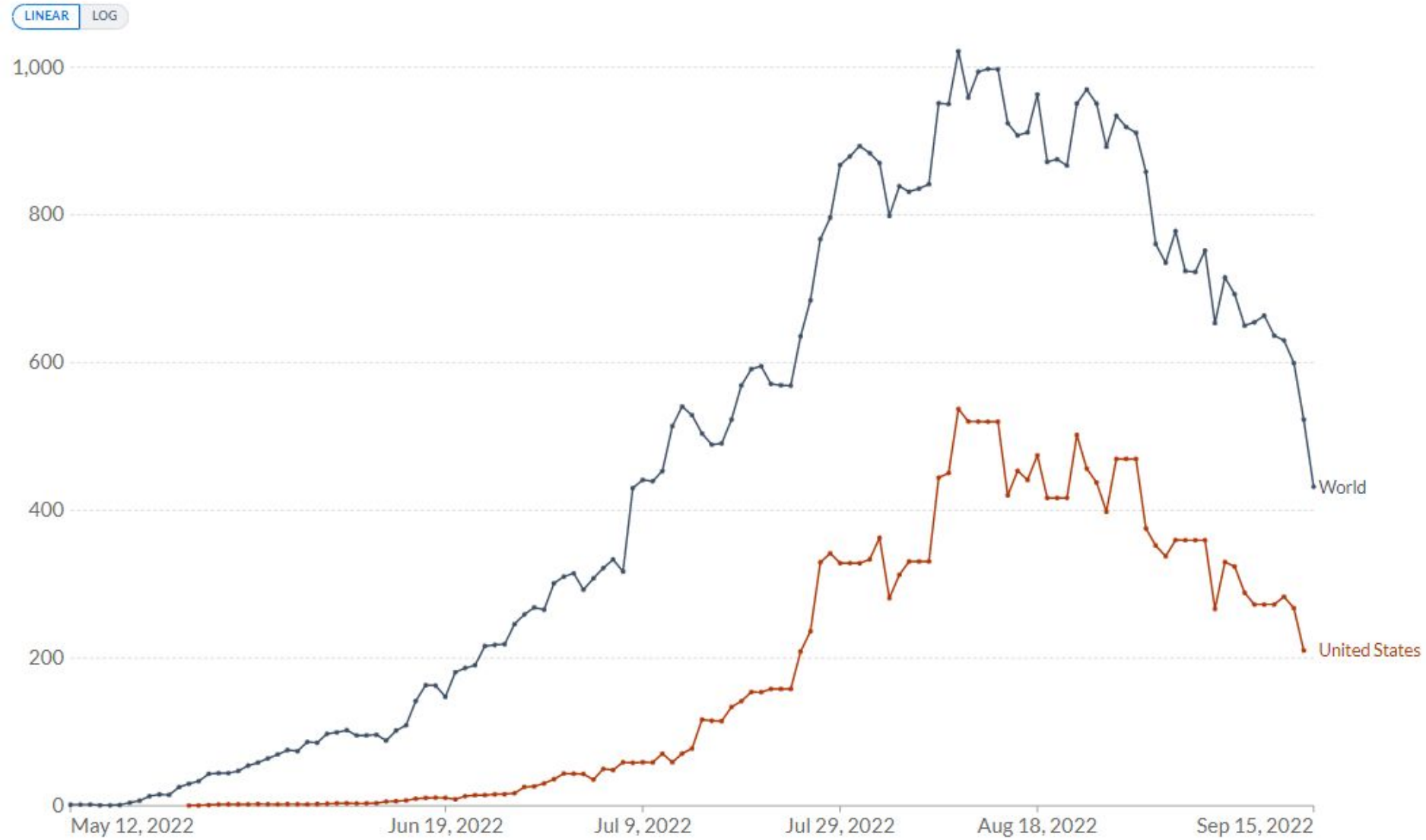
## Case Range



<https://www.cdc.gov/poxvirus/monkeypox/response/2022/us-map.html>

# Monkeypox: Daily confirmed cases

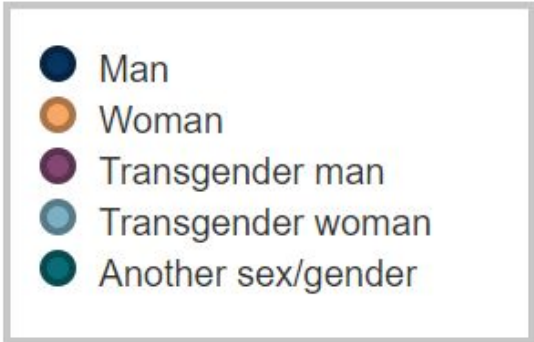
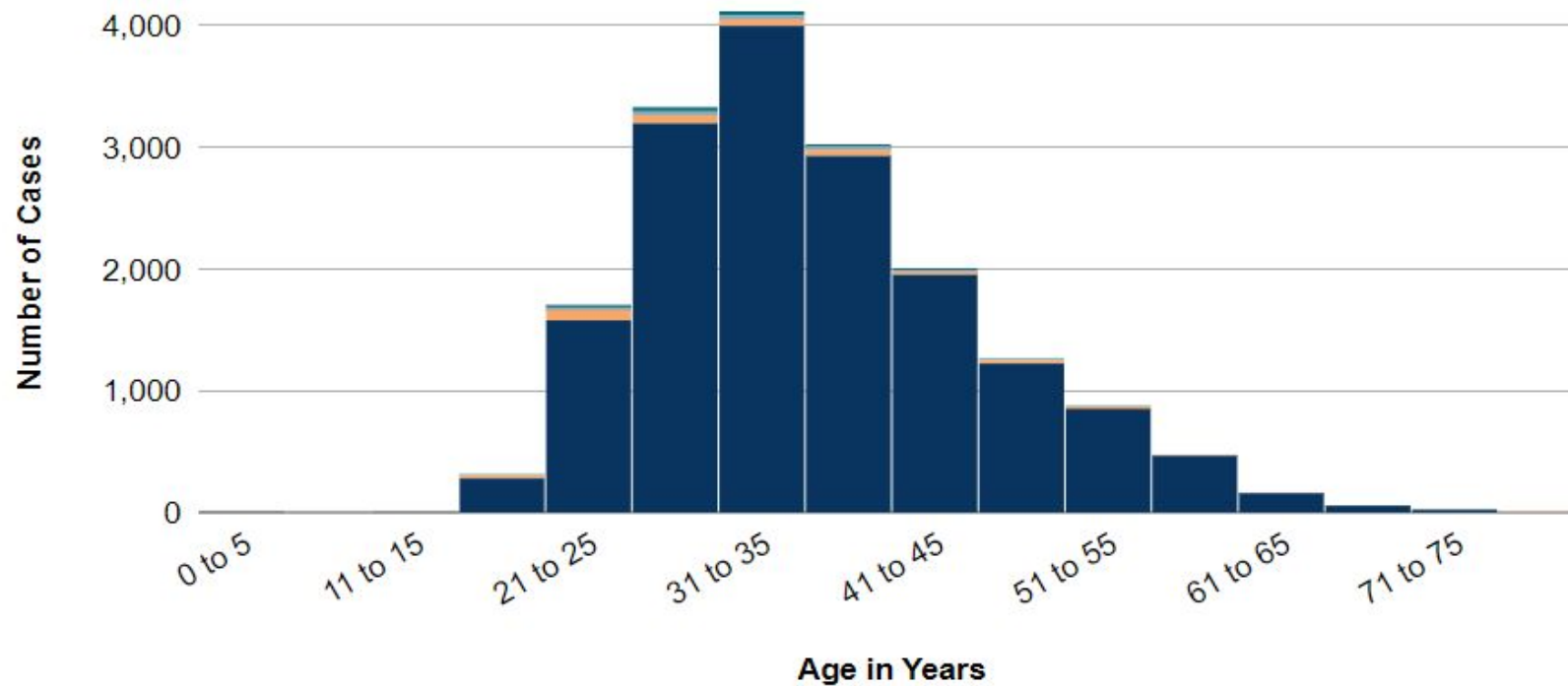
7-day rolling average



