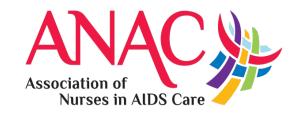
# Clinical Updates on Monkeypox Virus: What You Need to Know

Faculty
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USCHA October 8, 2022



### The Association of Nurses in AIDS Care (ANAC)

Mission: ANAC fosters the professional development of nurses and others involved in the delivery of health care for persons at risk for, living with, and/or affected by the human immunodeficiency virus (HIV) and its comorbidities. ANAC promotes the health, welfare, and rights of people living with HIV around the world.



## **About ANAC**

#### Founded in 1987, we achieve our mission by:

- Creating an effective network of nurses and others in HIV care
- Studying, researching and exchanging information, experiences and ideas leading to improved care for persons with HIV/AIDS
- Providing leadership to the nursing community in matters related to HIV/AIDS
- Advocating for people living with HIV
- Promoting social awareness of issues related to HIV/AIDS

Inherent in these goals is the abiding commitment to the prevention of further HIV infection.







# Disclosures

The planners and presenters of this educational activity have no relevant financial relationships to disclose.



# Agenda

# Welcome/Check-in Educational Talk

- Epidemiology
- Clinical presentations & management
- Vaccines
- Stigma
- Comparisons to COVID

#### Think Pair Share exercise

What are the biggest concerns or challenges of PLWH experiencing Mpox?

What are you hearing in your community about Mpox vaccines?

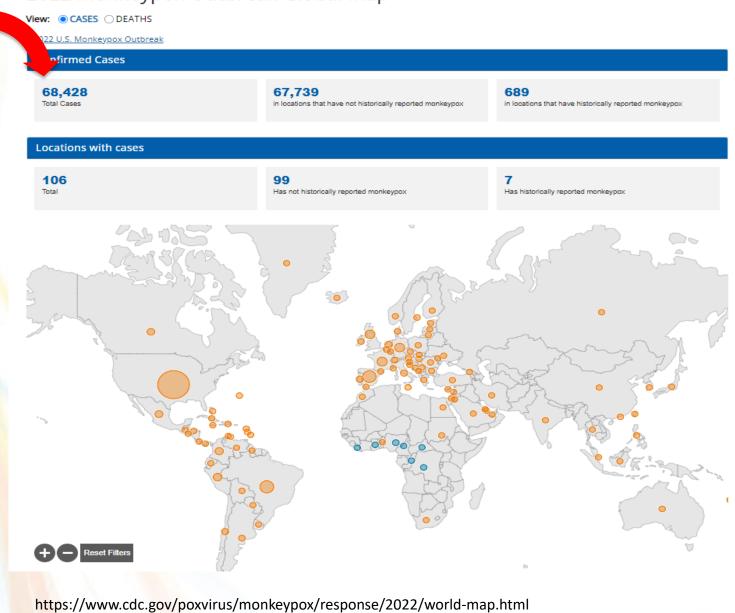
Open Discussion & Questions



# Epidemiology of Monkeypox Virus outbreak in the U.S., 2022



#### 2022 Monkeypox Outbreak Global Map







### Monkeypox

#### 2022 Outbreak Cases and Data

Updated September 30, 2022 Español | Print

U.S. Cases

Total Cases **25,851** 

U.S. Deaths

Total Deaths

2

**Global Cases** 

**Total Cases** 

68,428



**Nurses in AIDS Care** 



#### Monkeypox

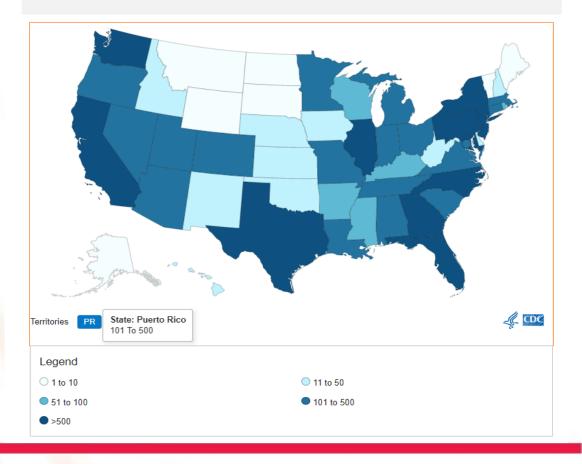
Data as of September 30 2022 at 2:00 pm EDT

