Mpox Vaccination Access, Administration and Best Practices

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02/08/2024

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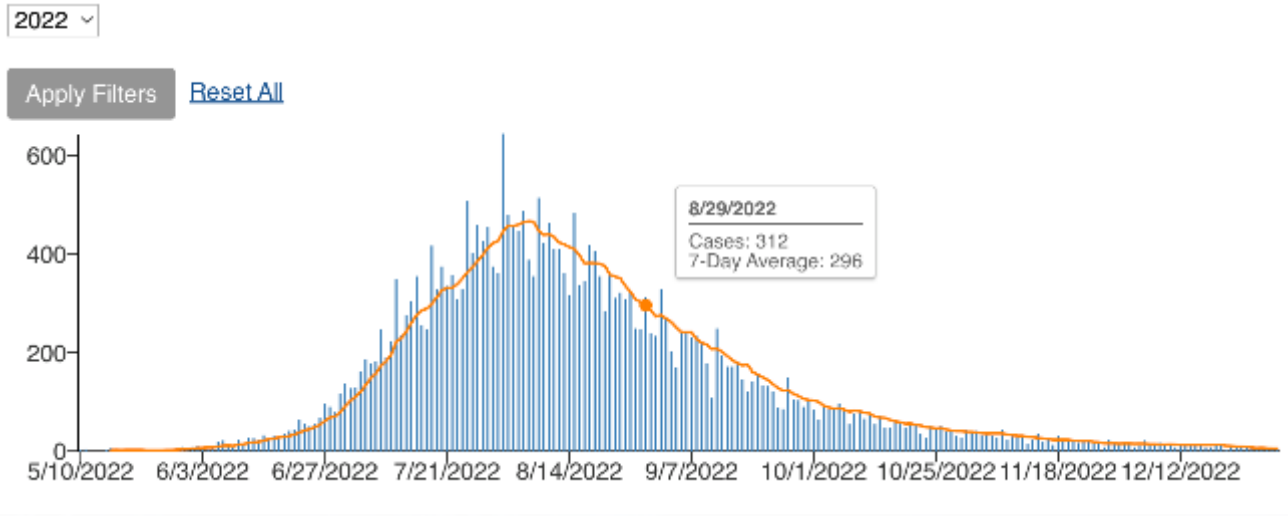
NO RELEVANT DISCLOSURES

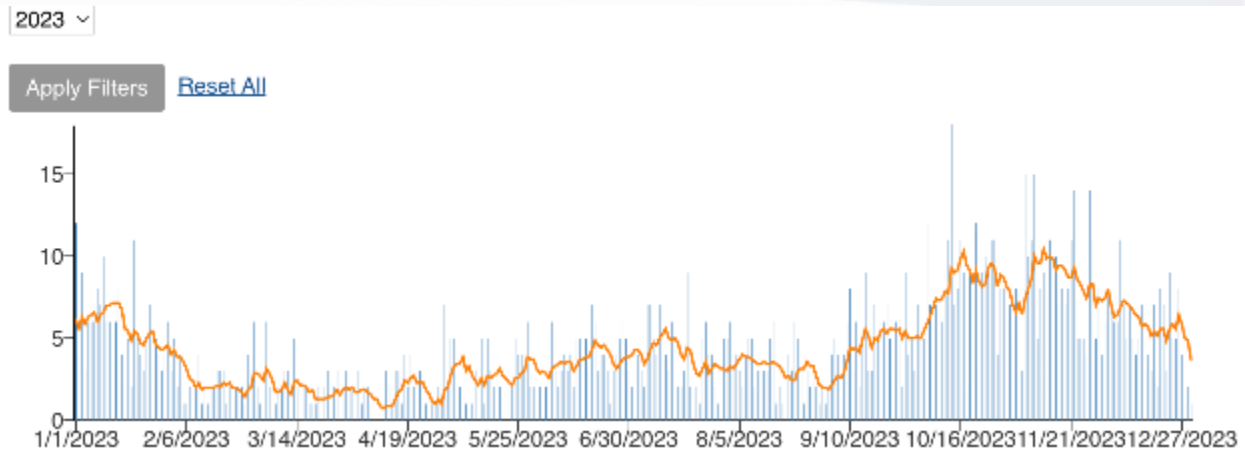
- Provide a brief update of Mpox outbreak in the US
- Describe prevention and control strategies for mpox
- Identify strategies to increase vaccination in eligible persons
- Discuss how to incorporate mpox vaccination into routine HIV/STI testing and care

