MPOX in the US

Jonathan Baker, PA-C, MPAS, DFAAPA *(He/Him)*

Anorectal & Sexual Health PA | Laser Surgery Care | NYC
Immediate Past President | NYSSPA
Past President | LBGTPA
Delegate | AAPA HOD

@RectalRockstar
JonathanBaker.PA@gmail.com

Financial Disclosures

Jonathan Baker has relevant relationships with ineligible companies to disclose within the past 24 months. (Note: Ineligible companies are defined as those whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.) Company name and type of financial relationship: Salary support from Franz Therapeutics, Inovio Pharmaceuticals, and Merck & Co.

*Off label content identified on slides

Learning Objectives

At the conclusion of this session, participants should be able to:

- Reference the epidemiologic trends of MPOX in the U.S. beginning in 2022
- Identify preventive measures including MPOX vaccination
- Recognize typical and atypical presentations of MPOX
- Recommend appropriate treatment modalities including antivirals and supportive treatment

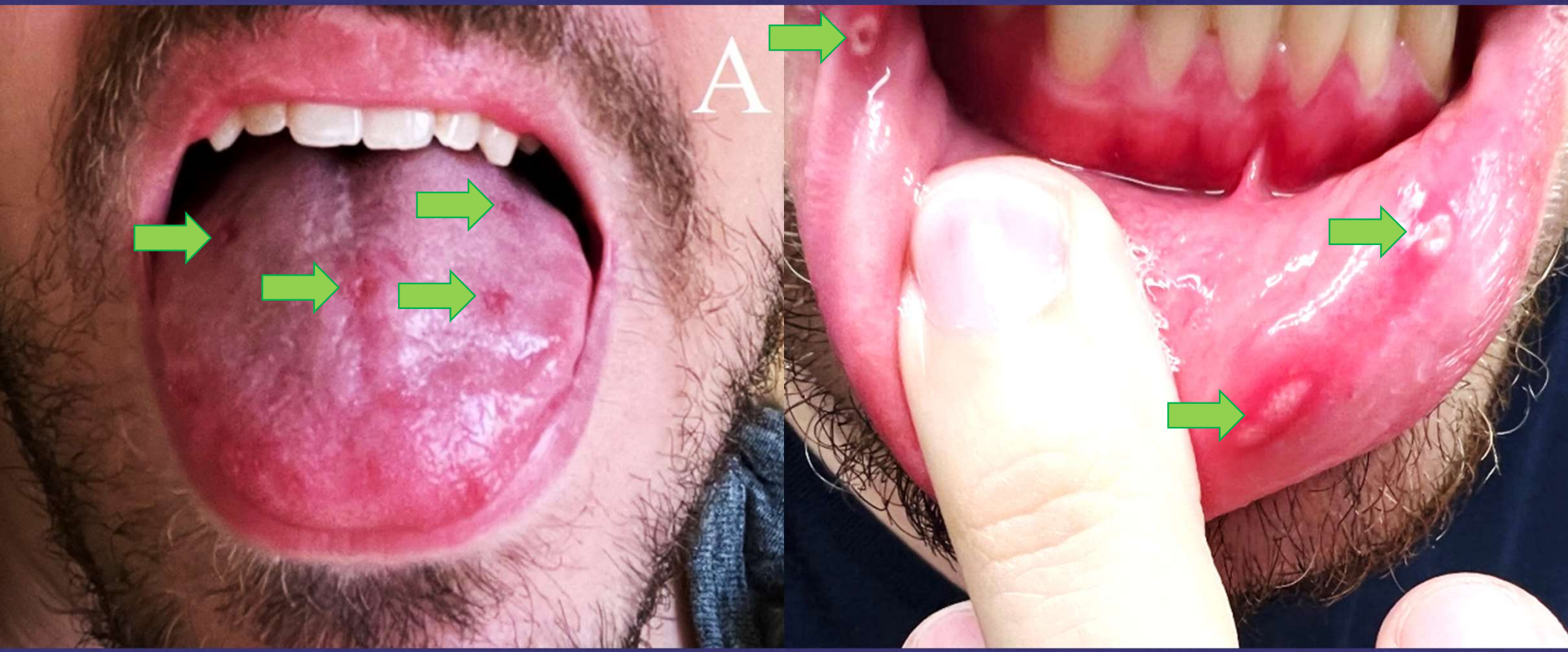
Case 1: June 2022

28 year old presents complaining of mouth sores x 1 week

“I think I have mouth herpes”

- No significant past medical history or medications
- Good dental hygiene and up to date on routine dental screenings
- Recent travel to Italy where the patient engaged in oral sex (patient’s mouth on partner’s genitals) 2 weeks prior; no other sexual activity in the last 6 months
- Had a subjective fever for 2 days overlapping onset of oral lesions

on physical examination:

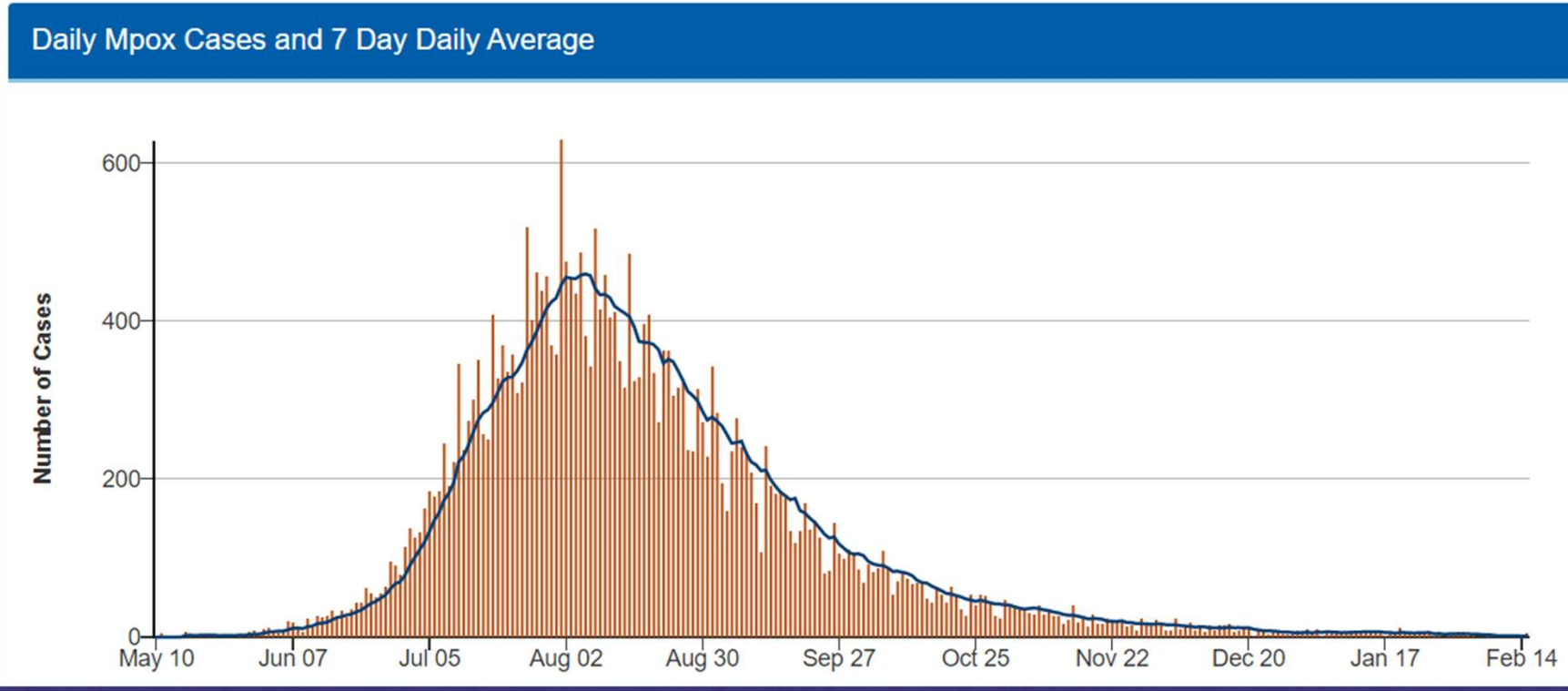

A

Case 1

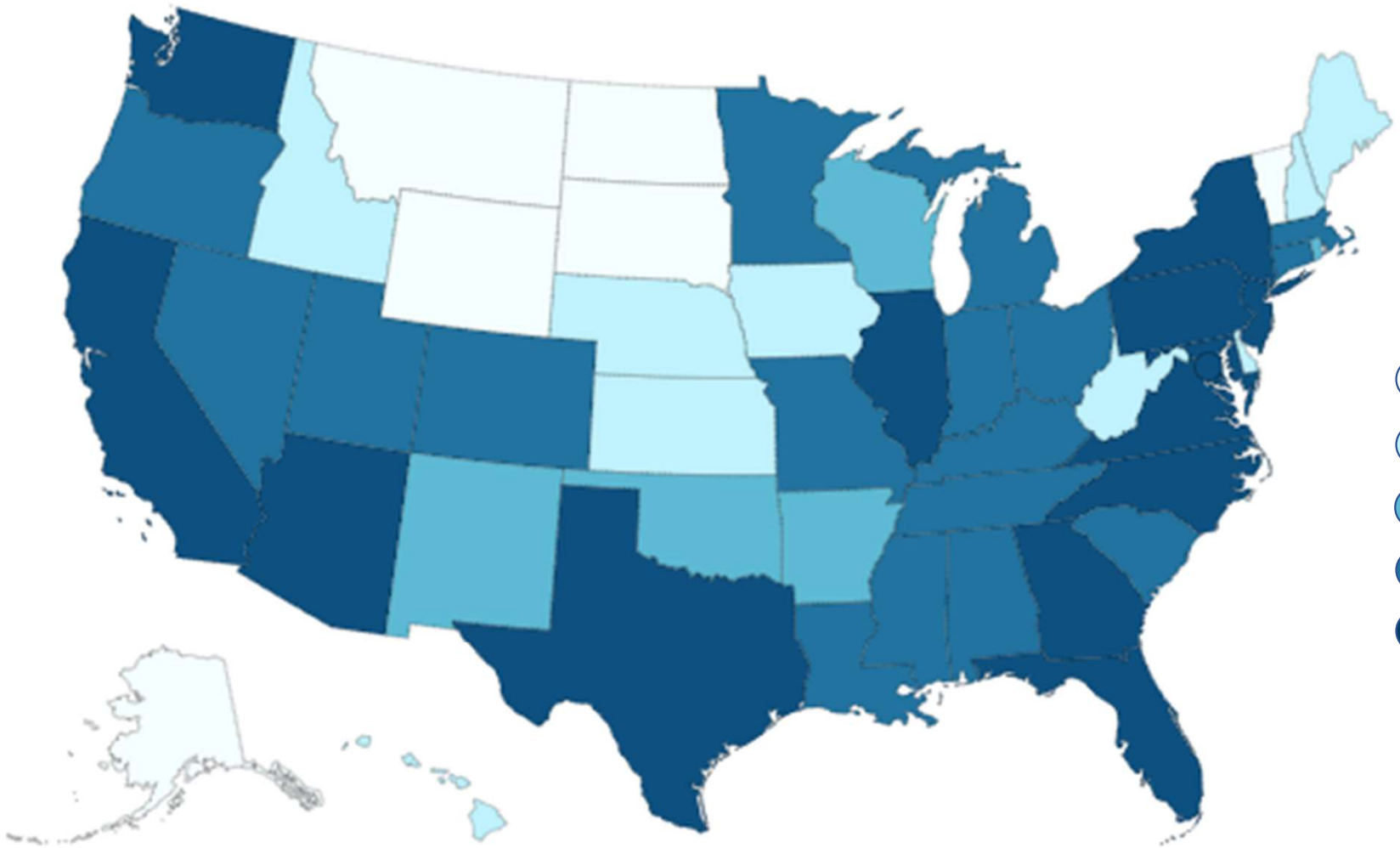
- Orthopox RT PCR+ (presumptive MPOX)
- Patient isolated until symptoms resolution
- No treatment needed

2022 US MPOX Outbreak

Trends of mpox cases reported to CDC during the 2022 outbreak by date*



CDC 2023



Number of MPOX cases by state

MPOX Vaccination

Vaccination available in the national stockpile at time of first cases in the US

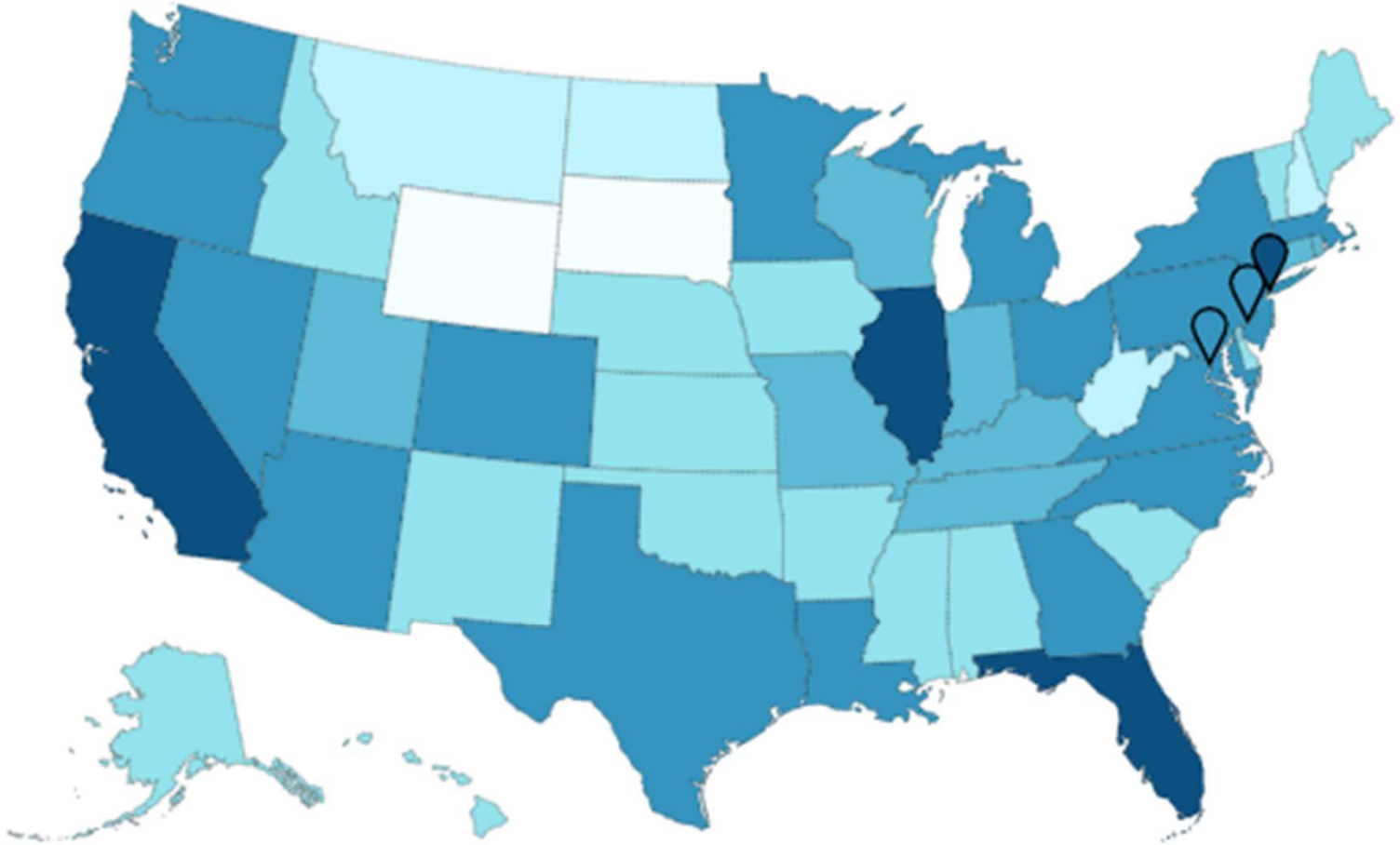
CDC recommends vaccination against mpox if:

- Known or suspected exposure to someone with mpox
- Sex partner in the past 2 weeks who was diagnosed with mpox
- Sexual/gender diverse person* with >1 sexual partner OR bacterial STI in past 6 mos
- In the past 6 months:
  - Sex at a commercial sex venue (like a sex club or bathhouse)
  - Sex related to a large commercial event or in a high prevelance geographic area
- Have a sex partner with OR anticipate experiencing *any of the above scenarios*
- You have HIV or other causes of immune suppression and have had recent or anticipate future risk of mpox exposure from any of the above scenarios
- Occupational MPOX exposure (orthopoxvirus lab or HCW responding to mpox)

CDC 2023, Pittman 2019

**gay, bisexual, or other man who has sex with men or a transgender, nonbinary, or gender-diverse person*

Total Vaccine Doses Administered and Reported to CDC



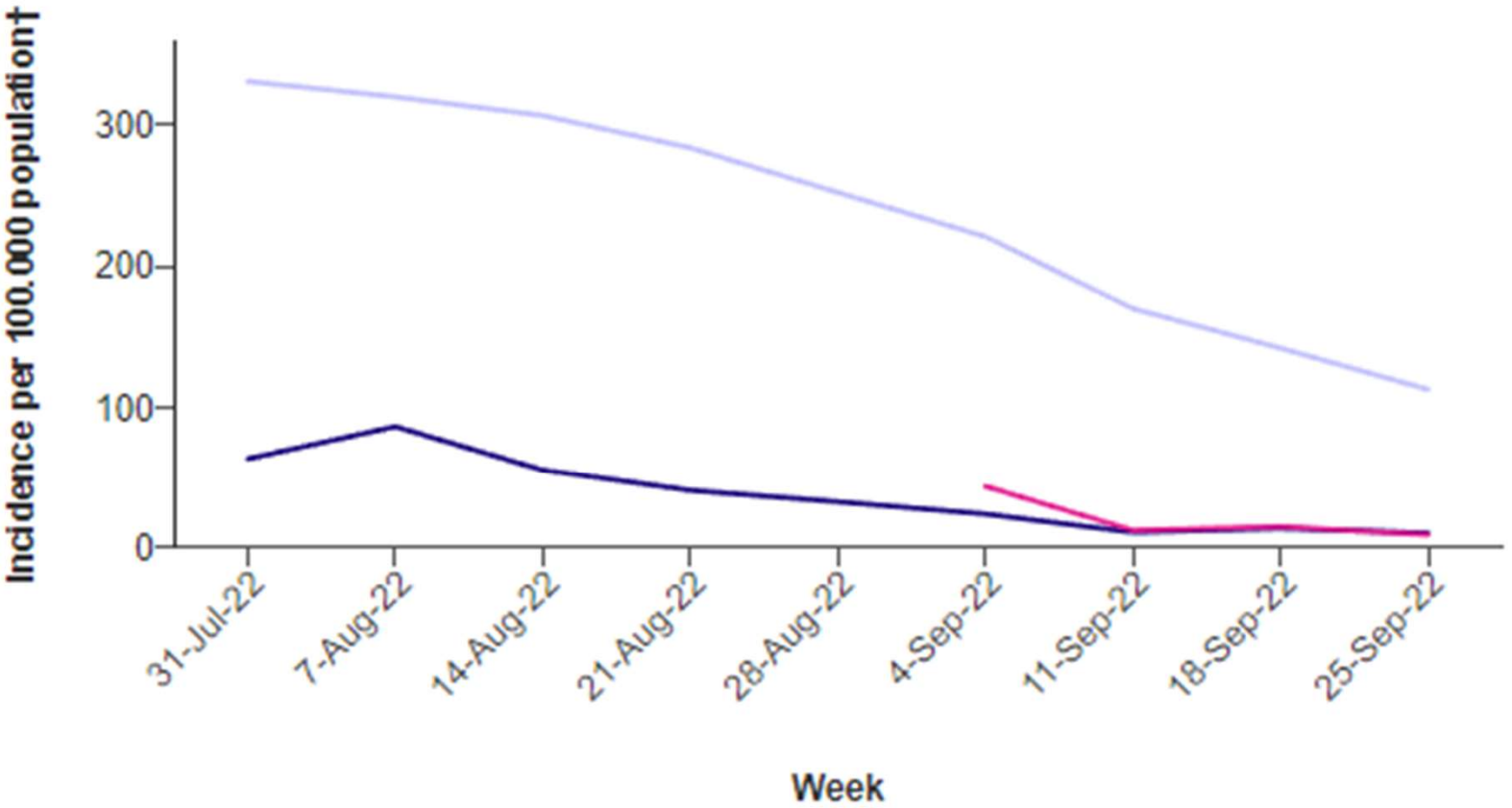
Legend

- 1 to 500
- 1,001 to 5,000
- 5,001 to 10,000
- 10,001 to 50,000
- >50,000

Territories GU PR VI MP

Rates of Mpox Cases by Vaccination Status*

July 31, 2022 – October 1, 2022 (43 U.S. jurisdictions)