#### 2022 U.S. Map & Case Count

Español | Print

#### 25,851 Total confirmed monkeypox/orthopoxvirus cases

\*One Florida case is listed here but included in the United Kingdom case counts because the individual was tested while in the UK.



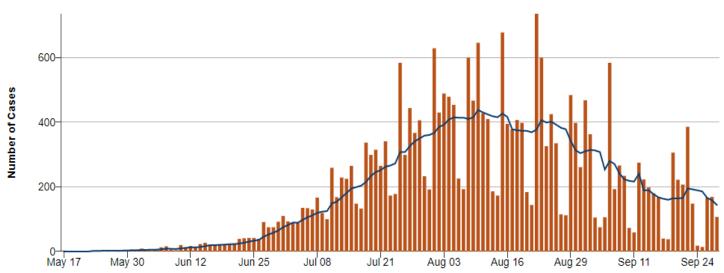


### U.S. Monkeypox Case Trends Reported to CDC

Data as Reported to CDC as of 28 Sep 2022 2:00 PM EDT Español | Print

Trends of monkeypox cases reported to CDC since May 17, 2022, the start of the response to the current outbreak in the United States. Data include cases with reporting date.\*

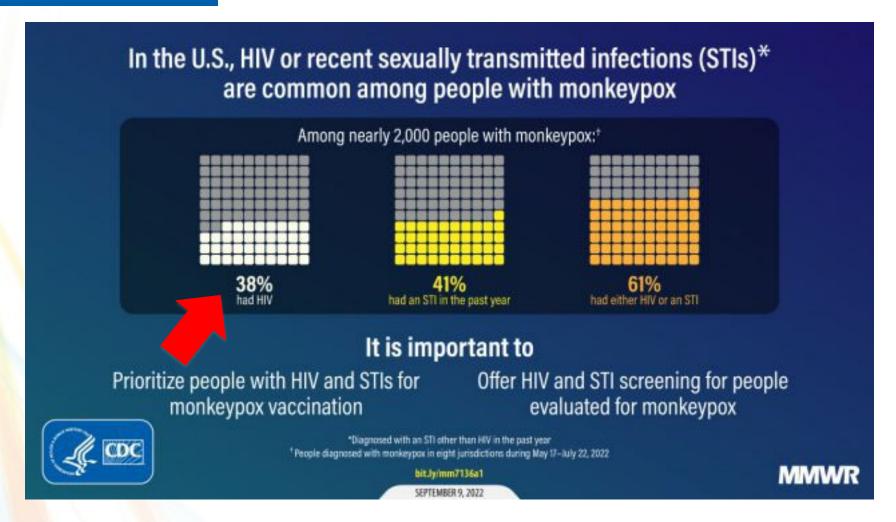
#### Daily Monkeypox Cases Reported\* and 7 Day Daily Average







Monkeypox





# MPX Case Series Report

528 infections in 16 countries

98% in gay, bi-sexual men

75% white; median age 38

41% HIV co-infection

29% Concomitant STI at diagnosis

THE NEW ENGLAND JOURNAL OF MEDICINE

#### ORIGINAL ARTICLE

#### Monkeypox Virus Infection in Humans across 16 Countries — April-June 2022

J.P. Thornhill, S. Barkati, S. Walmsley, J. Rockstroh, A. Antinori, L.B. Harrison R. Palich, A. Nori, I. Reeves, M.S. Habibi, V. Apea, C. Boesecke, L. Vandekerckhove, M. Yakubovsky, E. Sendagorta, J.L. Blanco, E. Florence, D. Moschese, F.M. Maltez, A. Goorhuis, V. Pourcher, P. Migaud, S. Noe, C. Pintado, F. Maggi, A.-B.E. Hansen, C. Hoffmann, J.I. Lezama, C. Mussini, A.M. Cattelan, K. Makofane, D. Tan, S. Nozza, I. Nemeth, M.B. Klein, and C.M. Orkin, for the SHARE-net Clinical Groups

