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Department of Health and Human Services

Monkeypox Response Overview

Division of Public and Behavior Health

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10/11/2022

Helping people. It's who we are and what we do.

Agenda

1. About Monkeypox
2. Current Outbreak
3. Course of Illness/Key Characteristics for Identifying Monkeypox
4. Contagious Period and Transmission
5. Examination and Diagnosis
6. Suspect Monkeypox/Testing/Reporting
7. Treatment
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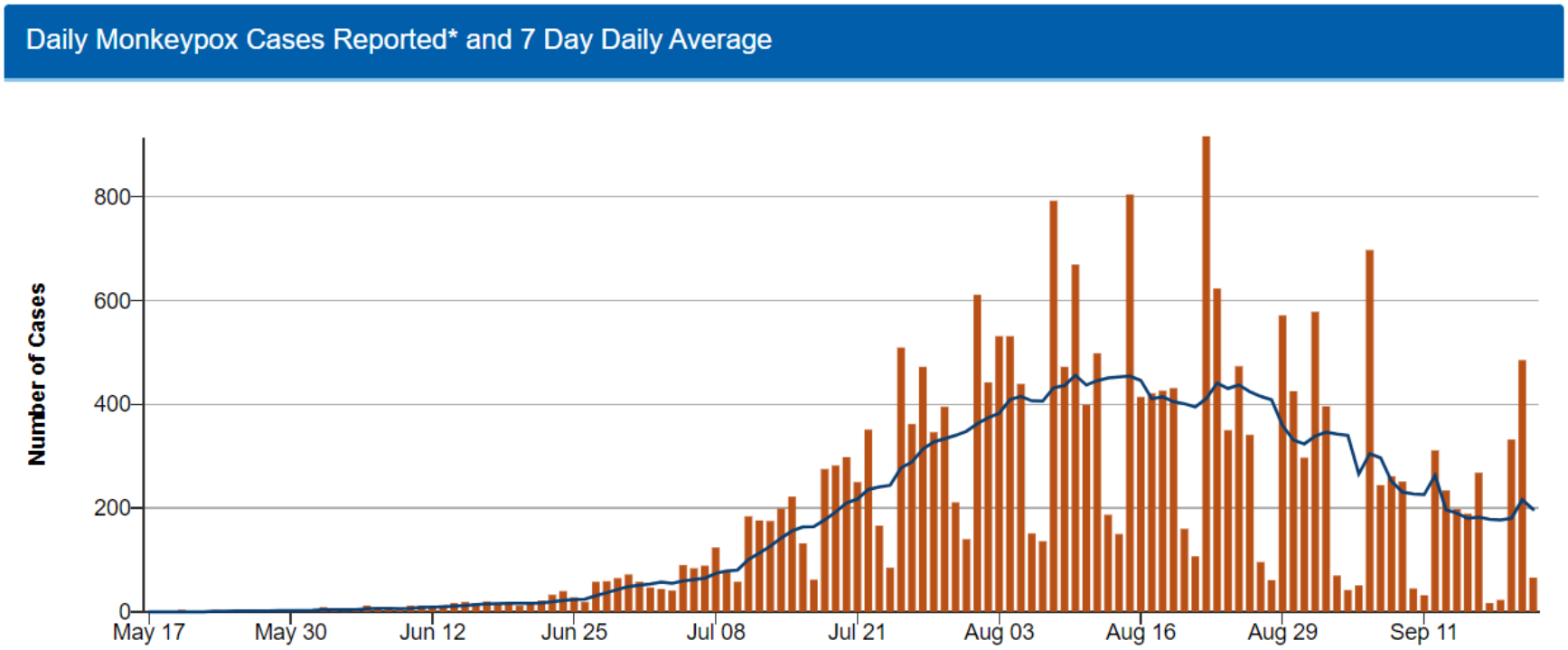
About Monkeypox

- Rare disease caused by infection with the *Monkeypox virus*, an *Orthopoxvirus*
- Part of the same family of viruses as *variola virus*, the virus that causes smallpox
- Discovered in 1958 when two outbreaks of a pox-like disease occurred in colonies of monkeys kept for research
- Specific animal reservoir unknown, African rodents and non-human primates (such as monkeys) might harbor the virus and infect people
- First human case was recorded in 1970

US Monkeypox Case Trends Reported to CDC:

Data from 9/21/22



Nevada Case Counts (Data as of 09.28.22)

County	Total Cases
Clark	250
Washoe	18
Nye	4
Humboldt	1
Lyon	1
Total	**274**

Contagious (Infectious) Period

- Patients are infectious once symptoms begin (whether prodromal or rash symptoms) and remain infectious until all sores, including scabs have healed and a fresh layer of skin forms

Transmission

- Close Contact
  - Monkeypox can spread to anyone through close, personal, often skin-to-skin contact including:
    - Direct contact with monkeypox rash, scabs, or body fluids from a person with monkeypox.
    - Touching objects, fabrics (clothing, bedding, or towels), and surfaces that have been used by someone with monkeypox).
    - Contact with respiratory secretions.
- Intimate Contact
  - This direct contact can happen during intimate contact, including:
    - Oral, anal, and vaginal sex or touching the genitals or anus of a person with monkeypox
    - Hugging, massage, and kissing.
    - Prolonged face-to-face contact.
    - Touching fabrics and objects during sex that were used by a person with monkeypox that have not been disinfected, such as bedding, towels, fetish gear, and sex toys.
- Monkeypox and Pregnancy
  - A pregnant person can spread the virus to their fetus through the placenta.
- Infected Animals
  - Transmission from animals can also occur, either by being scratched or bitten by the animal or by preparing or eating meat or using products from an infected animal.

Course of Illness

- Incubation Period
  - ~1-2 weeks (range 5-21 days)
- Prodromal Period (Initial Symptoms)
  - Fever
  - Malaise
  - Headache
  - Sometimes sore throat and cough
- Other Symptoms
  - Muscle aches/backache
  - Chills
  - Weakness/exhaustion
- Lymphadenopathy (swelling of the lymph nodes) distinguishing feature from smallpox
  - May be generalized or localized

Rash (lesions)

- A rash that can look like pimples or blisters that appears on the hands, feet, chest, face, genitals or inside the body including mouth, vagina or anus
- Lesions progress through four stages:
  - macular, papular, vesicular, pustular
- Then scab over and resolve
- Illness typically lasts 2-4 weeks
- Monkeypox Rash Photos: https://www.cdc.gov/poxvirus/monkeypox/symptoms.html

MONKEYPOX

VISUAL EXAMPLES OF MONKEYPOX RASH




Photo Credit: NHS England High Consequence Infectious Diseases Network

CDC

CS328947-EK

MONKEYPOX

VISUAL EXAMPLES OF MONKEYPOX RASH

Photo Credit: UK Health Security Agency

CS328947-EK

Key Characteristics for Identifying Monkeypox

- Lesions are firm or rubbery, well circumscribed, deep seated, and often develop umbilication (resembles a dot on the top of the lesion)
- During the current global outbreak:
  - Lesions often occur in the genital and anorectal areas or in the mouth
  - Rash may be confirmed to only a few lesions or only a single lesion
  - Rash does not always appear on palms and soles
- Rectal symptoms (e.g., purulent or bloody stools, rectal pain, or rectal bleeding) have been frequently reported in the current outbreak
- Lesions are often described as painful until the healing phase when they become itchy (crusts)
- Fever and other prodromal symptoms (e.g., chills, lymphadenopathy, malaise, myalgias, or headache) can occur before rash but may occur after rash or not be present at all
- Respiratory symptoms (e.g. sore throat, nasal congestion, or cough) can occur

If you suspect Monkeypox:

- Isolate the patient in a single-person room
  - Special air-handling not required unless performing procedures likely to spread oral secretions such as intubation or extubation; then airborne infection isolation room required.
- Wear Personal Protective Equipment (PPE):
  - Gown, gloves, eye protection (goggles or face shield), and a NIOSH-approved particulate respirator with N95 filters or higher
- Notify your facility's infection control team
- Notify your local health authority
  - Report suspect case
  - Consider treatment
- CDC Infection Control Guidance:
  - https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-healthcare.html

If you suspect Monkeypox (continued):