MPOX UPDATE (BRIEF)

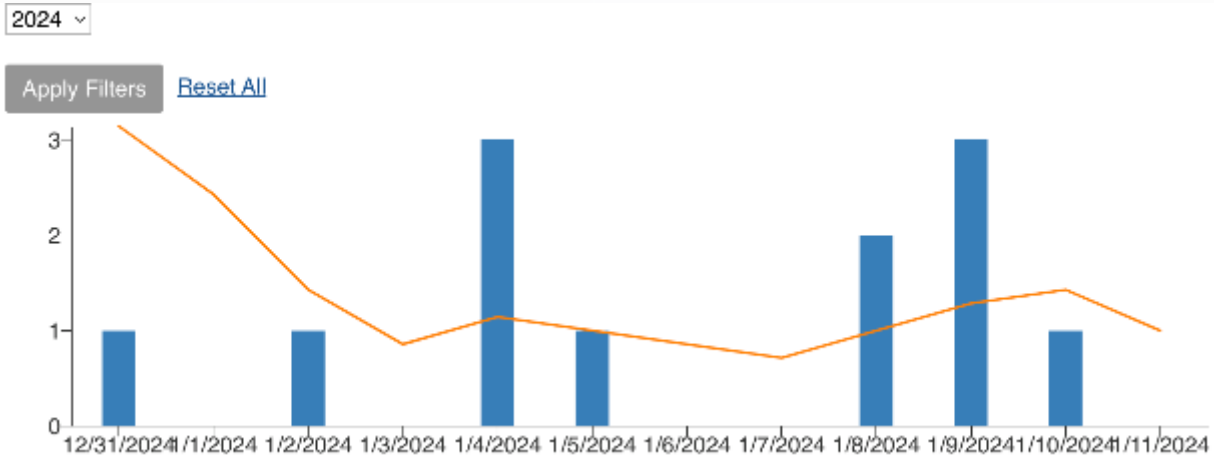
U.S. Mpox Case Trends Reported to CDC 2022 - 2024

31,6889 cases , 56 deaths – 1/9/2024





Cases of Mpox have declined since the outbreak in 2022



However, a low baseline continued activity persists
Risk for disease resurgence exists