Source: Data produced by the 'Global.health' team — available at [github.com/globaldothealth/monkeypox](https://github.com/globaldothealth/monkeypox)

CC BY

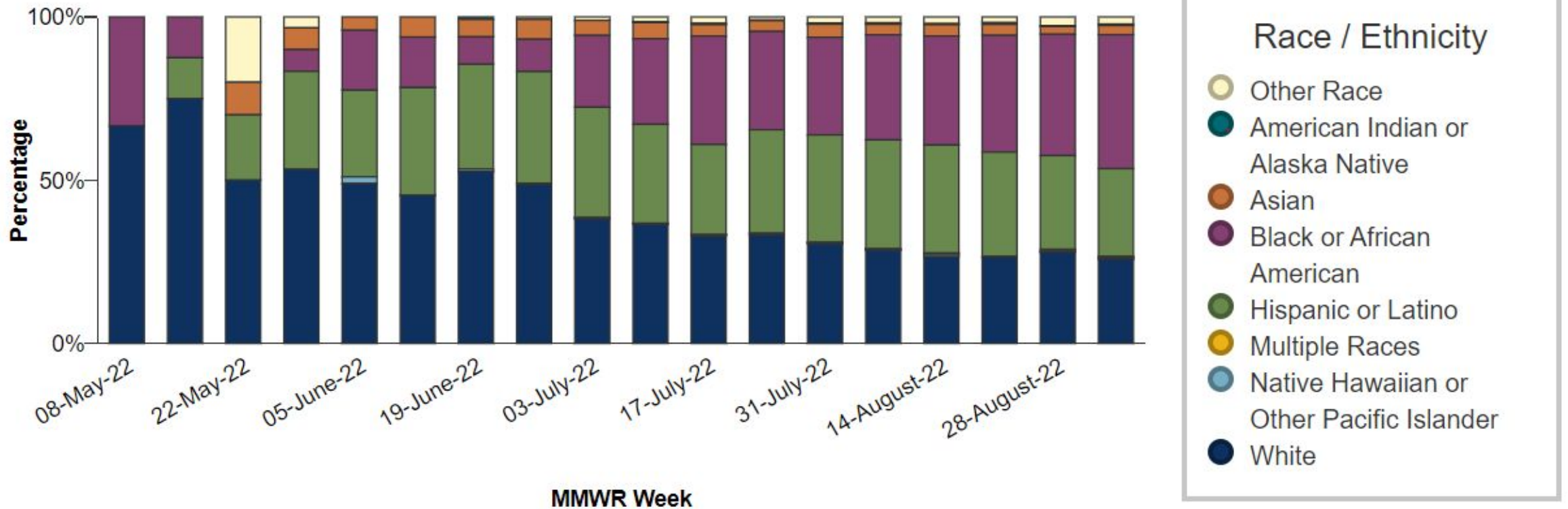
## Monkeypox cases reported to CDC: Age and Gender



	0 to 5	6 to 10
Man	7	2
Woman	5	2
Transgender man	0	0
Transgender woman	0	0
Another sex/gender	0	1