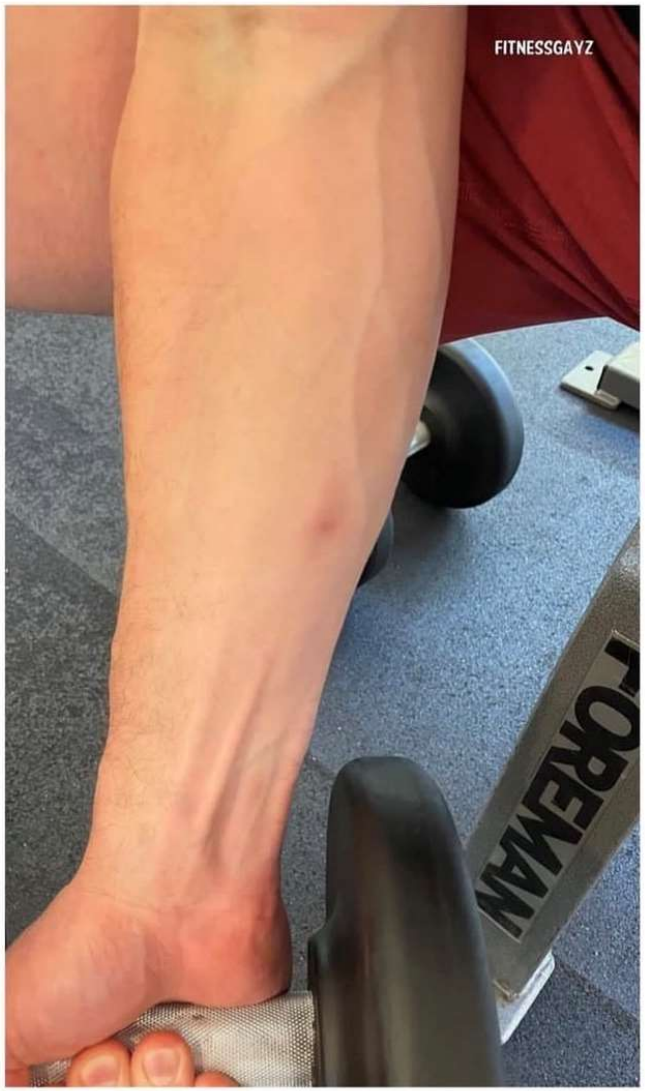


Legend

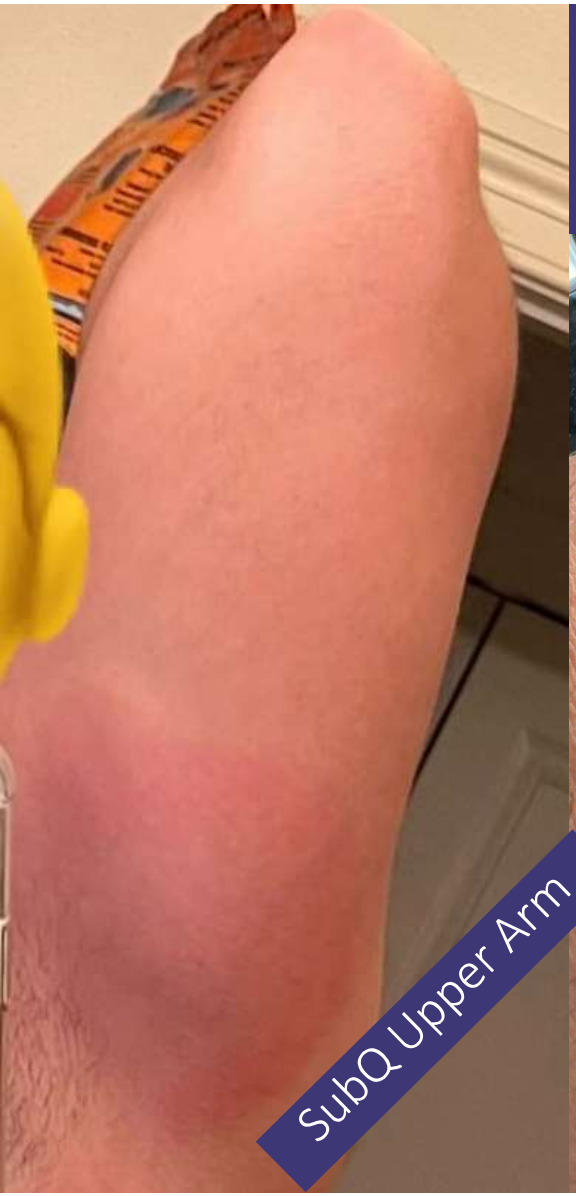
- Unvaccinated
- Vaccine **dose 1** ≥14 days prior
- Vaccine **dose 2** ≥14 days prior