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Virginia Epidemic Curve

Mpox Cases in Virginia

VDH VIRGINIA DEPARTMENT OF HEALTH

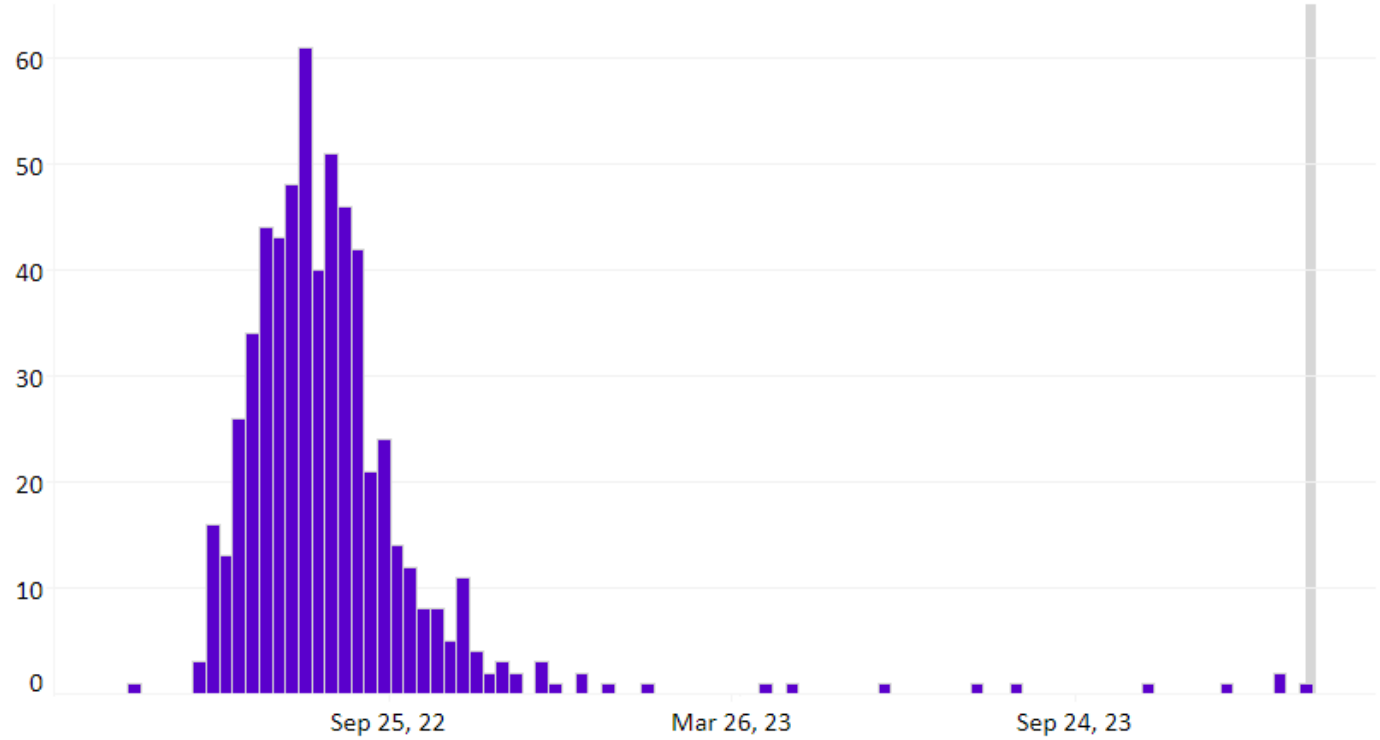
Dashboard updated: 2/6/2024

Data Through 2/5/2024 Next update Tuesday

Total Cases	Total Hospitalizations	Total Deaths
580	32	2

Number of Cases by Week

The graph shows the number of mpox cases reported to VDH by the date closest to when the person became ill or got tested for the mpox virus.



[Mpox Data in Virginia]

As of 02/06/2024

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MPOX IN VIRGINIA

Cases by Sex

Sex is the current sex reported by the case.

	Total Cases	Percent of Cases
Female	32	5.5%
Male	547	94.5%

Cases by Age Group

	Total Cases	Percent of Cases
0-9 Years	0	0.0%
10-14 Years	1	0.2%
15-19 Years	14	2.4%
20-29 Years	208	35.9%
30-39 Years	231	39.9%
40-49 Years	86	14.9%
50-59 Years	33	5.7%
60-69 Years	4	0.7%
70+ Years	2	0.3%

~ 91% of cases are between 20 – 49 years old

MPOX IN VIRGINIA

Cases by Race and Ethnicity^

	Total Cases	Percent of Cases
Asian or Pacific Islander	12	2.1%
Black	255	44.0%
Latino	114	19.7%
Native American	3	0.5%
White	152	26.3%
Other Race	8	1.4%
Two or more races	27	4.7%
Not Reported	8	1.4%