<https://www.cdc.gov/poxvirus/monkeypox/response/2022/demographics.html>

## Monkeypox cases reported to CDC: Race/Ethnicity by Week

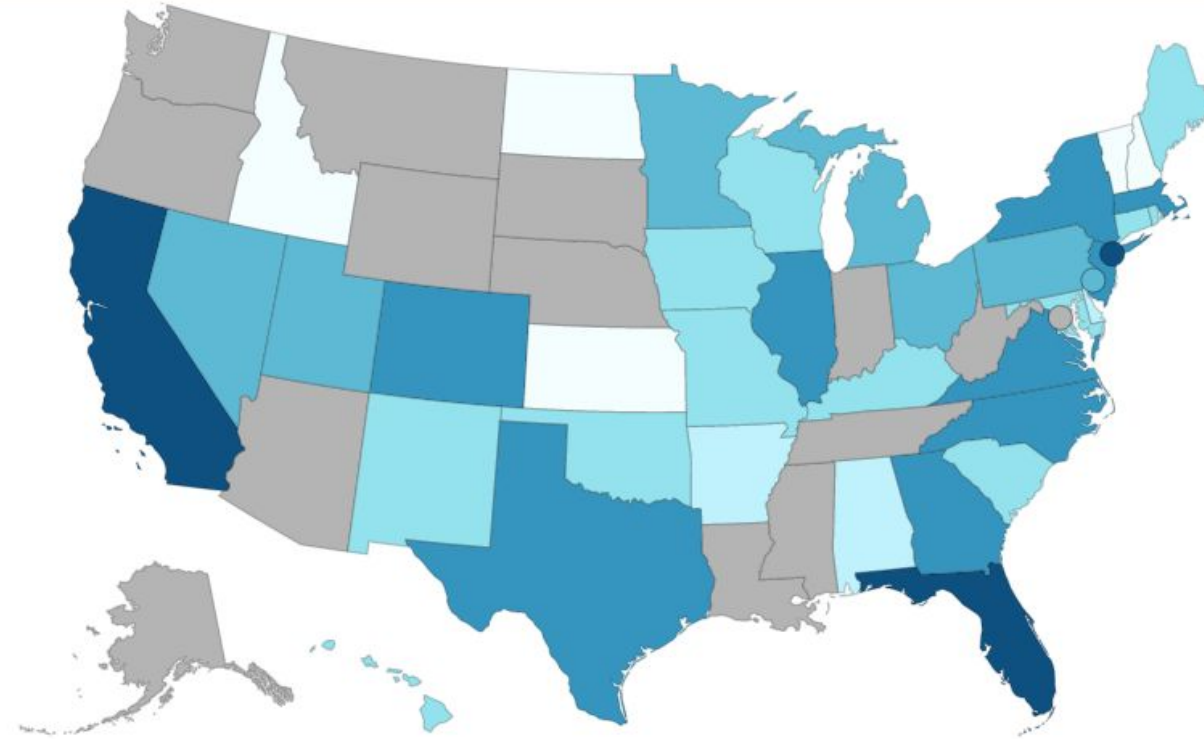


<https://www.cdc.gov/poxvirus/monkeypox/response/2022/demographics.html>



# VACCINE DATA- CDC

Total Vaccine Doses Administered and Reported to CDC



Territories AS GU PR

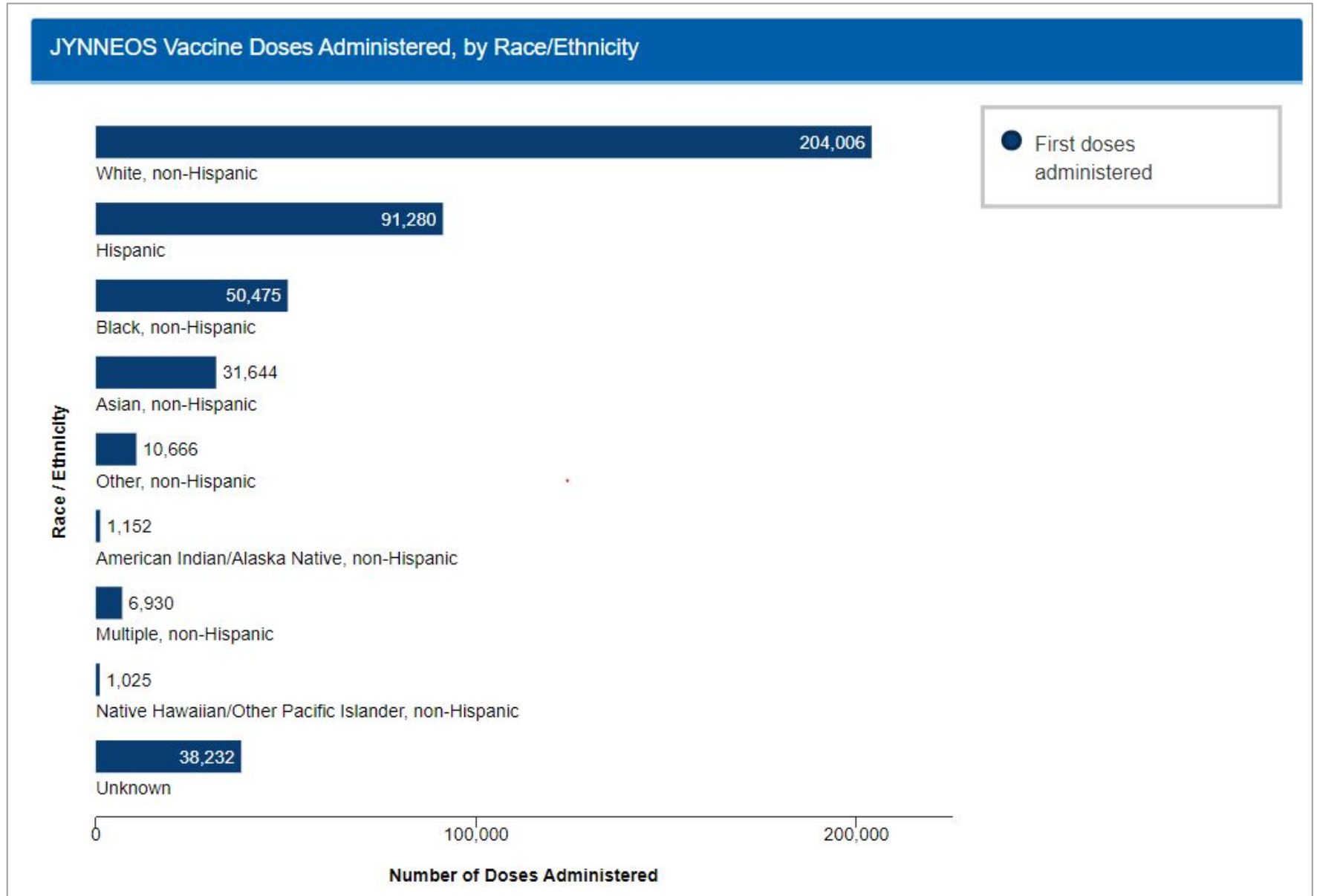


## Doses Administered



<https://www.cdc.gov/poxvirus/monkeypox/cases-data/mpx-vaccine-admin-density.html>

# VACCINE DATA- CDC



[https://www.cdc.gov/poxvirus/monkeypox/response/2022/vaccines\\_data.html](https://www.cdc.gov/poxvirus/monkeypox/response/2022/vaccines_data.html)

# Monkeypox Transmission

The virus can spread from person-to-person through:

- **Direct contact** with the infectious rash, scabs, or body fluids
- **Respiratory secretions** during prolonged, face-to-face contact, or during intimate physical contact, such as kissing, cuddling, or sex
- **Touching items** (such as clothing or linens) that previously touched the infectious rash or body fluids
- **Through the placenta**

It's also possible for people to get monkeypox from contact with infected animals

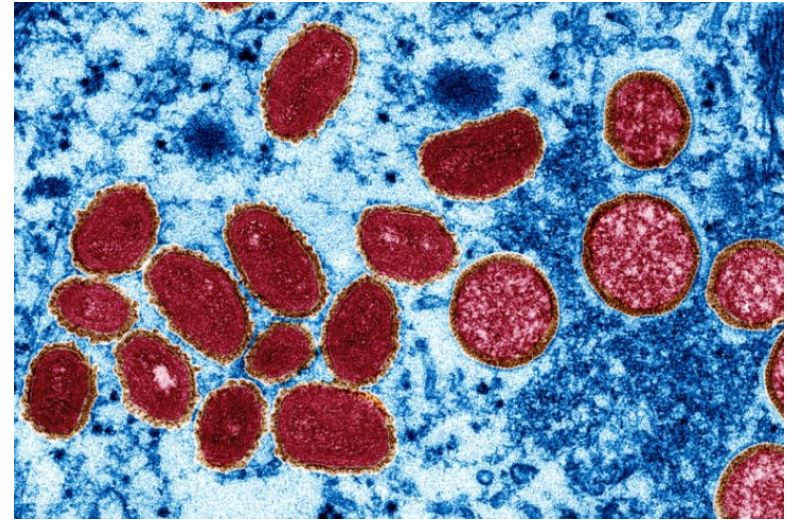
# How contagious is it?

- Much less contagious than COVID-19
- Transmission of monkeypox requires prolonged close contact with a symptomatic individual.
- Transmission during quick interactions (e.g., brief conversation), between people in close proximity has not been reported for any persons with monkeypox
- No healthcare related cases in the US
- Lots to learn about transmission - but seeing limited chains of transmission

<https://www.cdc.gov/poxvirus/monkeypox/clinicians/monitoring.html>

# Disease Progression

- Incubation up to 21 days (usually 5 - 12 days)
- Monkeypox can spread from the time symptoms start until the rash has fully healed and a fresh layer of skin has formed.
- The illness typically lasts 2-4 weeks.
- Research is ongoing to see if it can spread before people have symptoms
- Rarely fatal - 1 death in the US; 18 deaths worldwide