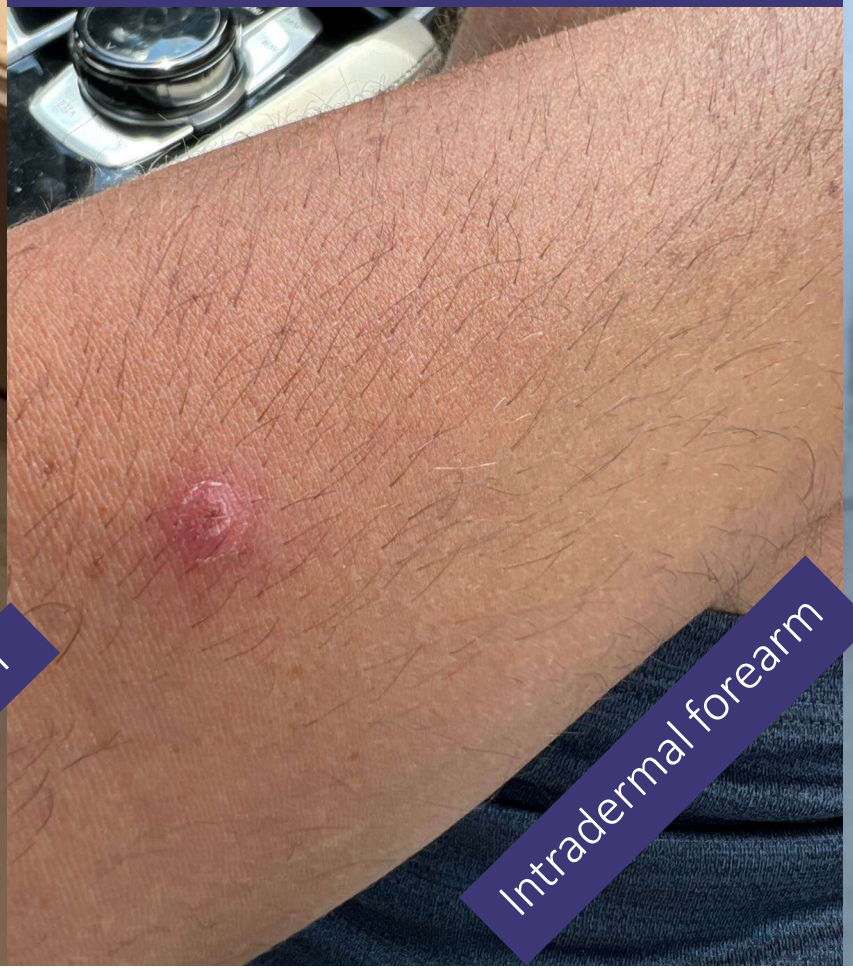
CDC 2023

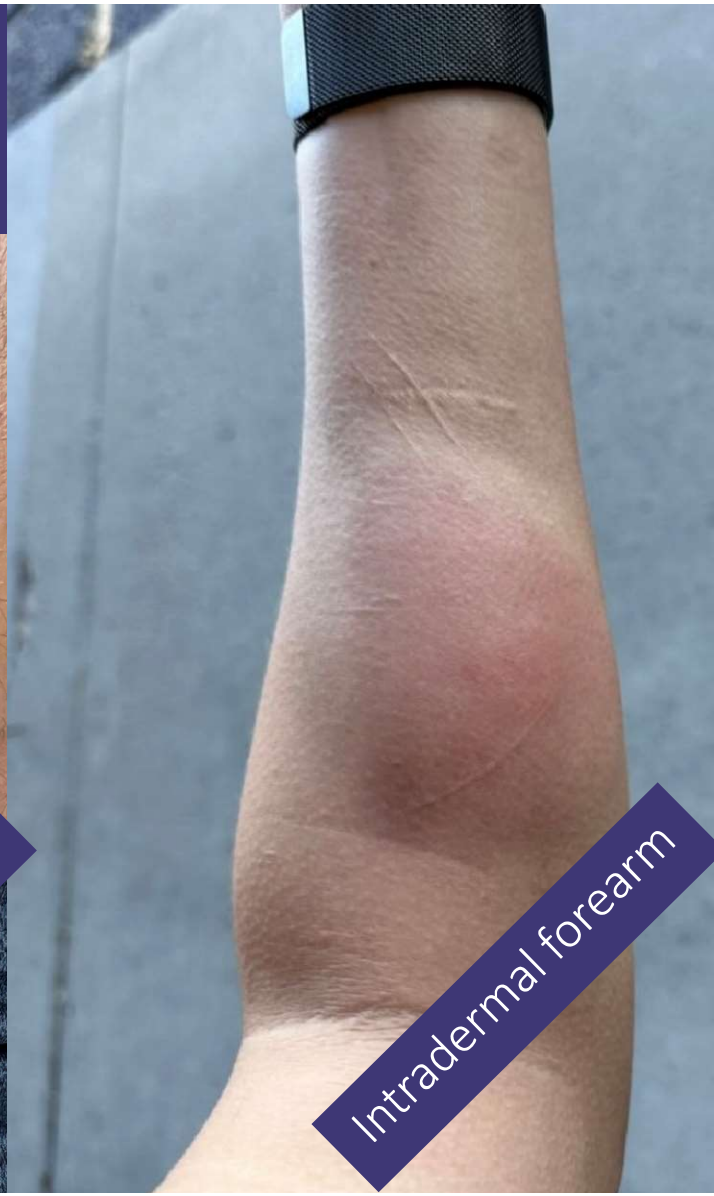
Telltale sign he's gay



MPOX Vaccine Reactions







Transmission

- Close personal contact; Skin to skin transmission
- Skin lesions highly contagious until all lesions have scabbed and fallen off (~21 days)
- Respiratory droplet transmission exceedingly rare
- Sexual & gender diverse (SGD)* people disproportionately impacted

CDC 2023

**gay, bisexual, or other man who has sex with men or a transgender, nonbinary, or gender-diverse person*

MPOX Symptoms

1. **Skin rash** with several stages, including scabs
   - Diffuse or local
   - Typically itchy, often pain, may affect mucosa
2. **Prodromal Symptoms:** fever, chills, swollen lymph nodes, exhaustion, muscle aches, backache, headache, respiratory symptoms (e.g., sore throat, nasal congestion, or cough)
   - Onset before, concurrent, or after rash onset
   - May not occur

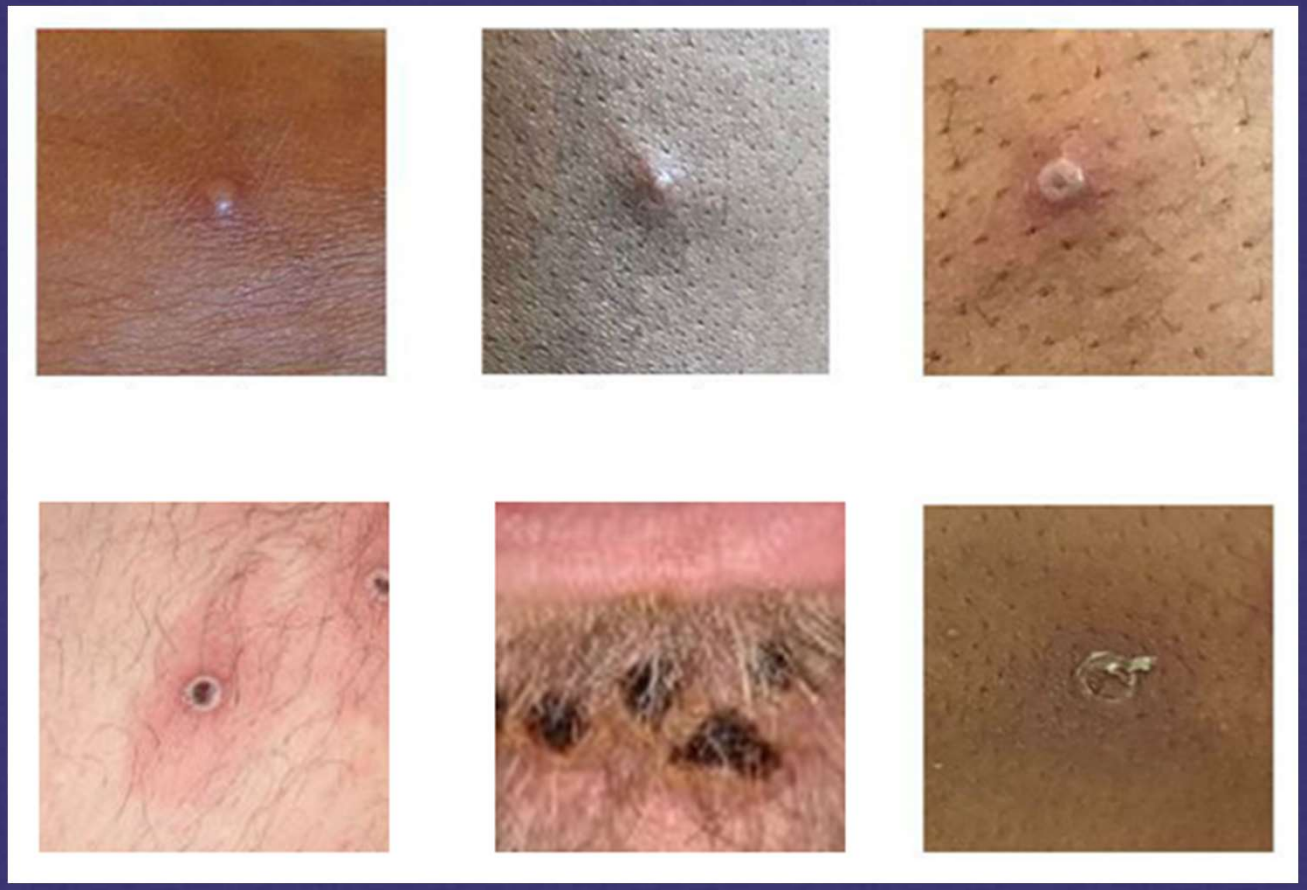
CDC 2023

Exanthem through Scab Stage

Stage	Stage Duration	Characteristics
Enanthem		•Sometimes, lesions first form on the tongue or mouth.
Macules	1–2 days	•Macular lesions appear.
Papules	1–2 days	•Lesions progress from macular (flat) to papular (raised).
Vesicles	1–2 days	•Lesions then typically become vesicular.
Pustules	5–7 days	•Lesions then typically become pustular– sharply raised, usually round, and deep seated. •Finally, lesions typically develop umbilication. •Pustules remain ~5-7 days before beginning to crust.
Scabs	7–14 days	•By end of 2nd week, pustules crust and scab over. •Scabs remain for ~1 week before beginning to fall off.

CDC 2023

Examples of MPOX Rashes



(CDC 2023) Photos from CDC, Photo credit: UK Health Security Agency

MPOX Severe Complications

Oral

- dysphagia, odynophagia, anorexia

Rectal

- proctitis, perianal abscess, rectal perforation

Genital

- edema, paraphimosis, phimosis

CDC 2023

Supportive Therapy

- Educate patient on disease course to manage expectations and encourage appropriate isolation
- Assist patient in isolation
  - Work excuse, meal delivery, referral to DOH for roommates/family
- Dermatologic care*
- Pain control*
- Control of complications*
- Antiviral therapy for moderate-severe cases*

CDC 2023

*See following slides

Caring for the Skin

- Wash skin with mild soap and water
- Baths, warm, cool compresses
- calamine lotion, petroleum jelly, colloidal oatmeal
- Topical anesthesia (ie OTC lidocaine)
- Do not scratch
- Lesions are considered infectious until they have healed
- Keep affected sites and individual lesions covered
- Antibiotic ointment only for additional bacterial infection
- Scarring: apply SPF; consider silicone topicals

CDC 2023, AAD 2022

Pain Management

- OTC acetaminophen & NSAIDs
- Topical steroids, anesthetics, calamine lotion, petroleum jelly, colloidal oatmeal (gloved application)
- Oral histamines for itch
- Gabapentin (300mg+ 3x daily) for pain
- **Opioids** *(balance against the risk of side effects such as constipation and other risks such as potential for unintended long-term use of opioids, development of an opioid use disorder, and overdose)*

WHO 2022, CDC 2023

Anorectal Symptoms Management

- Gabapentin oral 300mg 3x/day
- 2.5% lidocaine/2.5% prilocaine (Rx) **OR** Recticare 5% (OTC)
- Mesalamine suppositories
- Colace/fiber supplementation (esp psyllium husk + hydration)
- Sitz baths (warm water 20-30 min)
- Oral analgesia (NSAIDS, opioid if uncontrollable)

CDC 2023, BMJ2022;378:e072410 (Patel 2022)

Antiviral Treatments: Tecovirimat (TPOXX)

- CDC expanded access IND for Tecovirimat (TPOXX, ST-246)
- Oral or injection
- Indications for moderate to severe disease and specific populations
  - Severe disease: hemorrhagic, large confluent lesions, necrotic, necrotizing or obstructive lymphadenopathy, secondary bacterial infection
  - Involved organ systems: pulmonary involvement with nodular lesions; sepsis; encephalitis; myocarditis; ocular or periorbital infections
  - Severe pharynx, genital, anorectal disease at risk for complication
  - Immune suppression (incl. uncontrolled HIV)
  - Pediatric, esp <1 yo
  - Pregnant or chest/breastfeeding
  - Concurrent severe dermatitis (ie HSV, sever psoriasis)

CDC 2023

TPOXX Pearls

- Generally coordinated through local/state Department of Health
- Requires informed consent (investigational drug)
- Significant improvement often noted within 24 hours
- Must be taken with a fatty, high calorie meal
- When possible, coordinate with local Stomp Clinical Trial site***