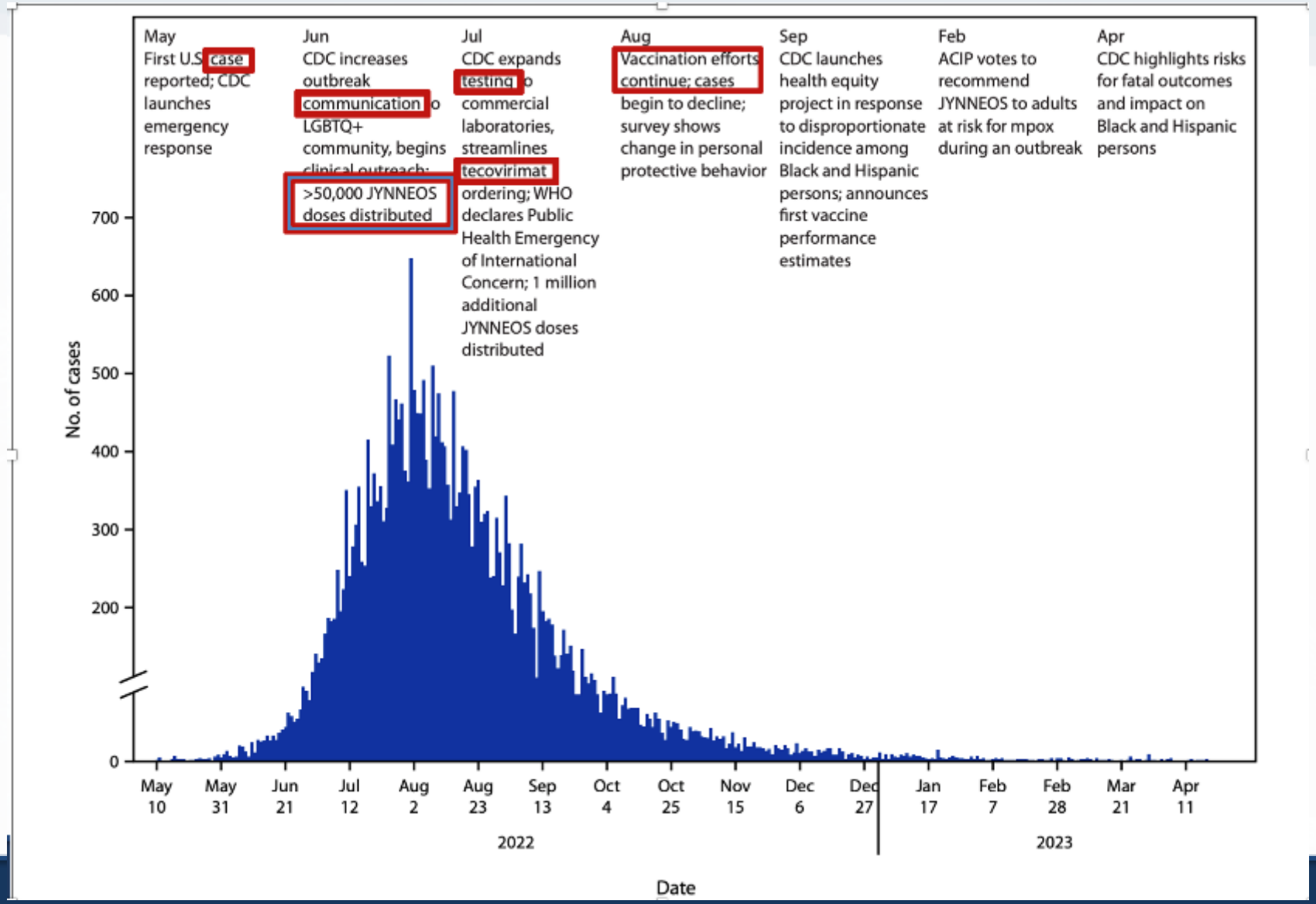
MPOX is affecting a disproportionate number of Black and Latino persons in Virginia

PREVENTION AND CONTROL STRATEGIES

WHO Mpox Strategy: Keeping Mpox at Bay!

Maintain surveillance	Integrate with HIV & STI programmes	Strengthen capacity	Implement research	Enhance access
Maintain epidemiological surveillance, consider making mpox infection **nationally notifiable** and continue to share confirmed and probable mpox case reports with WHO to support elimination where feasible	**Integrate mpox surveillance, detection, prevention, care and research** into innovative sexual health, HIV and STI prevention and care and other relevant programmes and services.	**Strengthen capacity in resource-limited settings** where mpox continues to occur, including **risk communication and community engagement** and for One Health and animal health	Implement a **strategic research agenda** to ensure ongoing evidence generation	**Enhance access to diagnostics, vaccines and therapeutics** through allocation mechanisms and technology transfer to **advance global health equity**, including for ethnic and racial minorities and those in the global south.

Responding to the Mpox Outbreak - US



Case definition and identification

Provider and community engagement on how to identify cases and how to prevent infection based on the understanding of how the disease is spread

Vaccine access

Testing access and treatment

More vaccine access

Addressing disparities

Continued surveillance

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Virginia Response

1. Test

2. Notify close contacts

3. Monitor symptoms

4. Facilitate treatment or vaccine

5. Wastewater Surveillance

[CDC Monitoring and Risk Assessment for Persons Exposed in the Community]

[CDC Mpox Wastewater Surveillance Dashboard]