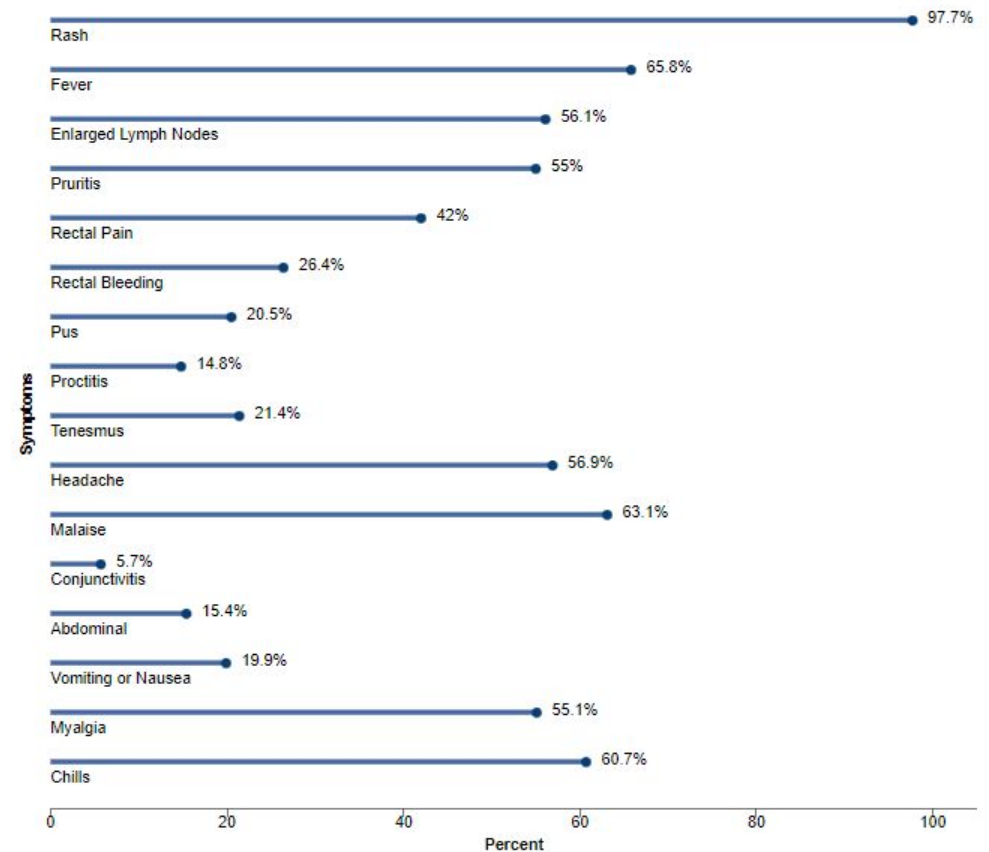


# Symptoms:

- “Rash”
- Fever
- Headache
- Muscle aches and backache
- Swollen lymph nodes
- Chills
- Exhaustion

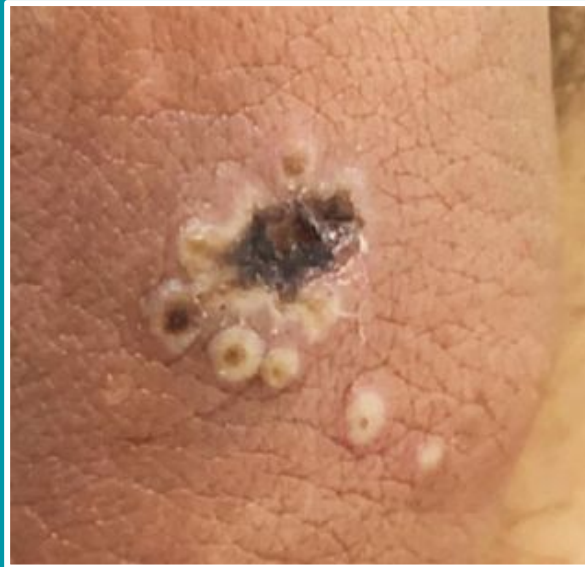


Monkeypox cases reported to CDC: Symptoms





## Monkeypox Lesions



# Not Monkeypox



molluscum



hand foot mouth disease



syphilis



chickenpox



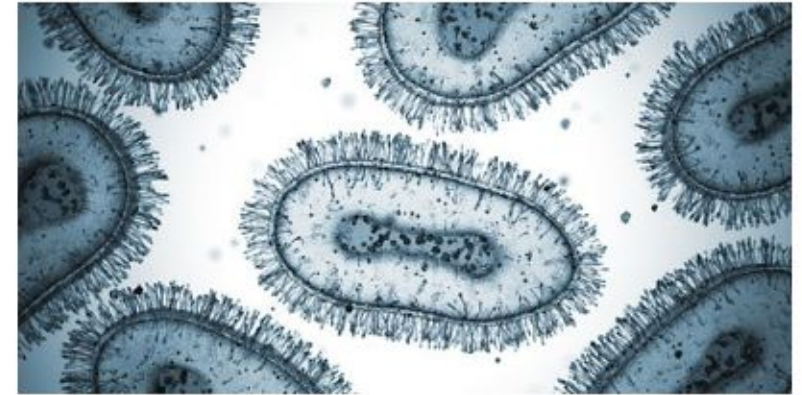
# Testing

1. The only way to test at this time is to **swab a lesion**
2. Follow the directions for your commercial lab or state public health lab (LRN)
3. Scrub hard; collect 2 samples from each lesion
4. Providers should use personal protective equipment (PPE)



## Monkeypox

Quest now offers a test to detect monkeypox virus DNA, delivering faster answers for you and your patients.



Last updated August 18, 2022

### About our test

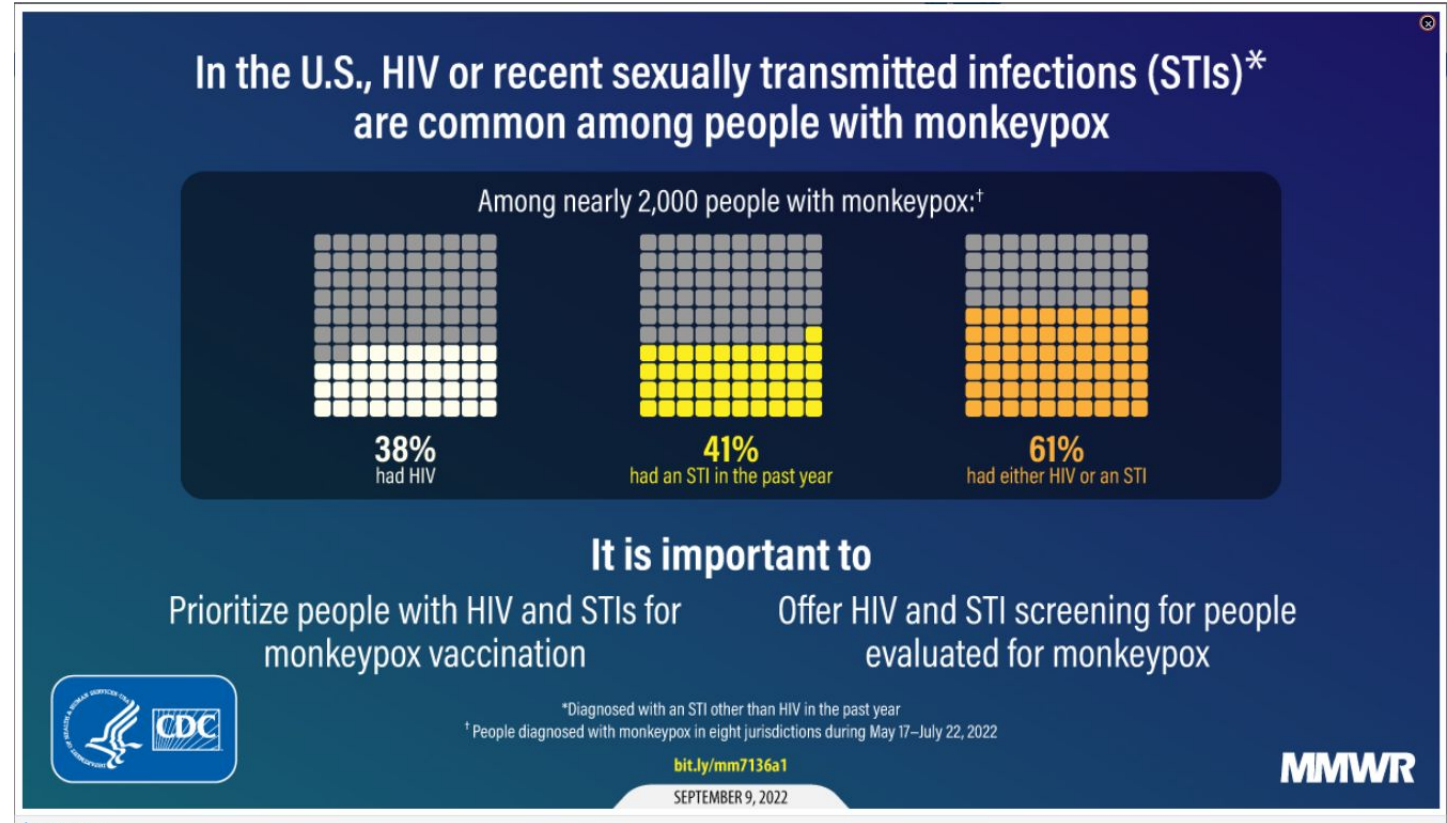
Our lab-developed molecular diagnostic test aids in the diagnosis of infection with monkeypox virus. This novel dual target test employs polymerase chain reaction (PCR) to aid in the qualitative detection of non-variola orthopoxviruses and monkeypox virus (West African clade) DNA, using swab specimens from patients presenting with an acute pustular or vesicular rash. The Quest test can differentiate monkeypox viral DNA from other non-variola orthopoxviruses in a specimen, helping to enable faster final diagnosis. Test results are intended to be used in conjunction with clinical observations and epidemiological risk factors, and should not be used as the sole basis of treatment or other patient management decisions.