Other Antiviral Treatment

- Brincidofovir (CMX001 or Tembexa)
  - Cidofovir prodrug, FDA-authorized single-patient emergency use IND (e-IND)
  - Severe disease/high risk for progression to severe disease, AND
  - Worsening or recrudescence disease while receiving tecovirimat OR otherwise unable to use oral/IV tecovirimat
- Vaccinia Immune Globin IV (VIGIV)
  - Expanded access IND protocol
  - To request VIGIV, clinicians can contact the CDC Clinical Consultation Team by email (eocevent482@cdc.gov) during business hours, or for urgent clinical situations, contact the CDC Emergency Operations Center (770-488-7100)
- Cidofovir (Vistide)
  - Serious renal toxicity; brincidofovir has a better safety profile

Call Center: 1-855-876-9997 (U.S. only)

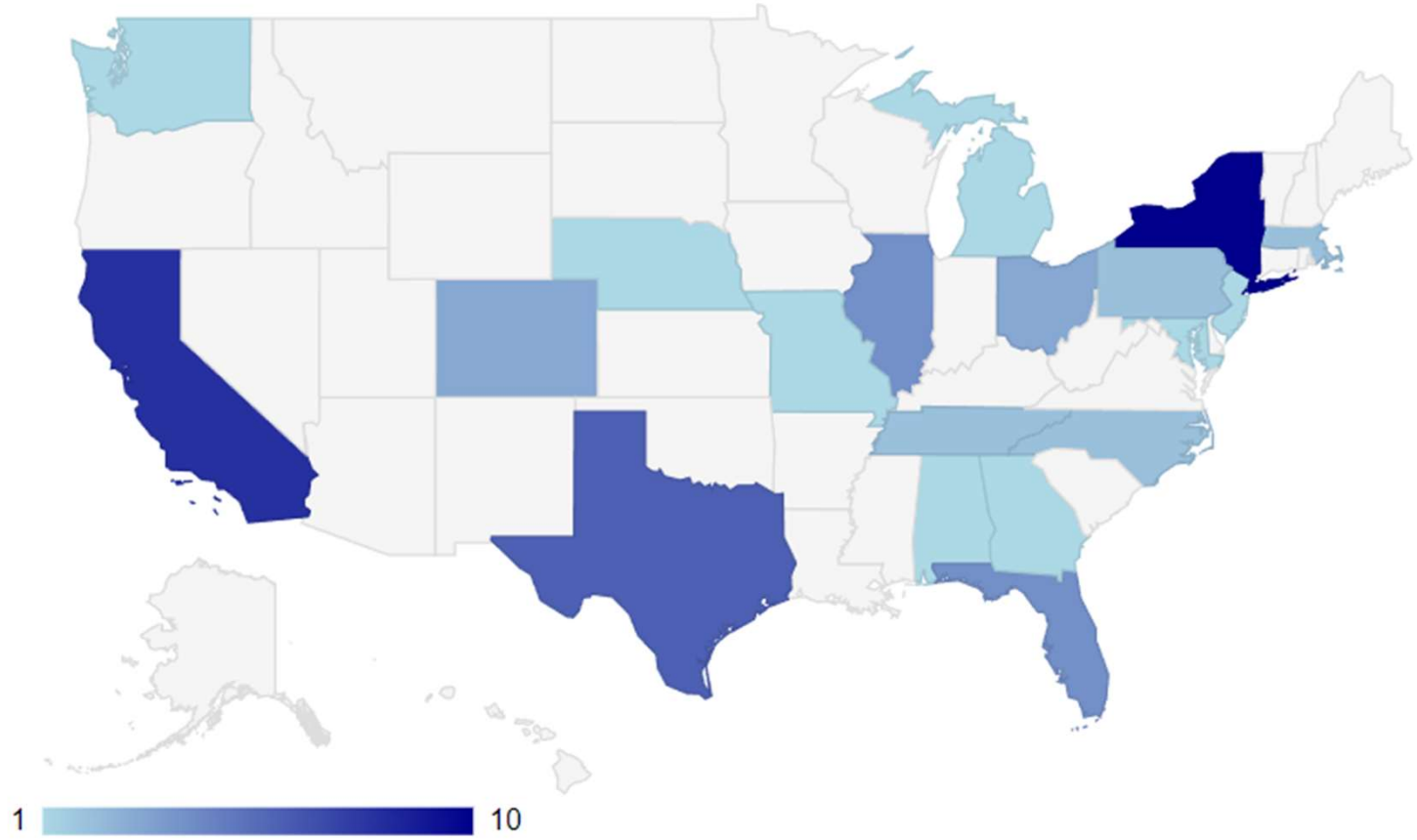
STOMP

Study of Tecovirimat for Human Monkeypox Virus

STOMP **About the Study**

Participating Research Sites

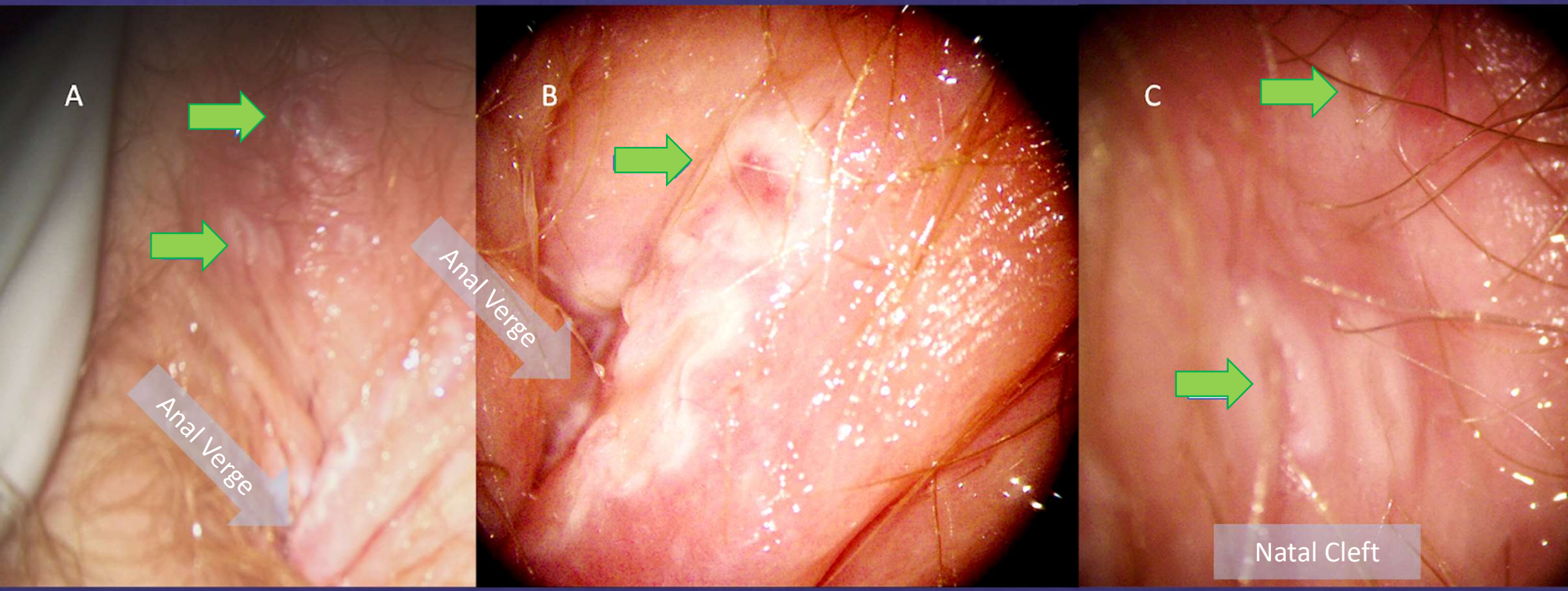
Clinical Research Sites are located in the following states:



Cases

“Painful Hemorrhoid”

- 54 yo MSM LWH (CD4 WNL; UVL)
- No prior smallpox/MPXV vaccination
- 1 week of anal pain that was preceded by subjective fevers, fatigue, and mild gastrointestinal distress
  - Anal itch →sharp, intense pain + mucoid discharge, BRB with BM
- He denied recent travel but had an anonymous sexual partner just prior to symptom onset