We are Not Out of the Woods

Chicago Department of Public Health

Health Alert

CDPH Chicago Department of Public Health

City of Chicago
Lori E. Lightfoot, Mayor

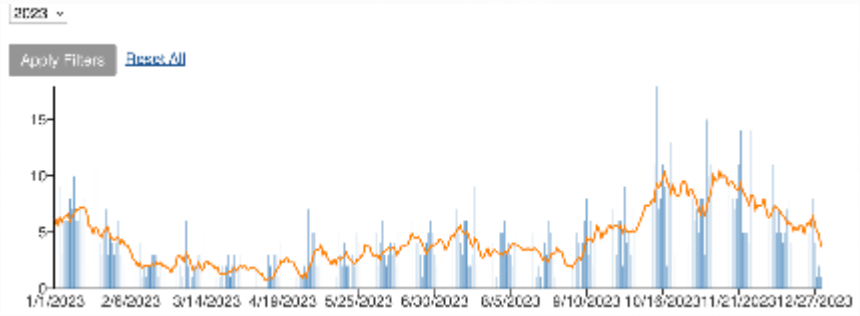
www.chicagohan.org

Chicago Department of Public Health
Allison Arwady MD MPH, Commissioner

RESURGENCE OF MPOX

Provider Update

May 9, 2023



CDPH Logo

TOMÁS J. ARAGÓN, M.D., Dr.P.H.
State Public Health Officer & Director

State of California—Health and Human Services Agency
California Department of Public Health

GAVIN NEWSOM
Governor

Health Advisory

TO: Healthcare Providers

Increase in Mpox Cases in California: Updates on Identification, Laboratory Testing, Management and Treatment, and Vaccination for Mpox

10/30/2023

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PREVENTION AND CONTROL STRATEGIES: LESSONS LEARNT FROM RECENT OUTBREAK

Messaging Matters

Culturally sensitive and non-stigmatizing messaging on:

- what is known about the disease
- what scenarios lead to increased risk of spread
- data on who is most affected
- actions proven to stop outbreaks should be shared

Engaging and listening to affected communities

Leveraging trusted sources of information

Morbidity and Mortality Weekly Report

Strategies Adopted by Gay, Bisexual, and Other Men Who Have Sex with Men to Prevent *Monkeypox virus* Transmission — United States, August 2022

Kevin P. Delaney, PhD[1]; Travis Sanchez, DVM[2]; Marissa Hannah, MPH[2]; O. Winslow Edwards, MPH[2]; Thomas Carpino, MPH[3]; Christine Agnew-Brune, PhD[1]; Kaytlin Renfro, PhD[1]; Rachel Kachur, MPH[1]; Neal Carnes, PhD[1]; Elizabeth A. DiNenno, PhD[1]; Amy Lansky, PhD[1]; Kathleen Ethier, PhD[1]; Patrick Sullivan, PhD[2]; Stefan Baral, MD[3]; Alexandra M. Oster, MD[1]

TABLE 1. Strategies for monkeypox prevention adopted by men who have sex with men since they learned about the monkeypox outbreak (N = 797) — American Men's Internet Survey, United States, August 2022

Characteristic (no. who answered not applicable)	No. (%)*		
	Decreased/Less	No change	Increased/More
No. of sex partners (108)	329 (47.8)	358 (52.0)	1 (0.1)
One-time sexual encounters (176)	309 (49.8)	305 (49.2)	6 (1.0)
Sex with a partner met on a dating app or at a sex venue (199)	294 (49.6)	294 (49.6)	5 (0.8)
Having group sex (331)	234 (50.4)	229 (49.4)	1 (0.2)
Going to sex venues or events (407)	162 (41.9)	222 (57.4)	3 (0.8)
Going to social events with close contact, such as dance parties or raves (347)	156 (34.9)	288 (64.4)	3 (0.7)
Use of condoms (275)	6 (1.2)	471 (90.8)	42 (8.1)

* Row percentages calculated after subtracting the number of respondents who repo ed that the individual be avior was not applicable to them, which is included in parentheses. Row totals including those who felt the item was not applicable mig t not sum to 797 becaus of missing data for individual items.

Meaningful community engagement with timely sharing of information leads to a decrease in high-risk behavior

MMWR Morb Mortal Wkly Rep 2022;71:1126-1130.

Strategies to increase vaccination in eligible persons

VACCINATION 2.0

Available Vaccines

- Two vaccines for preventing smallpox and mpox

- JYNNEOS™
  - Replication deficient attenuated live *vaccinia* virus vaccine
  - FDA approved for smallpox, mpox in people aged ≥18 years
  - FDA EUA for people aged <18 years
  - **Vaccine used in current outbreak**

- ACAM2000®
  - Replication competent live *vaccinia* virus vaccine
  - Licensed in 2007 for people at high risk for smallpox
  - **Not** currently being used in outbreak

ACAM2000 and JYNNEOS

	ACAM2000	JYNNEOS
Vaccine virus	Replication-competent vaccinia virus	Replication-deficient Modified vaccinia Ankara
Inadvertent inoculation and autoinoculation	Risk exists	No risk
Serious adverse event	Risk exists	Fewer expected
Cardiac adverse events	Myopericarditis in 5.7 per 1,000 primary vaccinees	Risk believed to be lower than that for ACAM2000
Administration	Percutaneously by multiple puncture technique in single dose	Subcutaneously and intradermally in 2 doses, 28 days apart