### Ordering, collection & results

Test name	Monkeypox Virus DNA, Qualitative, Real-Time PCR
Test code	12084
Specimen Requirements	Lesion swab collected in 3 mL of viral transport media (VTM) or equivalent
Collection	Swab Specimens for Monkeypox Virus Real Time PCR should be collected in appropriate health care settings, such as hospitals and physician offices. Quest Patient Service Centers (PSCs) do not collect these samples.
Expected Turnaround	2-3 days

# Work-up:

1. Consider patient history
2. Test for other STIs
  - co-infections are common
  - other STIs can look like MPX and vice versa
3. Consider other diagnoses: chickenpox, HFM, shingles

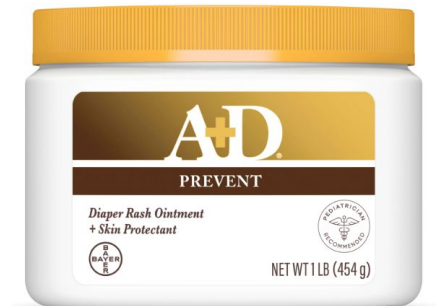


[https://www.cdc.gov/mmwr/volumes/71/wr/mm7136a1.htm?s\\_cid=mm7136a1\\_w#contribAff](https://www.cdc.gov/mmwr/volumes/71/wr/mm7136a1.htm?s_cid=mm7136a1_w#contribAff)

# Symptom Management

- Pain relievers and fever reducers (ibuprofen and tylenol)
- Epsom Salts
- Oatmeal baths
- Antihistamines
- Topical Lidocaine
- Stool softener
- Salt water mouth rinse
- Magic Mouthwash
- Topical steroids?
- Prescriptions for pain management - Gabapentin? Narcotics?

<https://www.cdc.gov/poxvirus/monkeypox/clinicians/pain-management.html>



# TPOXX

- Tecovirimat (also known as TPOXX, ST-246)
- Requested from CDC/SNS and now through allocation in HPOP
- FDA approved for smallpox, but not monkeypox
- CDC holds an expanded access protocol that allows for the use of stockpiled tecovirimat to treat monkeypox during an outbreak.
- Tecovirimat dosing: 600mg (3 tabs) twice a day for 14 days with a full fatty meal (for patients 88 - 264 lbs).
- Efficacy data are from animal studies (decreases risk of dying when given early); drug levels; and a few case studies in humans (may shorten course and viral shedding)



## NEWS RELEASES

Friday, September 9, 2022

### U.S. clinical trial evaluating antiviral for monkeypox begins

*NIH trial to gather data on tecovirimat (TPOXX).*

<https://www.nih.gov/news-events/news-releases/us-clinical-trial-evaluating-antiviral-monkeypox-begins>

# Tecovirimat indications:

1. People with severe MPX disease (e.g., hemorrhagic disease, confluent lesions, sepsis, encephalitis, or other conditions requiring hospitalization)
2. People at high risk of severe MPX disease:
  - Immune compromise
  - Pediatric populations
  - Pregnant or breastfeeding women
  - Active exfoliative skin conditions
  - Complication (e.g., secondary bacterial skin infection; gastroenteritis; bronchopneumonia; concurrent disease or other comorbidities)
  - Infections of the eye, mouth, genitals or anus (risk of scarring or strictures)

Data from the published literature and the FDA suggest that there may be a low barrier to virus developing resistance to tecovirimat

<https://www.cdc.gov/poxvirus/monkeypox/clinicians/Tecovirimat.html>

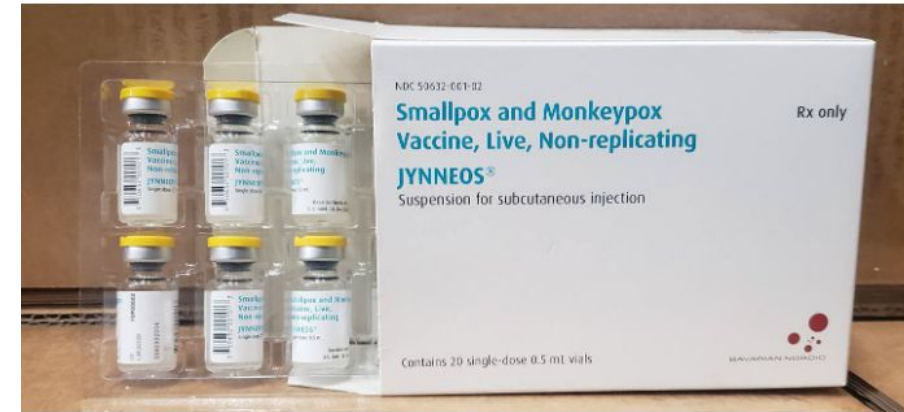
# Complications

- Penile edema
- Paraphimosis or phimosis
- Dysuria, difficulty urinating, or hematuria
- Tonsillar edema, peritonsillar abscess, and epiglottitis
- Rectal perforation
- Perianal abscess
- Proctitis
- Secondary bacterial infections

<https://www.cdc.gov/poxvirus/monkeypox/clinicians/pain-management.html>

# PREVENTION - JYNNEOS VACCINE


- FDA approved in 2019 for prevention of smallpox and monkeypox disease in adults 18+ ; EUA expanded eligibility down to 6 months
- Two doses given four weeks apart, subcutaneously
- Maximum protection from vaccine is 2 weeks after the second dose
- Most common side effects: injection site reactions (pain, redness, swelling, induration, itching), muscle pain, headache, fatigue, nausea, myalgia, chills





# JYNNEOS VACCINE - Alternate Dosing

**MONKEYPOX**  
How to administer a JYNNEOS vaccine intradermally



**STEP 3**  
Slowly inject 0.1 mL intradermally. This should produce a noticeable pale elevation of the skin (wheal).

[www.cdc.gov/monkeypox](http://www.cdc.gov/monkeypox)

**Step 3:** Slowly inject 0.1 mL intradermally. This should produce a noticeable pale elevation of the skin (wheal).

Table 2. Vaccination Schedule and Dosing Regimens for JYNNEOS Vaccine

JYNNEOS vaccine regimen	Route of administration	Injection volume	Recommended number of doses	Recommended interval between 1st and 2nd dose
<b>Alternative regimen</b>				
People age $\geq 18$ years	ID	0.1 mL	2	28 days
<b>Standard regimen</b>				
<u>People age &lt;18 years</u>	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

# PREVENTION

## Impact of Monkeypox Outbreak on Select Behaviors



Source: American Men's Internet Survey, 2022 Monkeypox Supplemental Survey. <https://emoryamis.org/>

For more on these data, read the MMWR [Strategies Adopted by Gay, Bisexual, and Other Men Who Have Sex with Men to Prevent Monkeypox virus Transmission—United States, August 2022](#).