A
Anal Verge
Anal Verge
B
C
Natal Cleft

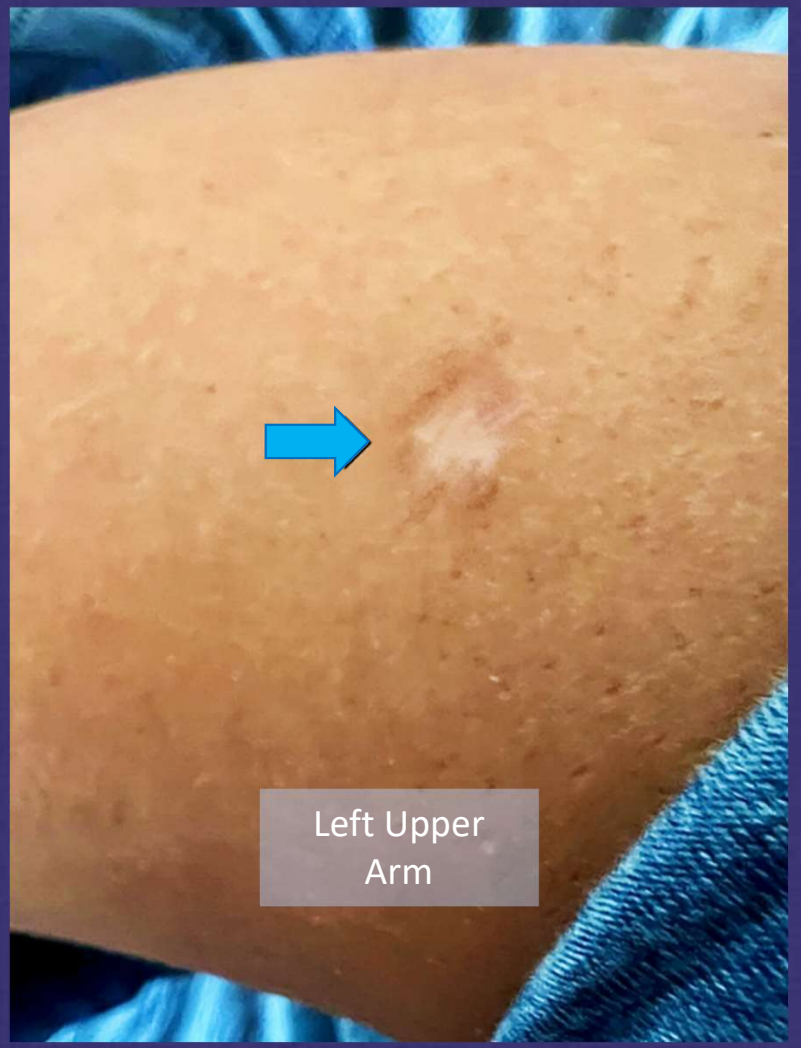
Case Disposition

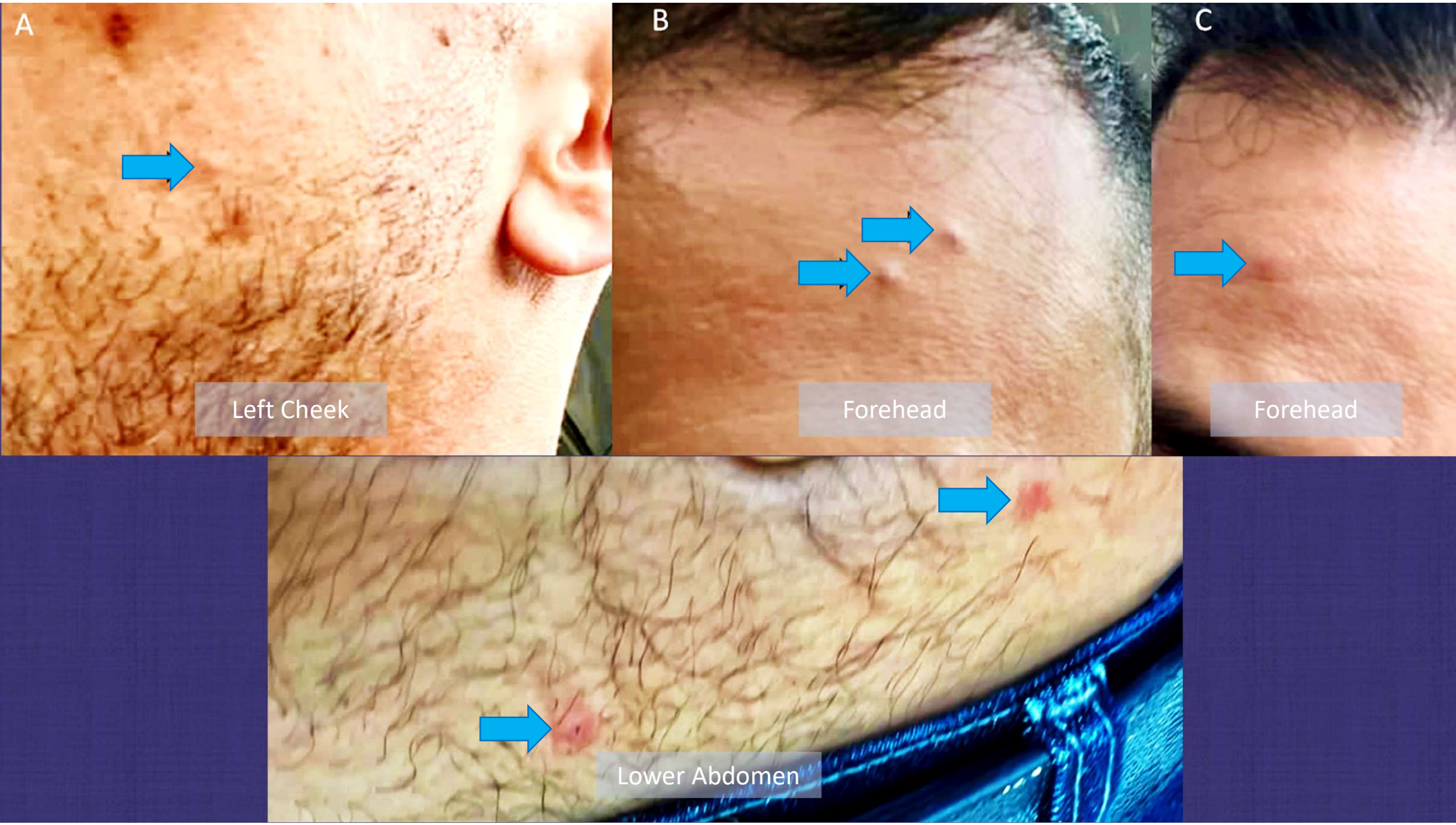
- **Non-variola orthopox RT PCR reactive**
  - Nonreactive gc/Ct, syphilis serology, HSV1/2 DNA PCR
- Treatment plan: TPOXX, sitzbaths, gabapentin, ibuprofen, oxycodone/acetaminophen, and isolation

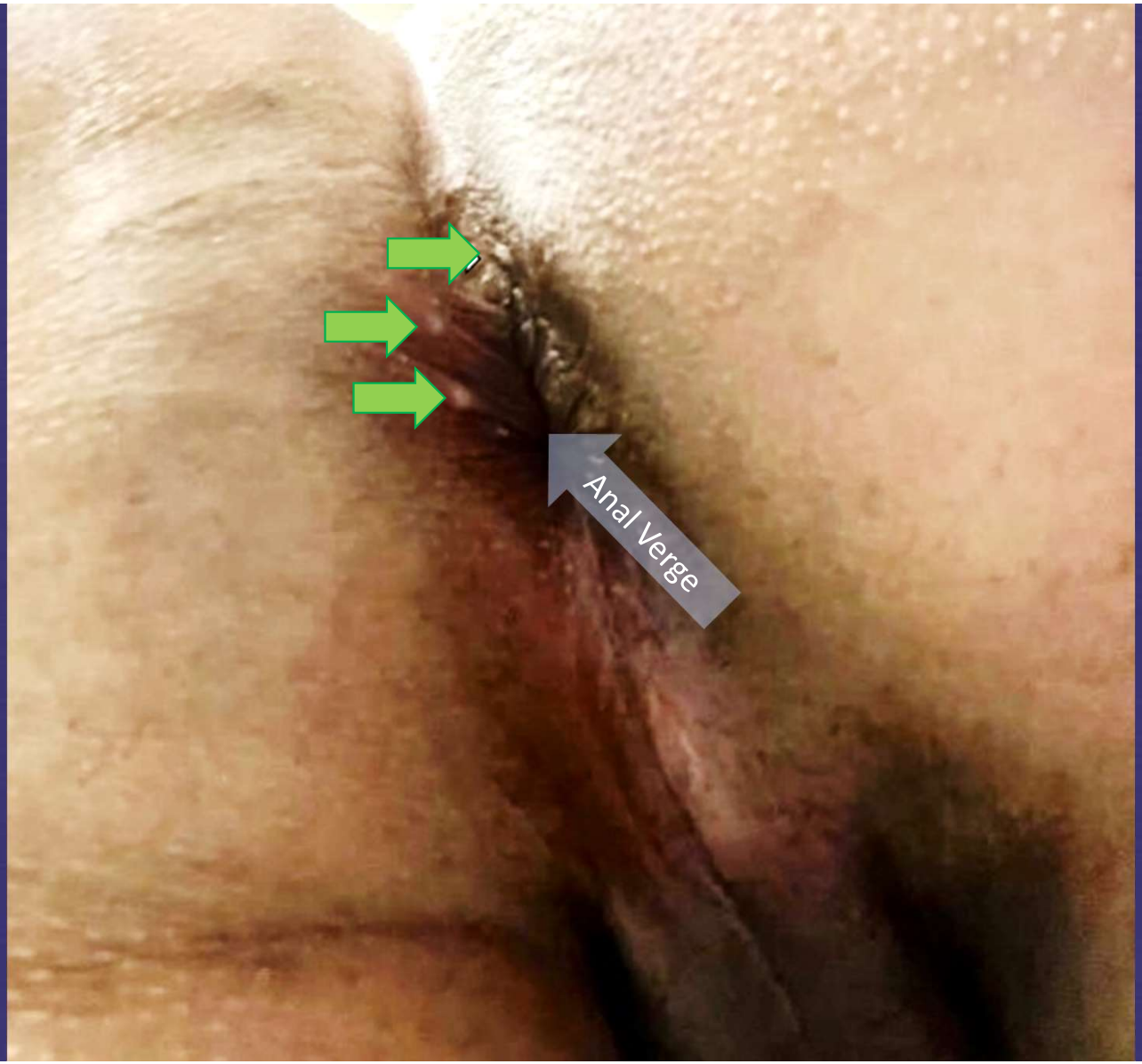
- External hemorrhoidal tags and hyperpigmentation at the site of the healed lesions at 1 month follow up

“Red Pimples Everywhere”

- 44 yo on daily F/TAF PrEP
- Smallpox vaccination in childhood
- Recent travel to Berlin & new sexual partners
- Reports “breaking out all over my body” with “red pimples everywhere”
- Papular rash on his face→ back, torso →perianal anal area (painful)
- 2 days after the rash: stiff neck, severe headaches, dizziness and fatigue x 4d