#### ABSTRACT

Before April 2022, monkeypox virus infection in humans was seldom reported out- The authors' full names, academic de side African regions where it is endemic. Currently, cases are occurring worldwide. grees, and affiliations are listed in the Ap-Transmission, risk factors, clinical presentation, and outcomes of infection are

We formed an international collaborative group of clinicians who contributed to an international case series to describe the presentation, clinical course, and outcomes "The investigators in the SHARE-net clinof polymerase-chain-reaction-confirmed monkeypox virus infections.

We report 528 infections diagnosed between April 27 and June 24, 2022, at 43 sites contributed equally to this article. in 16 countries. Overall, 98% of the persons with infection were gay or bisexual men, This article was published on July 21, 2022, 75% were White, and 41% had human immunodeficiency virus infection; the median at NEJM.org. age was 38 years. Transmission was suspected to have occurred through sexual DOI: 10.1056/NEJMoa2207323 activity in 95% of the persons with infection. In this case series, 95% of the persons presented with a rash (with 64% having <10 lesions), 73% had anogenital lesions, and 41% had mucosal lesions (with 54 having a single genital lesion). Common systemic features preceding the rash included fever (62%), lethargy (41%), myalgia (31%), and headache (27%); lymphadenopathy was also common (reported in 56%). Concomitant sexually transmitted infections were reported in 109 of 377 persons (29%) who were tested. Among the 23 persons with a clear exposure history, the median incubation period was 7 days (range, 3 to 20). Monkeypox virus DNA was detected in 29 of the 32 persons in whom seminal fluid was analyzed. Antiviral treatment was given to 5% of the persons overall, and 70 (13%) were hospitalized; the reasons for hospitalization were pain management, mostly for severe anorectal pain (21 persons); soft-tissue superinfection (18); pharyngitis limiting oral intake (5); eye lesions (2); acute kidney injury (2); myocarditis (2); and infection-control purposes (13). No deaths were reported.

In this case series, monkeypox manifested with a variety of dermatologic and systemic clinical findings. The simultaneous identification of cases outside areas where monkeypox has traditionally been endemic highlights the need for rapid identifica-

.m.orkin@qmul.ac.uk, or at the SHARE gy, Blizard Institute, Queen Mary Univer ity of London, 4 Newark St., London El 2AT, United Kingdom.

ical group are listed in the Supplemen tary Appendix, available at NEJM.org.





#### 2022 Monkeypox Surveillance Data

Updated Thursdays by 12:00 PM

| North Carolina Monkeypox<br>Case Demographic Data | Number of<br>Cases (%) |
|---|------------------------|
| Total   | 566                    |
| Sex/Gender  |                        |
| Male  | 548 (97)               |
| Female  | 16 (3)                 |
| Other than sex assigned at birth                  | 2 (<1)                 |
| Age   |                        |
| 0-17  | 3 (<1)                 |
| 18-29   | 201 (36)               |
| 30-49   | 322 (57)               |
| 50+   | 40 (7)                 |
| Race  |                        |
| American Indian/Alaskan<br>Native                 | 3 (<1)                 |
| Asian   | 3 (<1)                 |
| Black or African American                         | 394 (70)               |
| Native Hawaiian or Pacific<br>Islander            | 0                      |
| White   | 132 (23)               |
| Multi-racial                                      | 13 (2)                 |
| Other   | 19 (3)                 |
| Unknown   | 2 (<1)                 |
| Ethnicity   |                        |
| Hispanic  | 59 (10)                |
| Non-Hispanic                                      | 478 (84)               |
| Unknown   | 29 (5)                 |
| Coinfection                                       |                        |
| Known to be living with HIV                       | 295 (52)               |

https://www.ncdhhs.gov/media/17420/open



# Clinical Presentation

Diagnosis

Management



# **History of Monkeypox Virus**

- First identified in 1958
- First human case reported in 1970
- Sporadic outbreaks have occurred over past 50 years
- 2003 first outbreak in US
- Previous outbreaks in 2018, 2019, 2021