- Collect a complete sexual and travel history for past 21 days
- Perform a thorough skin and mucosal examination (e.g., genital, anal, oral) in a room with good lighting
- Obtain specimens
  - (https://www.cdc.gov/poxvirus/monkeypox/clinicians/prep-collection-specimens.html)
  - Swabs should be synthetic (polyester, nylon, dacron); **not cotton**
  - Two swabs from each lesion
  - Lesions should be swabbed vigorously
  - Two-three lesions on different locations of the body or that differ in appearance
  - Place each swab in separate container
- Consider other infections (syphilis, varicella zoster, herpes simplex, molluscum contagiosum)
- Evaluate for STIs per the 2021 CDC STI Treatment Guidelines (https://www.cdc.gov/std/treatment-guidelines/default.htm)

Monkeypox Testing

- Public Health Laboratories
  - Nevada State Public Health Laboratory (NSPHL)
  - Southern Nevada Public Health Laboratory (SNPHL)
  - Must be approved by local health authority
- Commercial Laboratories (charge to patient or their insurance including Medicare/Medicaid)
  - Labcorp (order code 140230)
    - https://www.labcorp.com/infectious-disease/monkeypox
  - Quest Diagnostics (test code 12084)
    - https://testdirectory.questdiagnostics.com/test/test-detail/12084/monkeypox-virus-dna-qualitative-real-time-pcr?p=r&q=monkeypox&cc=MASTER
- Interpretation of Results
  - Probable Monkeypox: positive orthopox PCR
  - Report to LHA, isolate, identify contacts
  - https://www.cdc.gov/poxvirus/monkeypox/if-you-are-sick.html

Tribal health clinics contact their nearest local health authority to access treatment:

Health Department	County	Reporting
Southern Nevada Health District (SNHD)	Clark	Phone: (702) 759-1300 (24 hours) Fax: (702) 759-1414 https://www.southernnevadahealthdistrict.org/news-info/reportable-diseases/reportable-diseases-form/
Washoe County Health District (WCHD)	Washoe	(775) 328-2447 (24 hours) https://www.washoecounty.gov/health/programs-and-services/ephp/communicable-diseases-and-epidemiology/disease-reporting.php
Carson City Health and Human Services (CCHHS)	Carson City Douglas Lyon	(775) 887-2190 (24 hours) https://gethealthycarsoncity.org/epidemiology/reportable-diseases/
	All other Nevada counties	(775) 684-5941 (M-F 8am-5pm) (775) 400-0333 (after hours) https://dpbh.nv.gov/Programs/OPHIE/Public_Health_Informatics_and_Epidemiology_-_Home/

Treatment

- Tecovirimat (TPOXX)
  - Antiviral medication approved by FDA for treatment of smallpox in adults and children
  - CDC holds expanded use protocol for use of TPOXX to treat monkeypox during an outbreak
  - Oral or intravenous
- Vaccinia Immune Globulin Intravenous (VIGIV)
  - Licensed by FDA for treatment of complications due to vaccinia vaccination
  - Unknown benefit in treatment of monkeypox
  - May be considered in severe monkeypox cases
- Cidofivir (Vistide)
  - Antiviral medication approved by FDA for treatment of Cytomegalovirus
  - V retinitis in patients with AIDS
  - Unknown efficacy in treating humans with monkeypox, effective against orthopoxviruses in vitro and animal studies
- Brincidofovir
  - Antiviral medication approved by FDA for treatment of human smallpox disease
  - Unknown efficacy in treating humans with monkeypox, effective against orthopoxviruses in vitro and animal studies

TPOXX Availability

- Not readily available through pharmacies
- Prepositioned within the state:
  - Washoe County
  - Carson City
  - Elko County
  - Clark County
- If not available at your facility, contact your local health authority

TPOXX Treatment Considerations

- Severe disease (including any patient requiring hospitalization).
- High risk for severe disease
  - People with immunocompromising conditions
  - Children, especially patients younger than 8 years of age
  - Pregnant or breastfeeding people
  - People with a history of atopic dermatitis or other active exfoliative skin conditions
  - People with complications or comorbidities (secondary bacterial skin infection, gastroenteritis with N/V/D).
- Lesions in areas that might pose a special hazard, such as the eyes, mouth, genitals, or anus.

To prescribe TPOXX, health care providers should perform the following:

(Required steps are highlighted, other steps are optional)

1. **Obtain informed consent prior to treatment** (https://www.cdc.gov/poxvirus/monkeypox/pdf/Attachment-1-Informed-Consent.pdf).