A
Left Cheek
B
Forehead
C
Forehead
Lower Abdomen

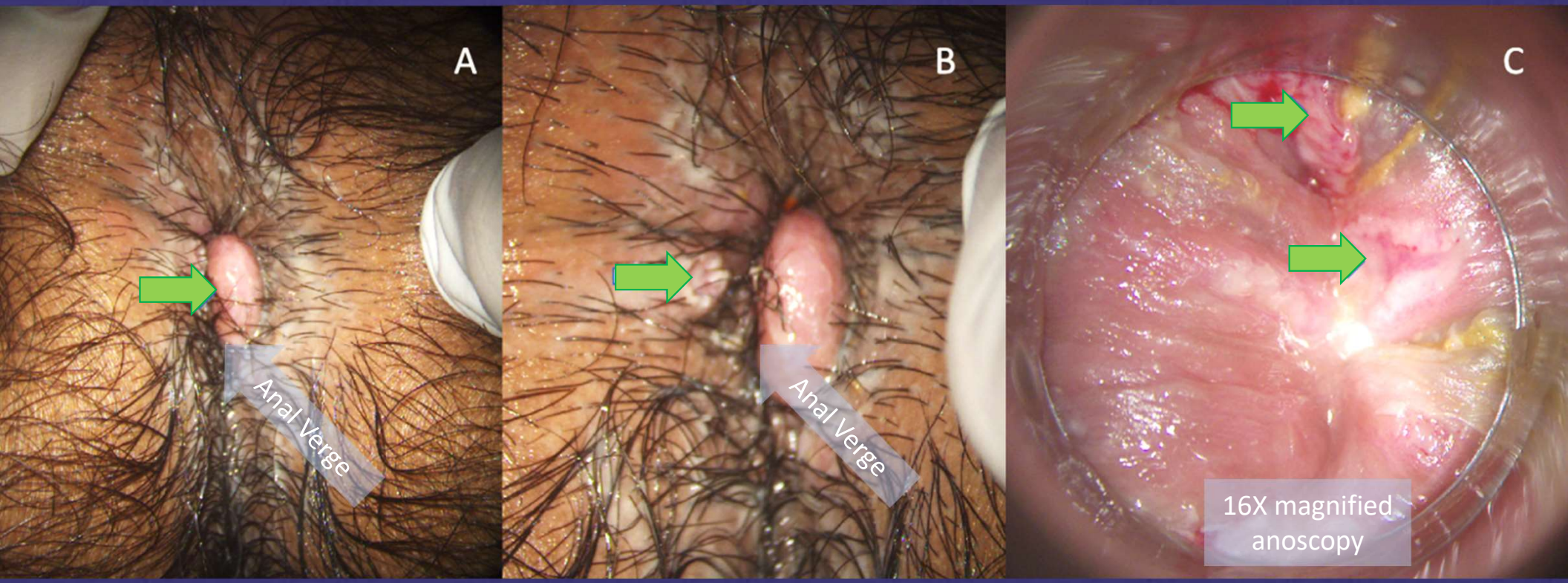

Anal Verge

Case Disposition

- Supportive therapy
- The patient required no antiviral treatment and isolated until symptoms resolution
- Full recovery and has no scarring from the skin lesions

“Like there is Broken Glass in the Rectum”

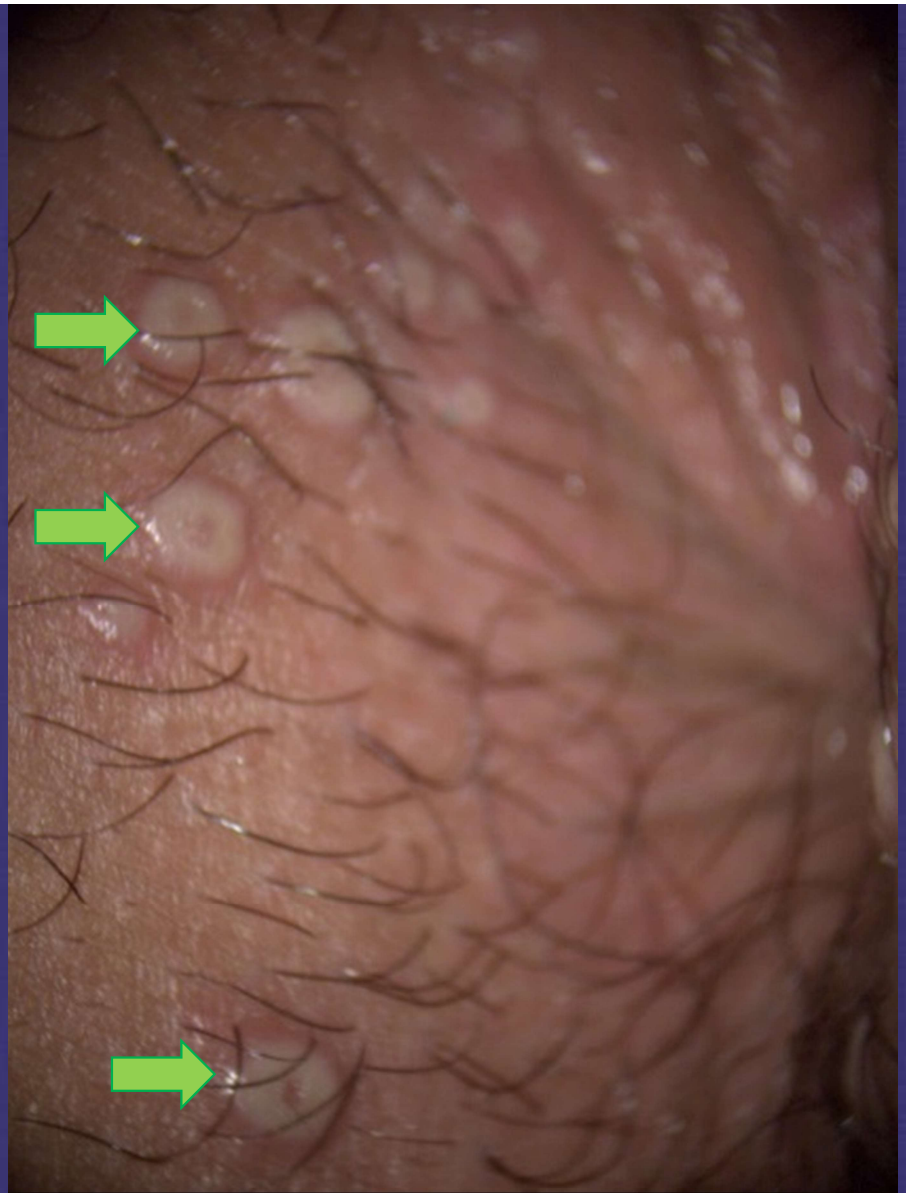
- 34 on daily F/TDF PrEP
- Smallpox vaccination in childhood; JYNNEOS 2 weeks prior to presentation
- 4 days of excruciating, burning anal pain
  - Subjective fever and chills 2 days after anal pain onset
  - No relief with oxycodone (from UC)

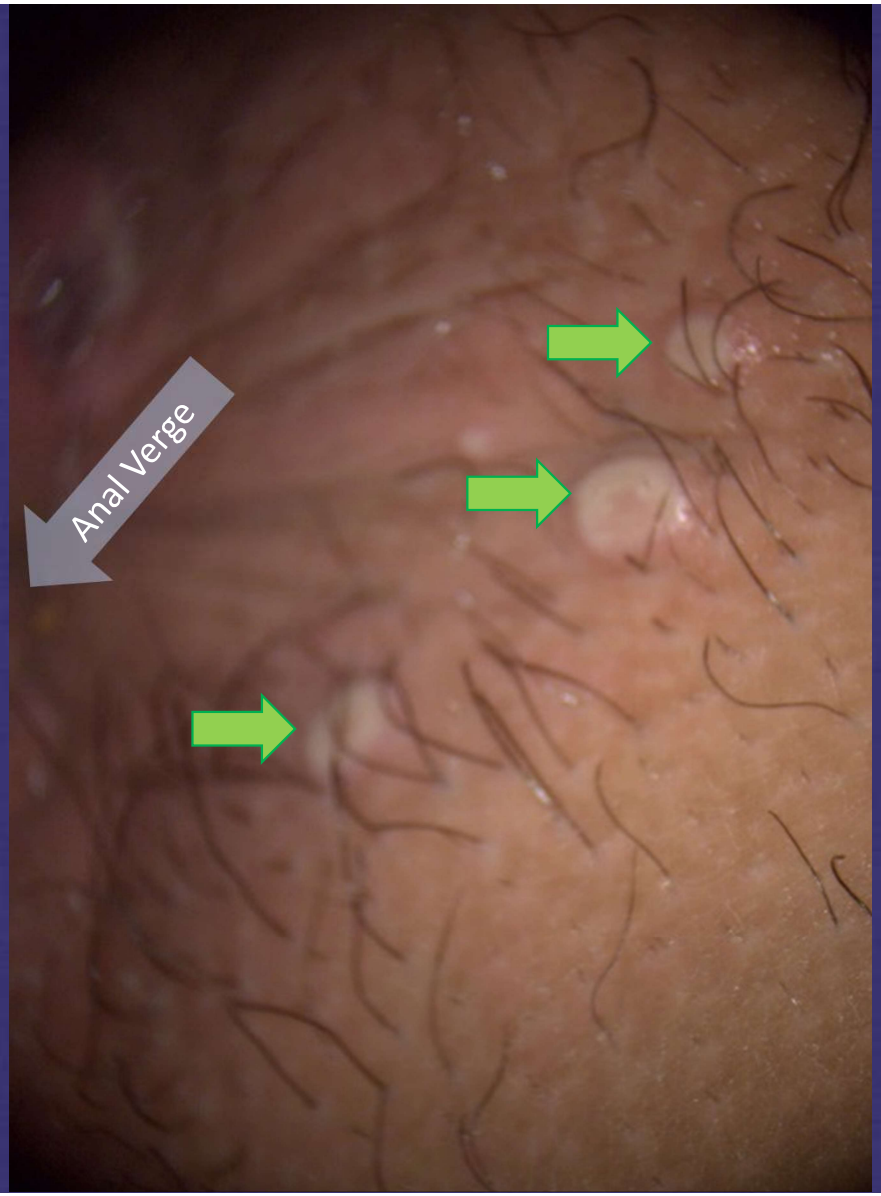


- A & B. Inflamed skin tag with superficial ulceration at the anal verge. The perianal skin is covered in a thick, whitish exudate.
- C. Scattered ulcerations on the internal anal mucosa.