Clade I

(prev. Congo Basin)

Clade IIa /IIb (prev. West African)



### Incubation and Transmission

• **Incubation**: 3-17 days

#### Transmission

- 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.



## **Clinical Presentation: General**

- Lesions may be scattered or limited
- Anorectal pain/tenesmus/urethral pain may be presenting complaint
- Prodromal symptoms (fever, lymphadenopathy, fatigue) not occurring in all patients
- Some with sexually transmitted co-infections



## **Clinical Presentation: Skin Lesions**

#### Most are well-circumscribed

- Initial presentation, may be confused with acne vulgaris
- Painful in many cases, but not all
- Very itchy
- Often with an umbilicated appearance
- Some lesions may have surrounding erythema
- May involve palms and soles

### Can progress <u>rapidly</u>

- papules, vesicles, pustules, and scabs
- may have lesions of various stages in same body area

# Differential Diagnosis: HSV Syphilis

Syphilis
Molluscum
Chancroid
Shingles
Acne Vulgaris
Folliculitis
Contact Dermatitis
Condyloma



# **Clinical Presentation: Skin Lesions**





From Basgoz N, Brown CM, Smole SC, et al. Case 24-2022: A 31-Year-Old Man with Perianal and Penile Ulcers, Rectal Pain, and Rash. Epub ahead of print. *Copyright* © Jun 15 2022. Massachusetts Medical Society. Reprinted with permission from Massachusetts Medical Society

Shared with permission from patients, CDC 2022



# **Anorectal Skin Lesions**



Photo Source: J. Kwong, 2022 with pt. permission

# **Penile Lesions**



Photo Source: CDC, 2022





# **Perioral and Intra-Oral Lesions**













Photo Source: J. Kwong with patient permission

## **Clinical Course**

Usually mild, self-limiting disease course without need for specific therapy

- Complications
  - pneumoni<sup>\*</sup>
  - secondary
  - strictures of

 Prognosis depe concurrent illn

#### **Historical Data**

PWH with advanced or poorly controlled HIV – at risk for prolonged infection, secondary bacterial infection, and confluent/partially confluent lesions

#### **Current situation**

No significant difference for those on effective ART



# Diagnostic Considerations



**PCR** testing



Check with your lab on how specimen should be collected and transported (e.g., dry or in viral transport medium)



01

Take one of the swabs out of its package. Do not touch the tip of the swab with your hands. You will only need to use one of the swabs for sample collection. The second swab may be discarded.



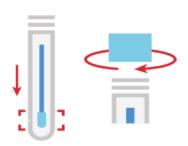
02

Screw off the top of the UTM or VTM tube. Hold swab in one hand and collection tube in the other.



03

Vigorously swab or brush the base of the lesion with the swab.



04

Insert the swab into the universal or viral transport medium and break off the end of the swab, if required, to tightly close the sample.

Screw the top of the collection tube back on.

# Symptoms Management Options

NSAIDS
Topical Oral anesthetics

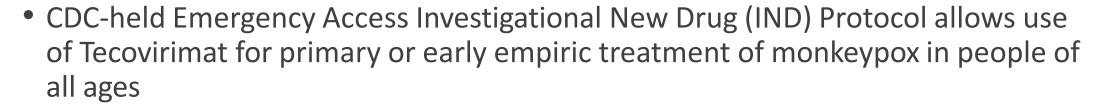
Sitz Baths
Opioids
Stool softeners

Anti-emetics



# **Tecovirimat**

- Tecovirimat (TPOXX) FDA approved for smallpox disease
  - Oral capsule and IV formulations