Slide courtesy Centers for Disease Control and Prevention Center for Preparedness and Response

DO NOT WAIT TO USE ONLY DURING AN OUTBREAK

February, 2023

ACIP recommends the 2-dose JYNNEOS vaccine series for persons aged 18 years and older **at risk** of mpox **during an mpox outbreak**

October, 2023

ACIP recommends vaccination with the 2-dose JYNNEOS vaccine series for persons aged 18 years and older **at risk** for mpox

IF THE RISK EXISTS, DISCUSS and OFFER VACCINE

https://www.cdc.gov/vaccines/acip/recommendations.html#:~:text=ACIP%20recommends%20the%202%2Ddose,during%20an%20mpox%20outbreak%C2%A7.&text=Public%20health%20authorities%20determine%20whether,discretion%20of%20public%20health%20authorities.

Vaccine Eligibility in Virginia

- VDH and CDC recommend vaccinating against mpox if:
  - You had known or suspected exposure to someone with mpox
  - You had a sex partner in the past 2 weeks that was diagnosed with mpox
  - You are a gay, bisexual, or other man who has sex with men or a transgender, nonbinary, or gender-diverse person who in the past 6 months has had:
    - A new diagnosis of 1 or more sexually transmitted diseases (e.g. chlamydia, gonorrhea, or syphilis) OR
    - More than 1 sex partner
  - You have had any of the following in the past 6 months:
    - Sex at a commercial sex venue (like a sex club or bath house)
    - Sex related to a large commercial event or in a geographic area (like a city or county, for example) where mpox transmission is occurring
- You have a sex partner with any of the above risks
- You anticipate experiencing any of the above scenarios

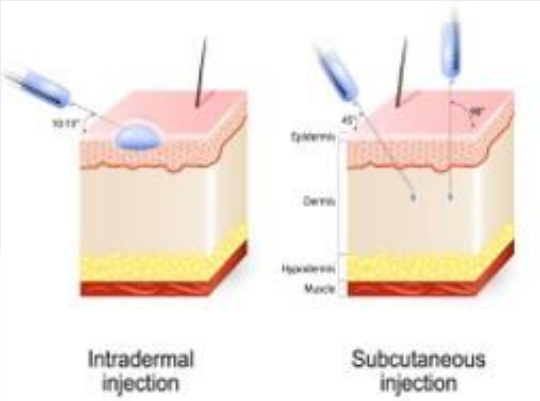
Vaccine Eligibility (Continued)

- You work in settings where you may be exposed to mpox:
  - You work with orthopoxviruses in a laboratory
  - You are part of an orthopoxvirus and health care worker response team

- Individuals may attest to meeting one or more eligibility criteria for vaccination, but should not be required to attest to a specific criterion nor should they be asked details about their eligibility

- Refer to VDH Healthcare Providers Vaccine Guidance webpage for latest guidance

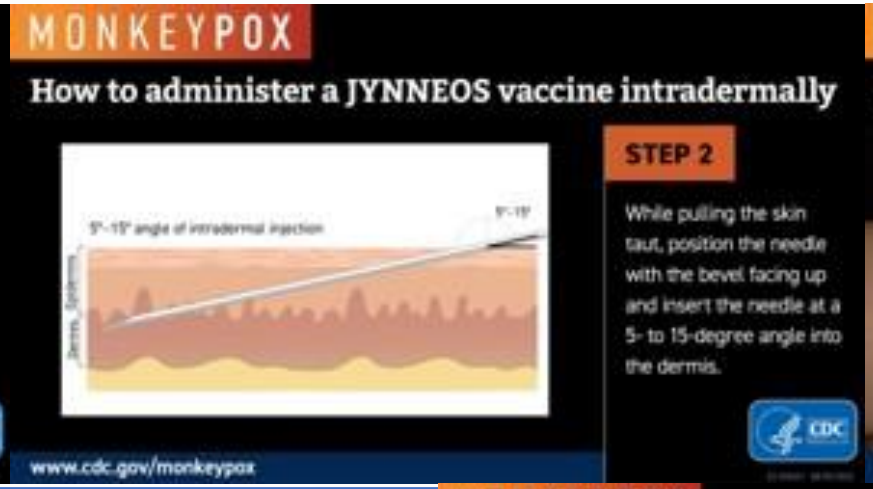
JYNNEOS



- Intradermal (ID) or subcutaneous (SQ) injection
- 2-dose series, separated by 28 days
- Considered vaccinated 14 days after second dose
- If 2nd dose not given during recommended interval, give as soon as possible
  - Don’t restart series even if 1st dose was given months or even a year ago