“I Didn’t Take the Valtrex”

- 27 yo on F/TDF daily oral PrEP
- Condomless RAI **4 weeks** prior to onset of symptoms
- No smallpox/MPXV vaccination history
- Concurrent nights sweats, anal pain, and anal bumps x 5 days
- Attended ED 3 days prior; diagnosed with HSV




Anal Verge

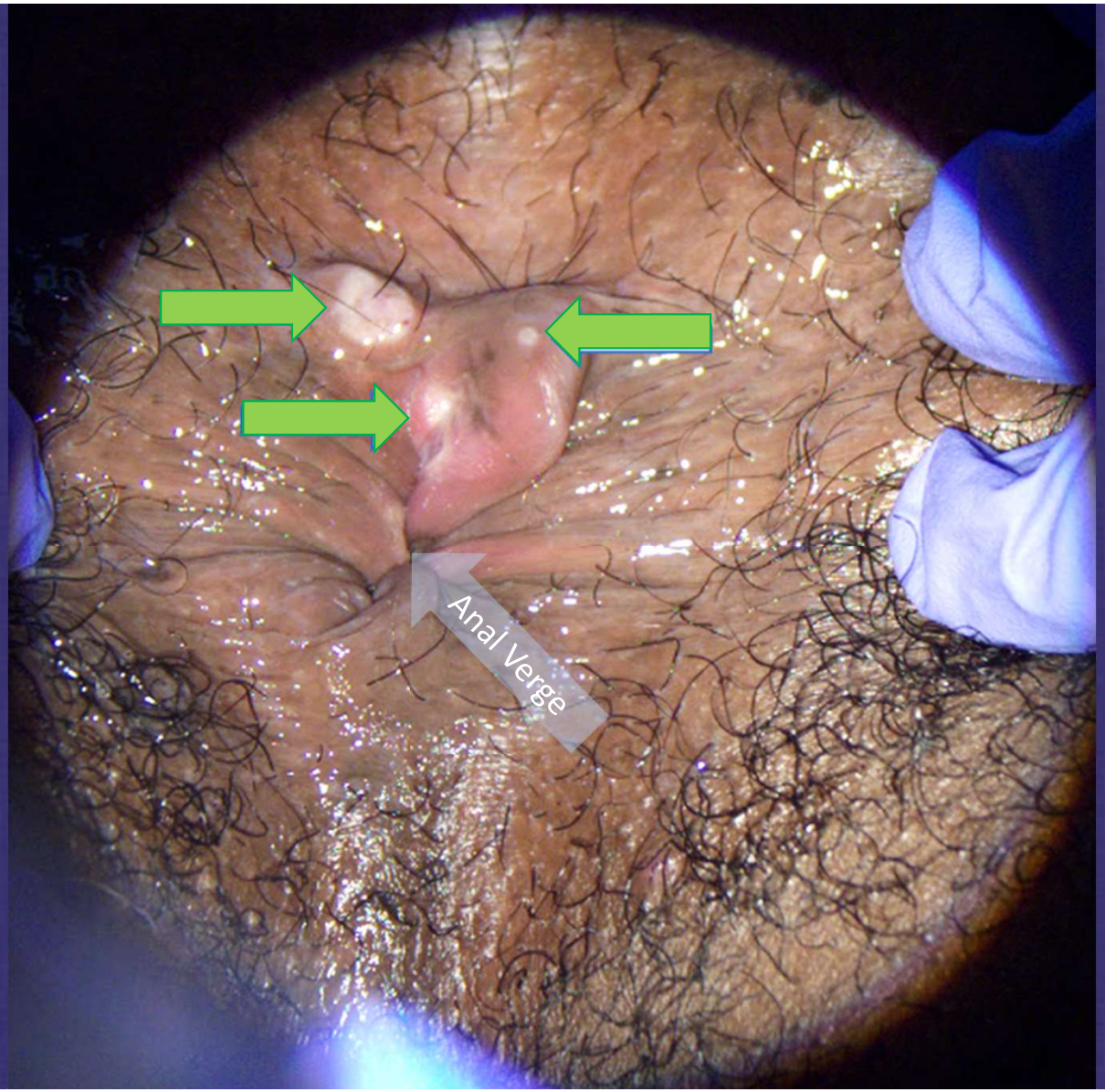
Case Disposition

- **Non-variola orthopox RT PCR reactive**
  - Nonreactive HSV1/2 DNA PCR, gc/Ct, syphilis serology
- Treatment plan: TPOXX, sitzbaths, gabapentin, ibuprofen, topical lidocaine, and isolation

- Full resolution with no lesions noted on follow up

“What is Happening to Me?”

- 30 yo, no PMHx presents severely anxious
- JYNNEOS 2 doses several months prior to presentation
- Painful anal nodules, intense anal itch, tenesmus, and bright red blood with BM x 4 days
- Subjective fevers, chills the day lesions appeared
- No travel Hx; condomless receptive anal intercourse 2 weeks prior


Anal Verge

Case Disposition

- Started on valacyclovir 1g 2x/day x 1 days and supportive therapy
- HSV PCR NR the following day
- **Non-variola orthopox RT PCR reactive**
- Seen same day at local STOMP site

What Do These Cases Have in Common?

- ~~HIV status/PrEP~~
- ~~Severity of disease~~
- ~~Type of sexual exposure~~
- ~~Time since sexual exposure~~
- ~~Travel history~~
- ~~STI history; concomitant STI~~
- ~~Prodromal Sx before, after, at all?~~
- ~~Local vs diffuse skin lesions~~
- ~~Race/ethnicity~~
- ~~Smallpox/MPXV vaccination status~~

MPOX Pearls From the Front Line

- Examine the patient, including anogenital
- Expect ulcerations in areas of increased friction
- Assume internal lesions if symptomatic especially if visible lesions are present
- Have a high index of suspicion
- Don’t let patients talk you out of it
- Don’t rely on prior diagnosis- evolving disease
- TPOXX is indicated in *many* anorectal cases
- Post inflammatory conditions common (ie fissure, tags)

Future of MPOX

- Uncommon infection often transmitted through sexual contact
- Pediatric/school transmission of high concern
- Ongoing recommendation for vaccination for at-risk populations
- Likely clusters in unvaccinated geographies/social circles

5/20 10:30	Preventive or Primary Care for Transgender or Gender-diverse Patients	Room TBD
5/20 2:15	Gender-Affirming Hormone Therapy for Adults: Initiation, Monitoring, and Management	Room TBD
5/22 8:00	Healthcare of Gay Men, Men Who Have Sex with Men, and People Who Engage in Anal Sex	Room TBD
5/22 9:15	Gender-affirming Surgery: Culturally Competent Care for the Transgender Patient in the Primary Care Setting	Room TBD
5/22 10:30	Update on Sexual Transmitted Infections (STIs): Advanced and Interesting Cases	Room TBD
5/22 1:00	Prescribing HIV Prevention: Preexposure Prophylaxis (PrEP)	Room TBD
5/23 9:15	Gender-affirming Surgeries: Procedure, Complications, and Long Term Care	Room TBD
5/23 10:30	Sexual Health: How to Ask, How to Help	Room TBD
5/23 1:00	HPV: When It's Silent and When It's Seen	Room TBD
5/23 3:30	Monkeypox in the US	Room TBD

References

1. CDC. MPOX. https://www.cdc.gov/poxvirus/monkeypox/index.html. Last Updated 1/6/2023.
2. Thornhill JP, Barkati S, Walmsley S, et al. Monkeypox Virus Infection in Humans across 16 Countries – April-June 2022 [published online ahead of print, 2022 Jul 21]. N Engl J Med. 2022;10.1056/NEJMoa2207323.
3. American Academy of Dermatology. Monkeypox Caring for the Skin. PDF. 2022.
4. Patel A, Bilinska J, Tam J C H, et al. Clinical features and novel presentations of human monkeypox in a central London centre during the 2022 outbreak: descriptive case series. BMJ2022;378:e072410.
5. Philpott D, Hughes CM, Alroy KA, et al. Epidemiologic and Clinical Characteristics of Monkeypox Cases — United States, May 17–July 22, 2022. MMWR Morb Mortal Rep. ePub: 5 August 2022.
6. Moschese D, Giacomelli A, Beltrami M, et al. Hospitalisation for monkeypox in Milan, Italy [published online ahead of print, 2022 Aug 4]. Travel Med Infect Dis. 2022;49:102417.
7. World Health Organization. Clinical management and infection prevention and control for monkeypox: Interim rapid response Guidance. https://www.who.int/publications/i/item/WHO-MPX-Clinical-and-IPC-2022.1. Accessed July 18, 2022.
8. UK Health Security Agency. Monkeypox outbreak: technical briefings. Available at: https://www.gov.uk/government/publications/monkeypox-outbreak-technical-briefings. Accessed August 9, 2022.
9. Rehlan V, Sahay RR, Shete AM, et al. Clinical presentation, viral kinetics and management of human monkeypox cases from New Delhi, India 2022, 24 August 2022, PREPRINT. [https://doi.org/10.21203/rs.3.rs-1986039/v1].
10. Ogoina D, James IH. (2022), (2022). Monkeypox among linked heterosexual casual partners in Bayelsa, Nigeria. 24 August 2022, PREPRINT. [https://doi.org/10.32388/2Z4ZH4.2].

MPOX in the US

Jonathan Baker, PA-C, MPAS, DFAAPA *(He/Him)*

Anorectal & Sexual Health PA | Laser Surgery Care | NYC
Immediate Past President | NYSSPA
Past President | LBGTPA
Delegate | AAPA HOD

@RectalRockstar
JonathanBaker.PA@gmail.com