Available from the Strategic National Stockpile

Documentation related to tecovirimat treatment required as part of the IND protocol





# **Tecovirimat: Dosing Considerations**

#### Oral: Take with a high fat meal to increase bioavailability

- < 40kg = refer to prescribing information</li>
- 40 < 120 kg = 600 mg Twice Daily x 14 days
- 120 kg + = 600mg Three Times Daily x 14 days

#### <u>/V</u>

- 35 -120 kg = 200mg Twice Daily x 14 days
- >120 kg = 300mg Twice Daily x 14 days
- IV tecovirimat should not be administered to patients with CrCl <30mL/min.



# **Tecovirimat: Drug-Drug Interactions**

- RepaglinideMidazolam
- May see in NNRTI, PI, MVC, FTR, EVG/c

Weak **INDUCER** CYP3A and Weak **INHIBITOR** of CYP2C8, CYP2C19

- Some consider negligible with no dose adjustment
- Some recommend temporary dose increase of DOR, RPV, MVC while on treatment and for 2-weeks post treatment



## **Adverse Effects of Tecovirimat**

#### • Oral:

• headache (12%), nausea (5%), abdominal pain (2%), and vomiting (2%). Neutropenia was found in one study participant.

#### • IV:

• infusion site pain (73%), infusion site swelling (39%), infusion site erythema (23%), infusion site extravasation (19%), and headache (15%).



# **Tecovirimat: When To Consider**

- Severe disease or at high-risk of severe disease
  - immunocompromising conditions
  - pediatric populations
  - pregnant or breastfeeding women
  - history or presence of atopic dermatitis, other active exfoliative skin conditions
  - one or more complications
  - infections involving eyes, mouth, genitals or anus



# Other possible therapies – under investigational consideration

- Vaccinia Immune Globulin Intravenous (VIGIV)
- Cidofovir

Brincidofovir

#### **Drug-Drug Interactions with HIV ART**

- Cidofovir (avoid TDF ->switch to TAF)
- Brincidovir (avoid PI, EVG/c, FTR or administer 3 hours after)

## **JYNNEOS** TM

Live attenual non- replicat approved 20

Prevention d

people 18 yr

smallpox or

PRECAUTION:

Contains small amounts of ciprofloxacin, gentamycin, and egg protein.

Consider risks/benefits of vaccination in these individuals.

 Available un Investigation people < 18</li> Monitor for 30 minutes post-vaccine or consider consultation with an allergist.

th eczema/ other

ditions.

cle pain most



Injection site reactions, fatigue,

Table 2. Vaccination Schedule and Dosing Regimens for JYNNEOS Vaccine

| JYNNEOS vaccine regimen                                   | Route of administration | Injection<br>volume | Recommended number of doses | Recommended interval between 1st and 2nd dose |  |  |
|---|-------------------------|---------------------|-----------------------------|---|--|--|
| Alternative regimen                                       |                         |                     |                             |   |  |  |
| People age ≥18 years                                      | ID                      | 0.1 mL              | 2                           | Minimum Interval:<br>24 Days                  |  |  |
| Standard regimen  |                         |                     |                             | Maximum Interval:                             |  |  |
| People age <18 years                                      | Subcut                  | 0.5 mL              | 2                           | 35 Days  **no need to restart if > 35 days    |  |  |
| People of any age who have a history of developing keloid | Subcut                  | 0.5 mL              | 2                           |   |  |  |

Immunogenicity among PWH with CD4 < 100 cells/mm<sup>3</sup> or who are not virologically suppressed remains unknown.



scars

## **Exceptions to the 2-dose series**

While supply of JYNNEOS is limited, the following are <u>exceptions</u> to the recommended 2 series:

- A person diagnosed with MPX after their 1st dose of JYNNEOS is not recommended to receive
  the 2nd dose because MPX infection likely confers immune protection.
- A person who would be eligible for vaccination but has been diagnosed with MPX during this
  outbreak, which started in the United States on May 17, 2022, is not recommended to be
  vaccinated at this time, because MPX infection likely confers immune protection.
- An immunocompromised person diagnosed with MPX after their 1st dose of JYNNEOS *may be eligible* to receive the 2nd dose of JYNNEOS on a case-by-case shared decision-making basis based on clinical judgment of the healthcare provider.