# Exposures in the Healthcare Setting

1. Monitor for symptoms for 21 days from last contact
  - quarantine is not recommended
2. Consider PEP (Vaccine)
  - Vaccine given within 4 days of the exposure has the best chance to prevent onset of the disease.
  - Vaccine given between 5 and 14 days of exposure may reduce the symptoms of disease, but may not prevent the disease.

Start Date: \_\_\_\_\_ End Date: \_\_\_\_\_

Day 1	Day 2	Day 3	Day 4	Day 5
Day 6	Day 7	Day 8	Day 9	Day 10
Day 11	Day 12	Day 13	Day 14	Day 15
Day 16	Day 17	Day 18	Day 19	Day 20
Day 21				

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

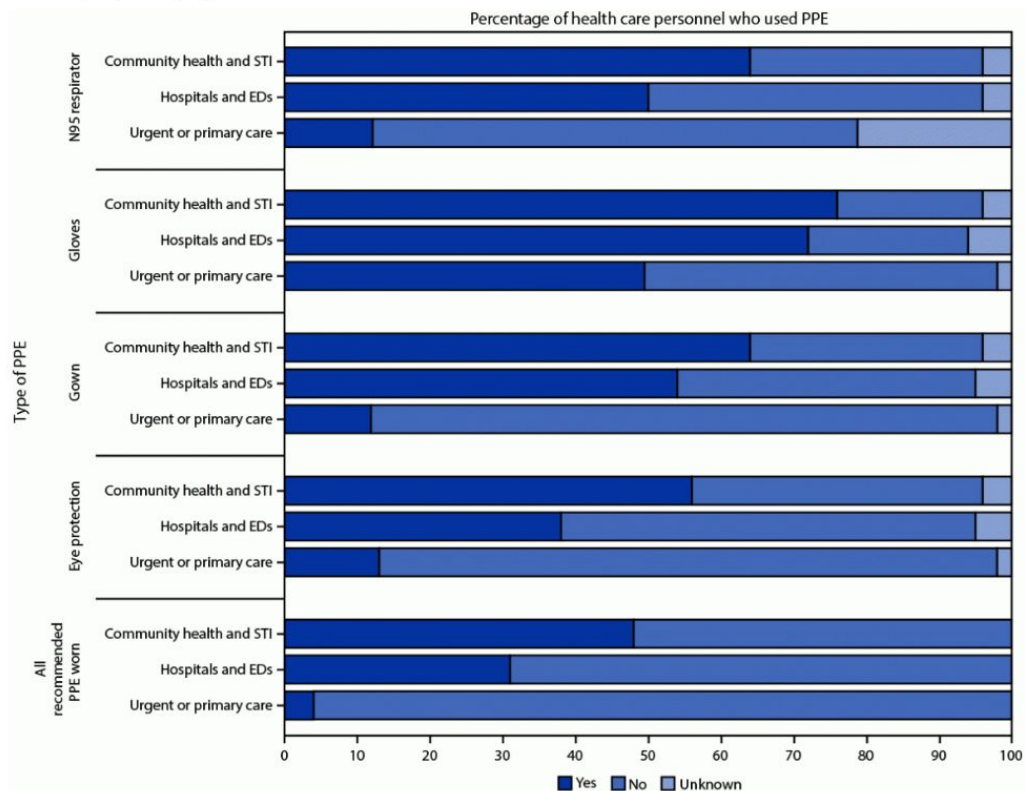
# Exposures in the Healthcare Setting

## Health Care Personnel Exposures to Subsequently Laboratory-Confirmed Monkeypox Patients — Colorado, 2022

Early Release / September 16, 2022 / 71

Kristen E. Marshall, PhD<sup>1,2,\*</sup>; Marlee Barton, MPH<sup>1,\*</sup>; Janell Nichols<sup>1</sup>; Marie A. de Perio, MD<sup>3</sup>; David T. Kuhar, MD<sup>3</sup>; Emily Spence-Davison, MPH<sup>1</sup>; Meghan Barnes, MSPH<sup>1</sup>; Rachel K. Herlihy, MD<sup>1</sup>; Christopher A. Czaja, MD, DrPH<sup>1</sup>; Colorado Healthcare Personnel Monitoring Team ([View author affiliations](#))

FIGURE. Personal protective equipment use by health care personnel\* exposed to patients with monkeypox, by facility type — Colorado, May 1–July 31, 2022



Risk classification*	
High <sup>†</sup>	20 (6)
Intermediate	67 (21)
Low or uncertain	226 (72)

MMWR:

[https://www.cdc.gov/mmwr/volumes/71/wr/mm7138e2.htm?s\\_cid=mm7138e2\\_x](https://www.cdc.gov/mmwr/volumes/71/wr/mm7138e2.htm?s_cid=mm7138e2_x)

# Evaluating Exposure Risk

Risk level of exposure	Exposure characteristics	Recommendations	
		Monitoring	PEP*
Higher	Unprotected contact between an exposed individual's broken skin or mucous membranes and the skin lesions or bodily fluids from a patient with monkeypox (e.g., inadvertent splashes of patient saliva to the eyes or mouth of a person), or soiled materials (e.g., linens, clothing) -OR-	Yes	Recommended
	Being inside the patient's room or within 6 feet of a patient with monkeypox during any medical procedures that may create aerosols from oral secretions (e.g., cardiopulmonary resuscitation, intubation), or activities that may resuspend dried exudates (e.g., shaking of soiled linens), without wearing a NIOSH-approved particulate respirator with N95 filters or higher and eye protection		
Intermediate	Being within 6 feet for a total of 3 hours or more (cumulative) of an unmasked patient with monkeypox without wearing a facemask or respirator -OR-	Yes	Informed clinical decision making recommended on an individual basis to determine whether benefits of PEP outweigh risks of transmission or severe disease **
	Unprotected contact between an exposed individual's intact skin and the skin lesions or bodily fluids from a patient with monkeypox, or soiled materials (e.g., linens, clothing) -OR- Activities resulting in contact between an exposed individual's clothing and the patient with monkeypox's skin lesions or bodily fluids, or their soiled materials (e.g., during turning, bathing, or assisting with transfer) while not wearing a gown		
Lower	Entry into the contaminated room or patient care area of a patient with monkeypox without wearing all recommended PPE, and in the absence of any exposures above	Yes	None
No Risk	No contact with the patient with monkeypox, their contaminated materials, nor entry into the contaminated patient room or care area	No	None