2. **Conduct a baseline assessment and complete the Patient Intake Form** (https://www.cdc.gov/poxvirus/monkeypox/pdf/Attachment-2-Form-A-Patient-Intake-Form.pdf). If feasible, give the patient the diary form to complete at home and encourage the patient to return it directly to CDC. The top of the diary form provides the patient with instructions on how to return it to CDC (https://www.cdc.gov/poxvirus/monkeypox/pdf/Attachment-2-Form-C-Patient-Diary.pdf).

3. **Sign the FDA Form 1572** (https://www.cdc.gov/poxvirus/monkeypox/pdf/Tecovirimat-IND-Form-FDA-1572.pdf). One signed Form 1572 per facility suffices for all (including future) TPOXX treatments administered under the EA-IND at the same facility.

4. If feasible, document progress during and after treatment on the Clinical Outcome Form (https://www.cdc.gov/poxvirus/monkeypox/pdf/Attachment-2-Form-B-Clinical-Outcome-Form.pdf).

5. **Report life-threatening or serious adverse events associated with TPOXX** by completing a PDF MedWatch Form (https://www.cdc.gov/poxvirus/monkeypox/pdf/MedWatchForm-for-Tpoxx.pdf) and returning it to CDC via email (regaffairs@cdc.gov) or uploading to ShareFile within 72 hours of awareness or sooner, if possible.

6. Comply with FDA requirements for IRB review described here: https://www.cdc.gov/poxvirus/monkeypox/pdf/MedWatchForm-for-Tpoxx.pdf.

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

Interim Clinical Guidance for the Treatment of Monkeypox (Updated 09.15.22)

- Treatment should be considered for use in people who have the following clinical manifestations:
  - Severe disease
    - Consider severe disease when a patient has conditions such as hemorrhagic disease; large number of lesions such that they are confluent; sepsis; encephalitis; ocular or periorbital infections; or other conditions requiring hospitalization
  - Involvement of anatomic areas which might result in serious sequelae that include scarring or strictures
    - These include lesions directly involving the
      - pharynx causing dysphagia, inability to control secretions, or need for parenteral feeding
      - penile foreskin, vulva, vagina, urethra, or rectum with the potential for causing strictures or requiring catheterization
      - anal area interfering with bowel movements (for example, severe pain)
    - Severe infections (including secondary bacterial infections), especially those that require surgical intervention such as debridement.

Interim Clinical Guidance for the Treatment of Monkeypox (Updated 09.15.22)

Treatment* should also be considered for use in people who are at high risk for severe disease:

- People currently experiencing severe immunocompromise due to conditions such as:
  - Poorly controlled HIV
  - Leukemia
  - Lymphoma
  - Generalized malignancy
  - Solid organ transplantation
  - Therapy with alkylating agents, antimetabolites, radiation, tumor necrosis factor inhibitors, high-dose corticosteroids
  - Being a recipient of a hematopoietic stem cell transplant <24 months post-transplant or ≥24 months but with graft-versus-host disease or disease relapse
  - Having autoimmune disease with immunodeficiency as a clinical component
- Pediatric populations, particularly patients younger than 8 years of age
- Pregnant or breastfeeding people
- People with a condition affecting skin integrity, such as:
  - Atopic dermatitis
  - Eczema
  - Burns
  - Impetigo
  - Varicella zoster virus infection
  - Herpes simplex virus infection
  - Severe acne
  - Severe diaper dermatitis with extensive areas of denuded skin
  - Psoriasis
  - Dariar disease (keratosis follicularis)

*For patients at high risk for progression to severe disease, treatment should be administered early in the course of illness along with supportive care and pain control.

Clinical Considerations for Pain Management of Monkeypox (Updated 09.15.22)