# Vaccine Eligibility: CDC (updated Sept 28, 2022)

Gay, bisexual, and other MSM, transgender or nonbinary people who in the past 6 months have had:

- A new diagnosis of one or more nationally reportable STI such as 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 eligible for monkeypox vaccination should get vaccinated as soon as possible

Study of males ages 18-49 years eligible for vaccination\*

For every 1 infection among people receiving one dose<sup>†</sup>



there were 14 infections among people receiving no doses



#### It's important to get both doses for best protection



bit.ly/mm7140e3

**SEPTEMBER 30, 2022** 



<sup>\*</sup>During July 31, 2022—September 3, 2022

<sup>\*</sup>Received first dose of vaccine 14 days or more earlier

# **Intradermal Jynneos Reactions**

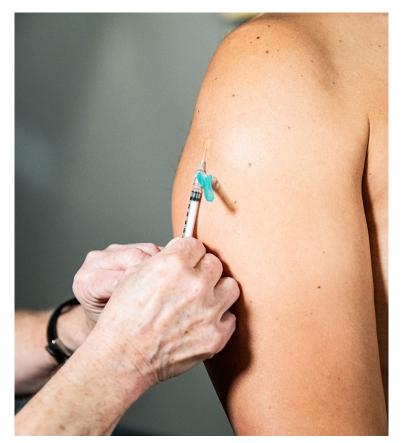






# Alternate Administration Sites for Intradermal Vaccine







### What we do not yet know about JYNNEOS TM

No data available on effectiveness in the current outbreak.

- No data in people who are pregnant or breastfeeding, animal data do not show evidence of reproductive harm
- Pregnancy and breastfeeding are not contraindications to receiving JYNNEOS.



### Considerations for vaccine use as PEP

- CDC recommends vaccine series be initiated within 4 days from date of exposure
- If initiated between 4 and 14 days after the date of exposure, vaccination may reduce the symptoms of disease, but may not prevent the disease



### **Infection Control: Clinical Space**

- PPE used by healthcare personnel should include:
  - Gown, Gloves, Eye protection, NIOSH-approved particulate respirator equipped with N95 filters or higher
- Avoid activities that could resuspend dried material from lesions (e.g., use of portable fans, dry dusting, sweeping, or vacuuming should be avoided).
- Standard cleaning and disinfection procedures should be performed using an EPA-registered hospital-grade disinfectant with an emerging viral pathogen claim.

https://www.cdc.gov/poxvirus/monkeypox/clinicians/infection-control-healthcare.html#anchor\_1653508963990



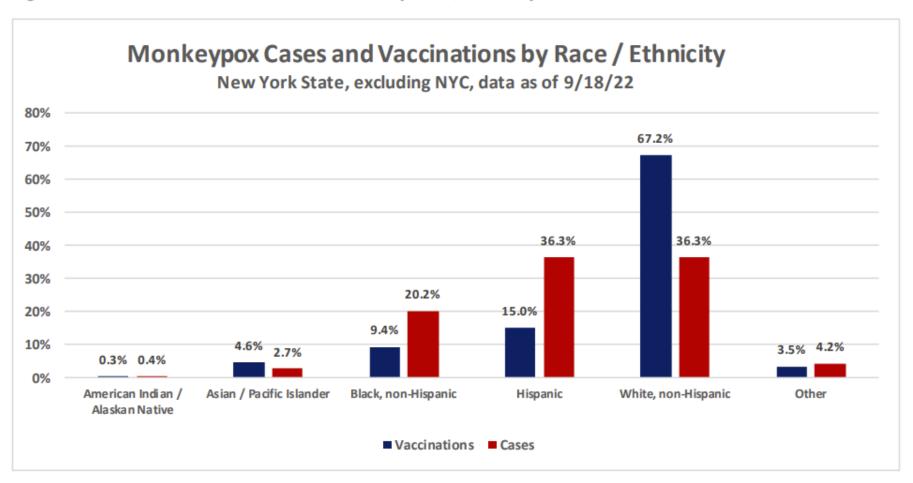
### Infection Control: Home and Community