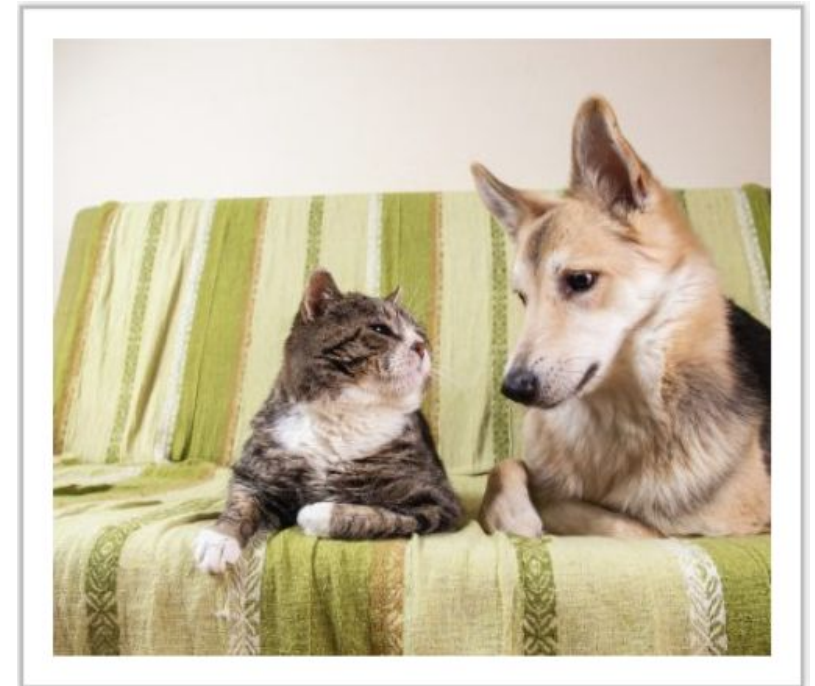
<https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-healthcare.html>

# Infection Prevention in the Healthcare Setting

1. A patient with suspected or confirmed monkeypox infection should be placed in a single-person room; special air handling is not required.
2. Standard cleaning and disinfection procedures should be performed using an EPA-registered hospital-grade disinfectant with an emerging viral pathogen claim.
3. Soiled laundry (e.g., bedding, towels, personal clothing) should be handled in accordance with [recommended](#) standard practices, avoiding contact with lesion material that may be present on the laundry. Soiled laundry should be gently and promptly contained in an appropriate laundry bag and never be shaken or handled in manner that may disperse infectious material
4. Activities such as dry dusting, sweeping, or vacuuming should be avoided. Wet cleaning methods are preferred.
5. Management of food service items should also be performed in accordance with routine procedures.

# Isolation Guidance for Patients

Situation*	Lowest Risk	Intermediate Risk	Higher Risk
Living Space	<p>Remain alone in a home or where only others with monkeypox are located.</p> <p>Cover upholstered furniture and porous materials that cannot be washed with sheets, blankets, tarps, and other covers.</p>	<p>Remain in a separate room in a home or facility away from others who do not have monkeypox.</p> <p>Cover all upholstered furniture and porous surfaces with sheets, blankets, tarps, or other covers.</p> <p>Wear a well-fitting mask and cover lesions while around others.</p> <p>Disinfect surfaces (doorknobs, countertops) between each use.</p>	<p>Share space with others but avoid close contact. Do not share a bed with another person.</p> <p>Wear a well-fitting mask and cover lesions while around others.</p> <p>Disinfect surfaces (doorknobs, countertops) between each use.</p>



<https://www.cdc.gov/poxvirus/monkeypox/if-sick/preventing-spread.html>

<https://www.cdc.gov/poxvirus/monkeypox/specific-settings/home-disinfection.html>

# Patient Resources - CDC

## MONKEYPOX

### If You Have Monkeypox: Self Care



#### Taking Care of Yourself

- Use gauze or bandages to cover the rash to limit spread to others and to the environment.
- Don't lance (pop) or scratch lesions from the rash.
- Do not shave the area with the rash until the scabs have fallen off and a new layer of skin has formed.
- Keep skin lesions/rash clean and dry when not showering or bathing.
- Wash hands often with soap and water or use an alcohol-based hand sanitizer, especially after direct contact with the rash.
- If you have rash on your hands, be careful when washing or using sanitizer so as not to irritate the rash.
- If you have rash on your hands, wear gloves that are non-irritating when handling common objects or touching surfaces in shared spaces. If you can, use disposable gloves that can be discarded after each use. Reusable gloves should be washed with soap and water between use.
- Wear a well-fitting mask around other people until the rash and all other symptoms have resolved.
- Eat healthy and get plenty of rest to allow your body to heal.



#### Managing Your Pain Symptoms

- Medicines like ibuprofen (Advil, Motrin) and acetaminophen (Tylenol) can help you feel better. Your healthcare provider may prescribe stronger pain relievers.
- For rash in the mouth, rinse with salt water at least four times a day. Prescription mouthwashes, or local anesthetics like viscous lidocaine can be used to manage pain. Oral antiseptics like chlorhexidine mouthwash can be used to help keep the mouth clean.
- Contact your healthcare provider if pain becomes severe and unmanageable at home.



#### Rash Relief

- The most important thing is to try to not touch or scratch the rash. This can spread the rash, increase the chance of spreading the virus to others, and possibly cause infection by bacteria. If you do accidentally touch the rash, wash your hands with soap and water and avoid touching sensitive areas like your eyes, nose, mouth, genitals, and rectum (butthole).
- Topical benzocaine/lidocaine gels can be used for temporary relief. Oral antihistamines such as Benadryl and topical creams such as calamine lotion or petroleum jelly may help with itching.
- Soaking in a warm bath (using oatmeal or other over-the-counter bath products for itchy skin) may offer some relief to the dry, itchy sensations.
- People who have the rash in or around their anus (butthole) or genitals (penis, testicles, labia, vagina), or perineum (taint) may also benefit from a sitz-bath. A sitz bath is a round, shallow basin. There is also the option to sit in a bathtub with shallow, warm water. Your healthcare provider may prescribe medication like povidone-iodine or other products to be added to the water in a sitz bath. Adding Epsom salt, vinegar, or baking soda to the water can be soothing.




[www.cdc.gov/monkeypox](http://www.cdc.gov/monkeypox)


<https://www.cdc.gov/poxvirus/monkeypox/pdf/SelfCare-InfoSheet.pdf>

## MONKEYPOX

### Monkeypox and Safer Sex



#### Vaccination is an important tool in preventing the spread of monkeypox. But given the current limited supply of vaccine, consider temporarily changing some behaviors that may increase your risk of being exposed. These temporary changes will help slow the spread of monkeypox until vaccine supply is adequate.



#### Reducing or avoiding behaviors that increase risk of monkeypox exposure is also important when you are between your first and second shots of vaccine. Your protection will be highest when you are two weeks after your second dose of vaccine.

Make a habit of exchanging contact information with any new partner to allow for sexual health follow-up, if needed.


Talk with your partner about any monkeypox symptoms and be aware of any new or unexplained rash or lesion on either of your bodies, including the mouth, genitals (penis, testicles, vulva, or vagina), or anus (butthole). If you or your partner have or recently had monkeypox symptoms or have a new or unexplained rash anywhere on your body, do not have sex and see a healthcare provider. In some cases, symptoms may be mild, and some people may not even know they have monkeypox.

If you or a partner has monkeypox or think you may have monkeypox, the best way to protect yourself and others is to avoid sex of any kind (oral, anal, vaginal) and kissing or touching each other's bodies - while you are sick. **Especially avoid touching any rash.** Do not share things like towels, fetish gear, sex toys, and toothbrushes.