- Healthcare workers do not need to be vaccinated before administering
- Safe for most immunocompromised persons
- Can give at same time as other vaccines
  - Adolescents, young adult men might consider waiting 4 weeks between mpox and COVID-19 vaccines

Intradermal JYNNEOS Administration is Effective and Expands Access



https://www.cdc.gov/poxvirus/mpox/interim-considerations/jynneos-vaccine.html#:~:text=Recommended%20interval%3A%20The%20second%20dose,days%20after%20the%20first%20dose).

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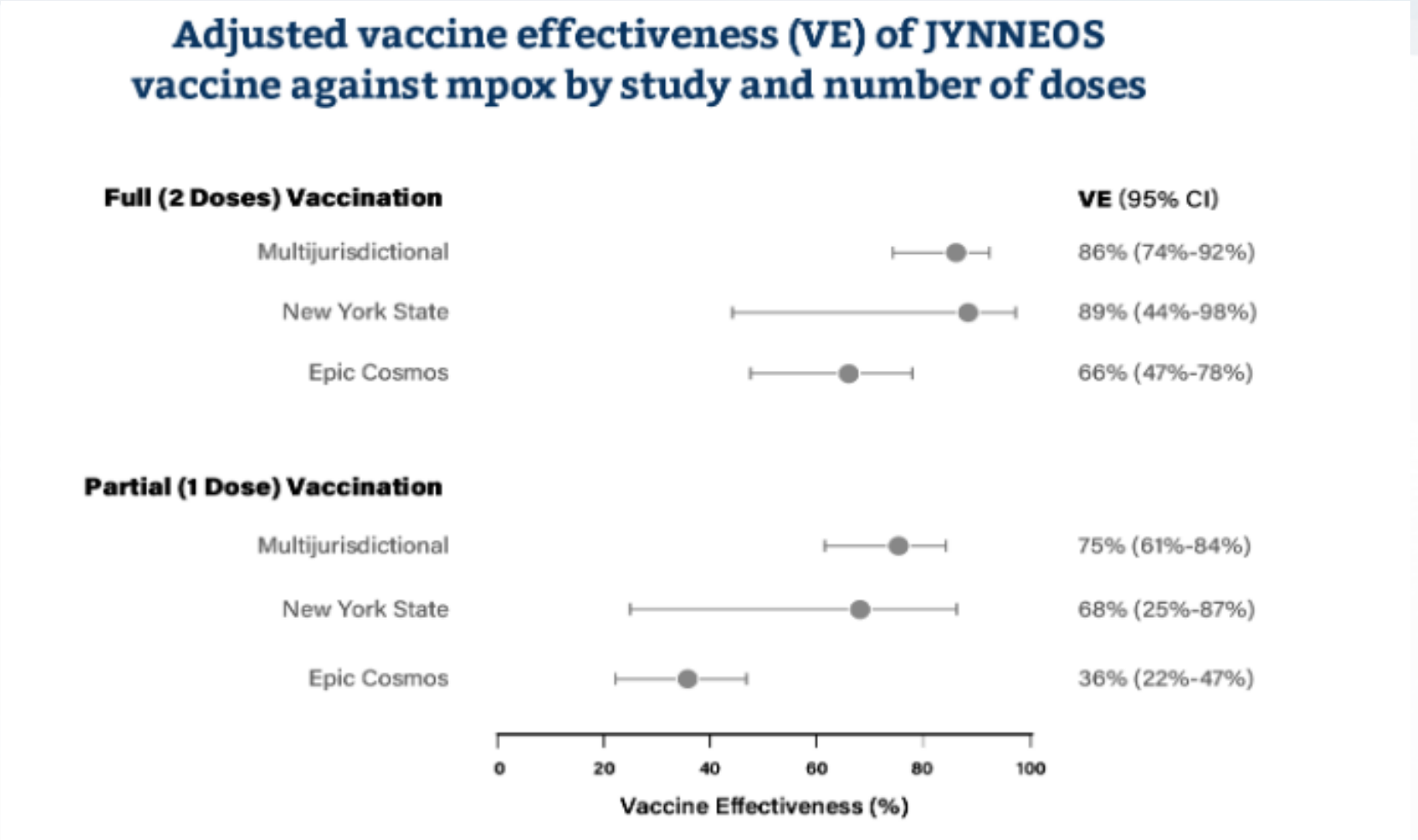
Vaccine Administration