- Monkeypox can commonly cause severe pain and can affect vulnerable anatomic sites, including the genitals and oropharynx, which can lead to other complications
  - Mucosal lesions have been reported in more than 40% of patients
  - In a multinational study, 30% of hospitalized patients were admitted for pain management
- Healthcare professionals should assess pain in all patients with monkeypox virus infection and recognize that substantial pain may exist from mucosal lesions not evident on physical exam
- Topical and systemic strategies should be used to manage pain
- OTC medications (e.g. acetaminophen, NSAIDS) are recommended for general pain control
- Topical steroids and anesthetics such as lidocaine could also be considered for local pain relief
  - Topical lidocaine or other topical anesthetics should be used with caution on broken skin or on open or draining wounds
  - Persons applying topical medications to lesions should use disposable gloves and practice hand hygiene to minimize the risk of autoinoculation
- In some circumstances, prescription pain medications such as gabapentin and opioids have been used for short-term management of severe pain not controlled with other treatments including acetaminophen, NSAIDS, and/or topical medications
  - Consider risk of side effects (constipation) and other risks (potential for unintended long-term use of opioids, development of an opioid use disorder, overdose)
  - Consider patient's comorbid medical conditions, concurrent medications, values/preferences related to opioids, other factors related to safety of such medications
- https://www.cdc.gov/poxvirus/monkeypox/clinicians/pain-management.html

Vaccine Eligibility Criteria

- PEP (Post-Exposure Prophylaxis)
  - Contacts to confirmed or probable monkeypox cases should be offered vaccine for PEP
  - CDC recommends the vaccine be given within 4 days from the date of exposure for best chance of preventing infection
  - If given between 4 and 14 days from the date of exposure, vaccination may reduce the symptoms of disease, but may not prevent infection
- PEP++ (Post-Exposure Prophylaxis plus-plus)
  - Persons with certain risk factors are more likely to have been recently exposed to monkeypox
- PREP (Pre-Exposure Prophylaxis)
  - Administering vaccine to someone at high risk for monkeypox before they are exposed (laboratory workers who handle specimens that might contain monkeypox virus)

Vaccination Strategies

Strategy	Definition	Criteria
Post-Exposure Prophylaxis (PEP)	Vaccination **after known exposure** to monkeypox	People who are known contacts to someone with monkeypox who are identified by public health authorities, for example via case investigation, contact tracing, or risk exposure assessment
Expanded Post-Exposure Prophylaxis (PEP++)	Vaccination **after known or presumed** exposure to monkeypox	People who are known contacts to someone with monkeypox who are identified by public health authorities, for example via case investigation, contact tracing, or risk exposure assessment People who are aware that a recent sex partner within the past 14 days was diagnosed with monkeypox Certain gay, bisexual, or other men who have sex with men, or transgender people, who have had any of the following within the past 14 days: sex with multiple partners (or group sex); sex at a commercial sex venue; or sex in association with an event, venue, or defined geographic area where monkeypox transmission is occurring
Pre-Exposure Prophylaxis (PrEP)	Vaccination before exposure to monkeypox	People in certain occupational risk groups* Gay, bisexual, and other men who have sex with men, transgender or nonbinary people who in the past 6 months have had A new diagnosis of one or more nationally reportable sexually transmitted diseases (i.e., acute HIV, chancroid, chlamydia, gonorrhea, or syphilis) More than one sex partner People who have had any of the following in the past 6 months: Sex at a commercial sex venue Sex in association with a large public event in a geographic area where monkeypox transmission is occurring Sexual partners of people with the above risks People who anticipate experiencing the above risks

*People at risk for occupational exposure to orthopoxviruses include research laboratory personnel working with orthopoxviruses, clinical laboratory personnel performing diagnostic testing for orthopoxviruses, and orthopoxvirus and health care worker response teams designated by appropriate public health and antiterror authorities (see ACIP recommendations).

Monkeypox Vaccine

- Limited doses of Jynneos have been made available to Nevada from the Strategic National Stockpile (SNS)

- Federal allocation is based on current cases as well as the proportion of the population at risk for severe disease from Monkeypox

- Rolling out in a phased response
  - Phase 1 – June 56,001 doses available nationally
  - Phase 2A – July 277,219 doses available nationally
  - Phase 3 – 736,639 doses available nationally
  - Phase 4- 360,000

Jynneos

- Administered as two subcutaneous injections four weeks apart.
- The immune response takes 2 weeks after the second dose for maximal development.
- Licensed by the FDA for use in the prevention of smallpox or monkeypox in people ages 18 years and older.
- Individuals who are prone to keloid scarring should receive the vaccine as a subcutaneous injection.