Even if you feel well, here are some ways to reduce your chances of being exposed to monkeypox if you are sexually active:

- Take a temporary break from activities that increase exposure to monkeypox, until you are two weeks after your second dose. This will greatly reduce your risk.

[Continue to Next Page →](#)



[www.cdc.gov/monkeypox](http://www.cdc.gov/monkeypox)

<https://www.cdc.gov/poxvirus/monkeypox/prevention/sexual-health.html>



# TALKING ABOUT IT

## Stigma Reduction Communication Strategies

- 1 Describe monkeypox as a legitimate public health issue that is relevant to all people

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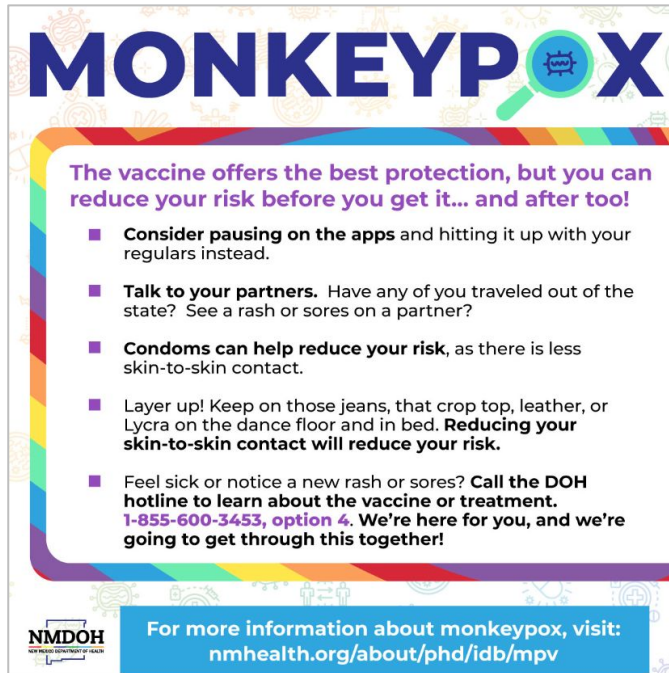
- 2 Educate about monkeypox

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- 3 Frame the image of monkeypox by
  - Using inclusive language, such as 'us' and 'we' pronouns
  - Using non-sensationalistic language and images
  - Using language that resonates with the audience
  - Presenting concepts that the audience will be open to hearing or reading
  - Using positive, diverse, and credible images
  - Emphasizing prevention strategies, symptom recognition, and the treatable nature of monkeypox to minimize fear and promote action and sense of personal agency

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

# COMMUNITY ENGAGEMENT



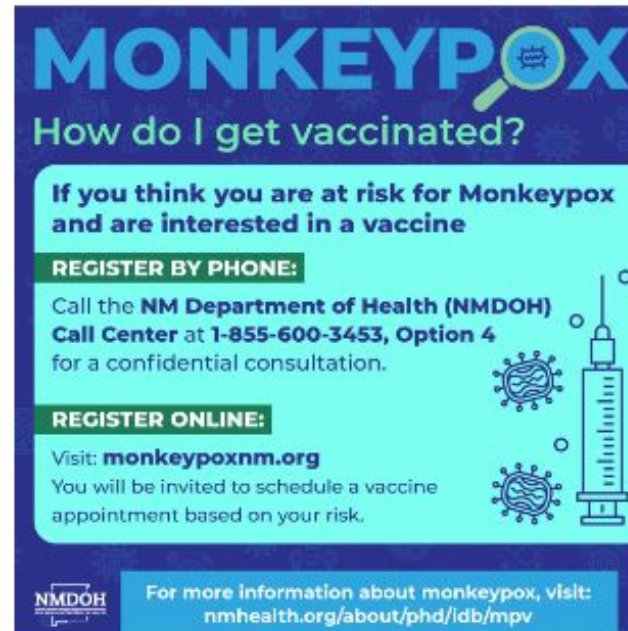
## MONKEYPOX

The vaccine offers the best protection, but you can reduce your risk before you get it... and after too!

- Consider pausing on the apps and hitting it up with your regulars instead.
- Talk to your partners. Have any of you traveled out of the state? See a rash or sores on a partner?
- Condoms can help reduce your risk, as there is less skin-to-skin contact.
- Layer up! Keep on those jeans, that crop top, leather, or Lycra on the dance floor and in bed. Reducing your skin-to-skin contact will reduce your risk.
- Feel sick or notice a new rash or sores? Call the DOH hotline to learn about the vaccine or treatment. 1-855-600-3453, option 4. We're here for you, and we're going to get through this together!

**NMDOH**  
NEW MEXICO DEPARTMENT OF HEALTH

For more information about monkeypox, visit:  
[nmhealth.org/about/phd/idb/mpv](https://www.nmhealth.org/about/phd/idb/mpv)




## MONKEYPOX

### How do I get vaccinated?

If you think you are at risk for Monkeypox and are interested in a vaccine

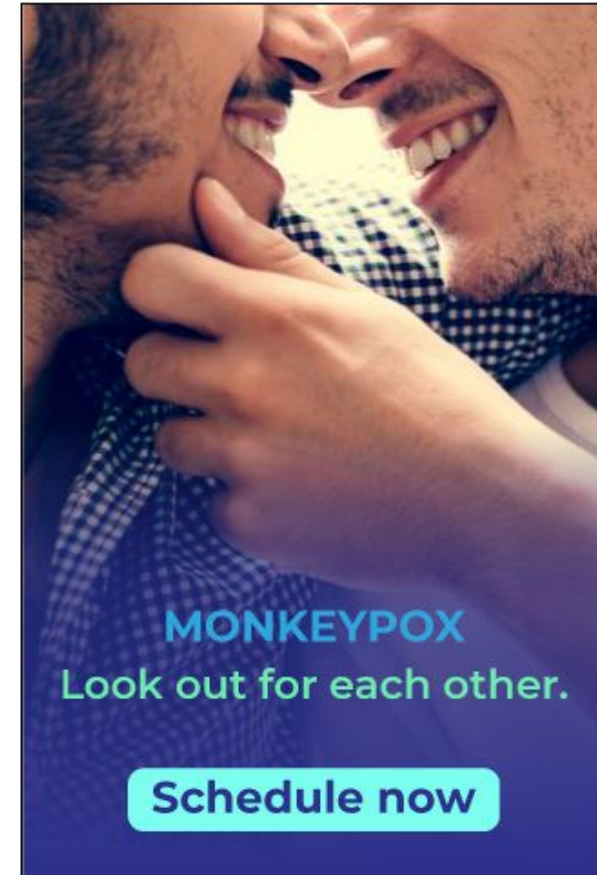
**REGISTER BY PHONE:**  
Call the **NM Department of Health (NMDOH) Call Center** at 1-855-600-3453, Option 4 for a confidential consultation.

**REGISTER ONLINE:**  
Visit: [monkeypoxnm.org](https://www.monkeypoxnm.org)  
You will be invited to schedule a vaccine appointment based on your risk.



**NMDOH**  
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## MONKEYPOX

Look out for each other.

**Schedule now**

NMDOH on Facebook, Twitter, Instagram, and LinkedIn

NMDOH Monkeypox site: <https://www.nmhealth.org/about/phd/idb/mpv/>

Grindr



*Investing for tomorrow, delivering today.*

**THANK YOU!**