- While rash persists but no fever or respiratory symptoms:
  - Cover all parts of rash with clothing, gloves, and/or bandages.
  - Wear well-fitting mask when interacting with others

- Until all signs/symptoms fully resolved:
  - Avoid sharing items that have been touched by lesion.
  - Avoid close physical contact with others.
  - Avoid crowds and congregate settings.
  - Wash hands with soap and water or use alcohol-based hand sanitizer, especially after direct contact with the rash.



Figure 1: Cases and First Dose Vaccinations by Race/Ethnicity\*



<sup>\*</sup>Note: Individuals with a race/ethnicity categorized as "unknown" or "missing" were not included in the above data. These categories include 45 cases and 1,009 first dose vaccinations - 14.7% of cases and 7.4% of first dose vaccinations to date.

### **Key Take Away Messages**

- Early recognition and diagnosis is critical to prevent transmission
- People with advanced or uncontrolled HIV may be at risk for prolonged infection, confluent lesions, or secondary infections
- Antiviral therapy is available and likely reduces symptom duration and intensity; symptom management is critical to reduce morbidity
- Vaccination is an important component of controlling this public health emergency.
- Health professionals, advocates, community-based leader play a key role in reducing stigma and advocating for equitable access to prevention and treatment



# MPV-associated stigma and discrimination



Stigma-related complications

Shame

Depressive symptoms

Emotional/mental distress

Anxiety

Lack of social support

Isolation/Ioneliness

Not seeking health care

Public health consequences

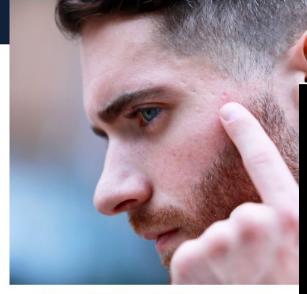
Loss of income/employment

Fear of judgement/harrassment

Nurses in AlDS Car

## Life after monkeypox: Men describe an uncertain road to recovery

Over a dozen men who contracted monkeypox talked to NBC News about their recoveries and the lingering effects of the skin lesion-causing virus.



Matt Ford points to a scar from his monkeypox outbreak. Benjamin Ryan / NBC News

The New York Times

Pain, Fear, Stigma: What People Who Survived Monkeypox Want You to Know

Seven patients share their stories of devastating symptoms, their frustration over finding care and their efforts to help each other when doctors and officials have failed.



Mitigating
MPV-related
Stigma

**Psychosocial supports** 

Social connectedness

Transmission knowledge

Prevention education

**Privacy protections** 

Appropriate clinical management



## Comparisons to COVID-19

Zoonotic viral infections

Origin outside of U. S. = Isolationism, Xenophobic early responses WHO Global Health Emergency of International Concern

- To engage and protect affected communities;
- To intensify surveillance and public health measures;
- To strengthen clinical management and infection prevention and control in hospitals and clinics;
- To accelerate research into the use of vaccines, therapeutics and other tools;
- And recommendations on international travel.

Mpox: July 2022 (3,000 cases in 47 countries-16,000cases in 75 countries in 30 days)

COVID: February 2020 (242 cases to 43,000Cases in 21 countries in 6 weeks)



## Comparisons to COVID-19

Fatality rates Serious hospitalizations Lack of initial testing, treatments & vaccines Referral to experts/care centers Community & individual stigmatization Belief & trust in science & medical expertise Isolation (2-4 weeks) Financial & job support "Outing" of individuals sexuality Community mobilization





# Community Response

People in San Francisco waiting for vaccination

https://apnews.com/article/science-health-public-rochelle-walensky-a7d197e26f4e650600c4h2cd13e0h436

### THINK. PAIR. SHARE.

What are the biggest concerns or challenges of PLWH experiencing Mpox?