Jynneos

- JYNNEOS has been evaluated in clinical studies involving people with HIV infection and atopic dermatitis and shown to be safe and effective in eliciting an immune response in these populations.
- Shipped at -20C and requires cold chain management
- Expiration dates are found on the carton but not on the vial itself.
- When thawed and refrigerated at 2-8C temperature, unopened vials can be used for up to 8 weeks based on information provided directly by the manufacturer (this differs from the package insert).
- JYNNEOS is administered with a needle/syringe; SNS does not provide the ancillary supplies.

Vaccination Overview

- Limited doses of JYNNEOS have been made available to Nevada from the Strategic National Stockpile (SNS)
- Federal allocation is based on current cases as well as the proportion of the population at risk for severe disease from Monkeypox

Persons Living with HIV in Nevada, 2020		
	Number	Percent
Nevada	12,406	100%
Clark	10,694	86%
Washoe	1,146	9%
All Other Counties	566	5%

https://dhhs.nv.gov/uploadedFiles/dhhsnvgov/content/Programs/Office_of_Analytics/Nevada%202020%20HIV%20Fast%20Facts.pdf

Vaccination Overview (Continued)

- Initial doses were shipped to the Local Health Authorities and the State
  - Southern Nevada Health District
  - Carson City Health and Human Services
  - Washoe County Health District
  - Division of Public and Behavioral Health

- The four ship to sites will serve as vaccine depots for redistribution of doses to provider sites enrolled in the Monkeypox Vaccine Program

Enrollment Requirements

- Signed Agreement to Participate
- Approved storage unit
  - Must not be a combination refrigerator/freezer unit
  - Must not be a dormitory style unit
- Use of continuous digital data logger monitoring
  - Must be checked by staff twice per day
  - Logs must be submitted to the State Immunization Program on a monthly basis
- Adherence to the CDC recommendations on storage, handling and eligibility requirements
- Management of vaccine inventory in NV WebIZ – weekly reconciliation, electronic transfers and administered doses
- Must report adverse events to the Vaccine Adverse Events Reporting System (VAERS)

Enrollment Requirements Cont'd

- Adherence to the CDC recommendations on storage, handling and eligibility requirements
- Management of vaccine inventory in NV WebIZ – weekly reconciliation, electronic transfers and administered doses
- Must report adverse events to the Vaccine Adverse Events Reporting System (VAERS)

Reducing Stigma

How Partners can Help Message about Monkeypox?

- Partners can help by providing monkeypox information to different communities and via various channels. Be careful to avoid marginalizing groups who may currently be at an increased risk for monkeypox. Keep messages behavior and fact-based to help prevent stigmatizing populations currently most affected.
- While developing resources and messages, use CDC's Health Equity Guiding Principles for Inclusive Communication.

Reducing Stigma to General Audiences:

- Promote messaging that provides information on what monkeypox is and how it can spread and encourages seeking health care if experiencing monkeypox-like symptoms.
- Emphasize that anyone can get monkeypox and promote it as a public health concern for all. Focusing on cases among gay, bisexual, or other man (cisgender or transgender) who has sex with men (cisgender or transgender) or transgender women may inadvertently stigmatize this population and create a false sense of safety among those who are not.
- When using images of the rash from patients with monkeypox, focus on how cases typically appear in the current outbreak and avoid showing extreme cases, unless necessary.
    - In some situations, such as healthcare provider education, it may be necessary to show extreme case presentations. Carefully consider the audience and whether only presenting images of how cases typically appear may accomplish the same goals.
- Include pictures of people from diverse backgrounds and racial/ethnic groups.

CDC References/Resources

- CDC Monkeypox Index:
  - https://www.cdc.gov/poxvirus/monkeypox/index.html
- CDC U.S. Map & Case Count:
  - https://www.cdc.gov/poxvirus/monkeypox/response/2022/us-map.html
- CDC Monkeypox Case Definition:
  - https://www.cdc.gov/poxvirus/monkeypox/clinicians/case-definition.html
- CDC Infection Prevention and Control of Monkeypox in Healthcare Settings:
  - https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-healthcare.html
- CDC Treatment Information for Healthcare Professionals:
  - https://www.cdc.gov/poxvirus/monkeypox/clinicians/treatment.html#anchor_1655488284069
- CDC Considerations for Monkeypox Vaccination:
  - https://www.cdc.gov/poxvirus/monkeypox/considerations-for-monkeypox-vaccination.html
- CDC/IDSA Clinician Call:
  - https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-healthcare.html

Questions?

Contact Information

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