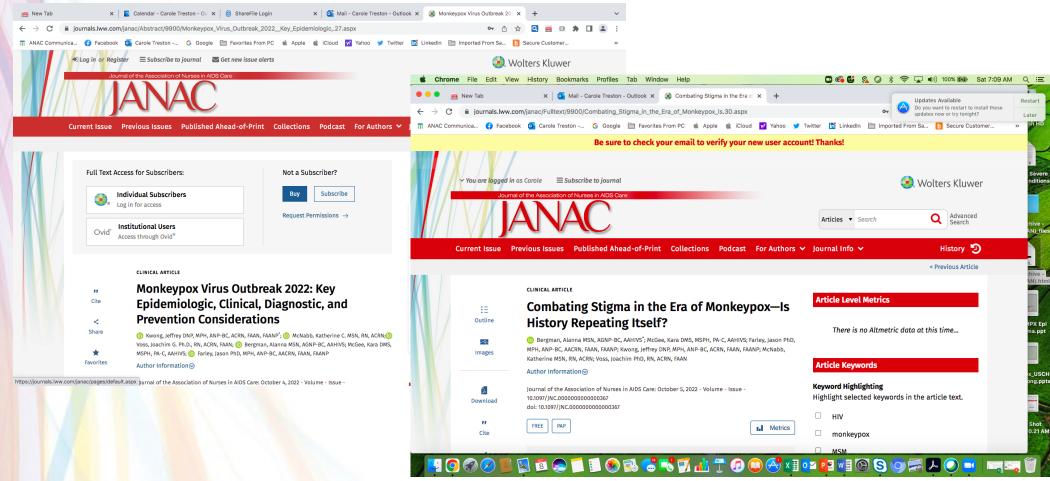
### THINK. PAIR. SHARE.

What are you hearing in your community about Mpox vaccines?

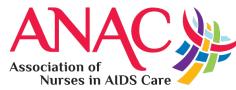
What else are you hearing in your community about Mpox?



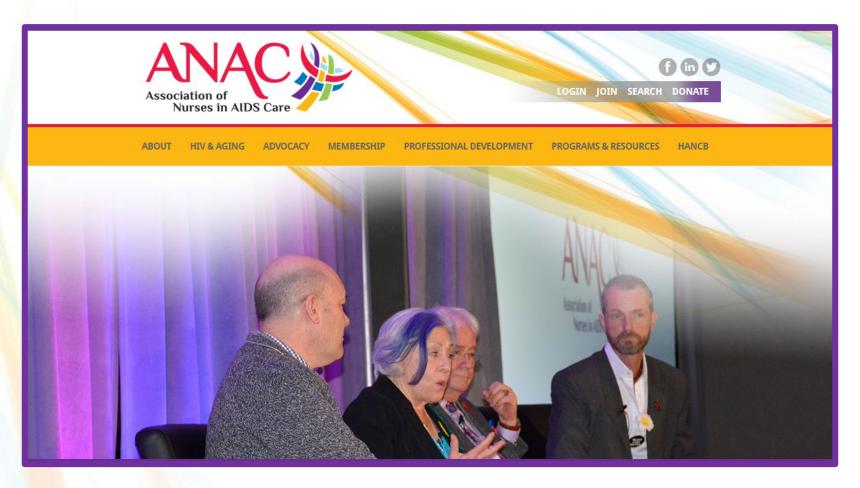
## JANAC Pre-print articles



https://journals.lww.com/janac/Abstract/9900/Monkeypox\_Virus\_Outbreak\_2022



### For more information about ANAC visit our website!



Nursesinaidscare.org





EQUITY, COMPASSION & SCIENCE - KEYS TO ENDING THE HIV EPIDEMIC

WWW.NURSESINAIDSCARE.ORG/CONFERENCE