- People with suspected or confirmed mpox should be seen by a provider for testing and treatment (if indicated), not vaccinated
- Vaccination given after the onset of signs or symptoms of mpox is not expected to provide benefit
- SQ and ID dosing regimens are interchangeable
- People of any age with a history of developing keloid scars and individuals <18 years of age should receive vaccine via the SQ route
- **Patients with concerns about ID administration due to potential stigma or other personal reasons should be offered SQ doses**
- CDC recommends providers have both SQ and ID vaccine administration options available on site
- Providers should discuss which route of administration each patient prefers (for patients ≥18 years)

JYNNEOS Vaccine Effectiveness



[CDC Vaccine Effectiveness](#) and [ACIP Meeting October 25, 2023](#)

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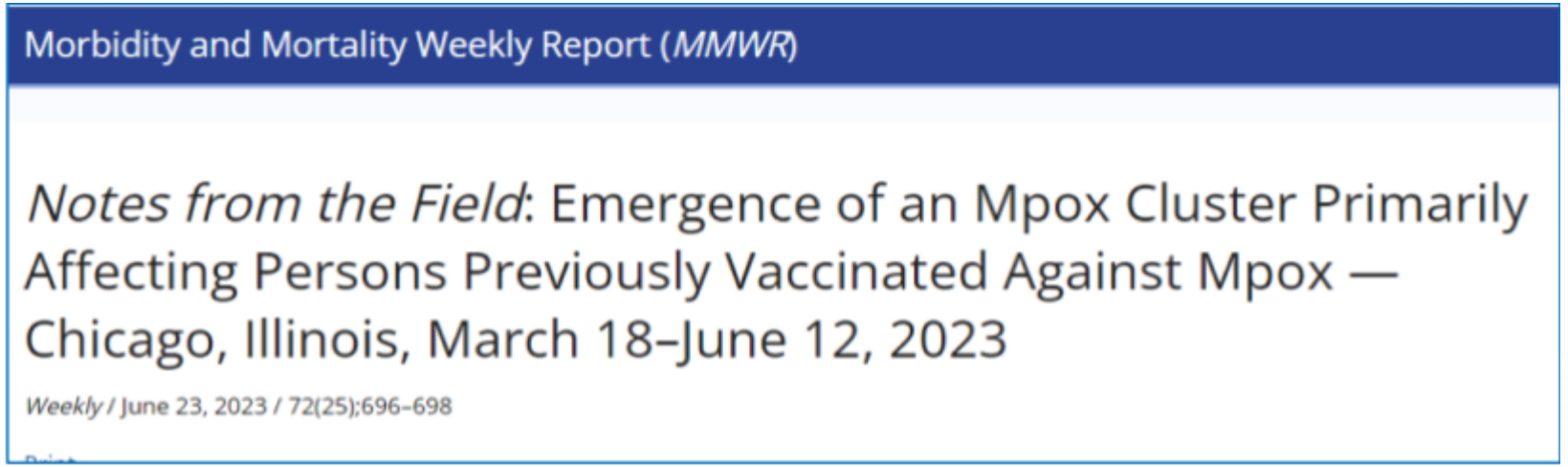
Mpox Risk After Vaccination or Prior Infection

Mpox in people with past infection or a complete vaccination course: a global case series

*Aniruddha Hazra, Jason Zucker, Elizabeth Bell, John Flores, Leanna Gordon, Oriol Mitjà, Clara Suñer, Adrien Lemaignen, Simon Jamard, Silvia Nozza, Achyuta V Nori, Edgar Pérez-Barragán, Juan Carlos Rodríguez-Aldama, Jose Louis Blanco, Constance Delaugerre, Dan Turner, Irene Fuertes, Viviana Leiro, Sharon L Walmsley, Chloe M Orkin, on behalf of SHARE-NET writing group**



Morbidity and Mortality Weekly Report (*MMWR*)

Notes from the Field: Emergence of an Mpox Cluster Primarily Affecting Persons Previously Vaccinated Against Mpox — Chicago, Illinois, March 18–June 12, 2023

Weekly / June 23, 2023 / 72(25);696–698

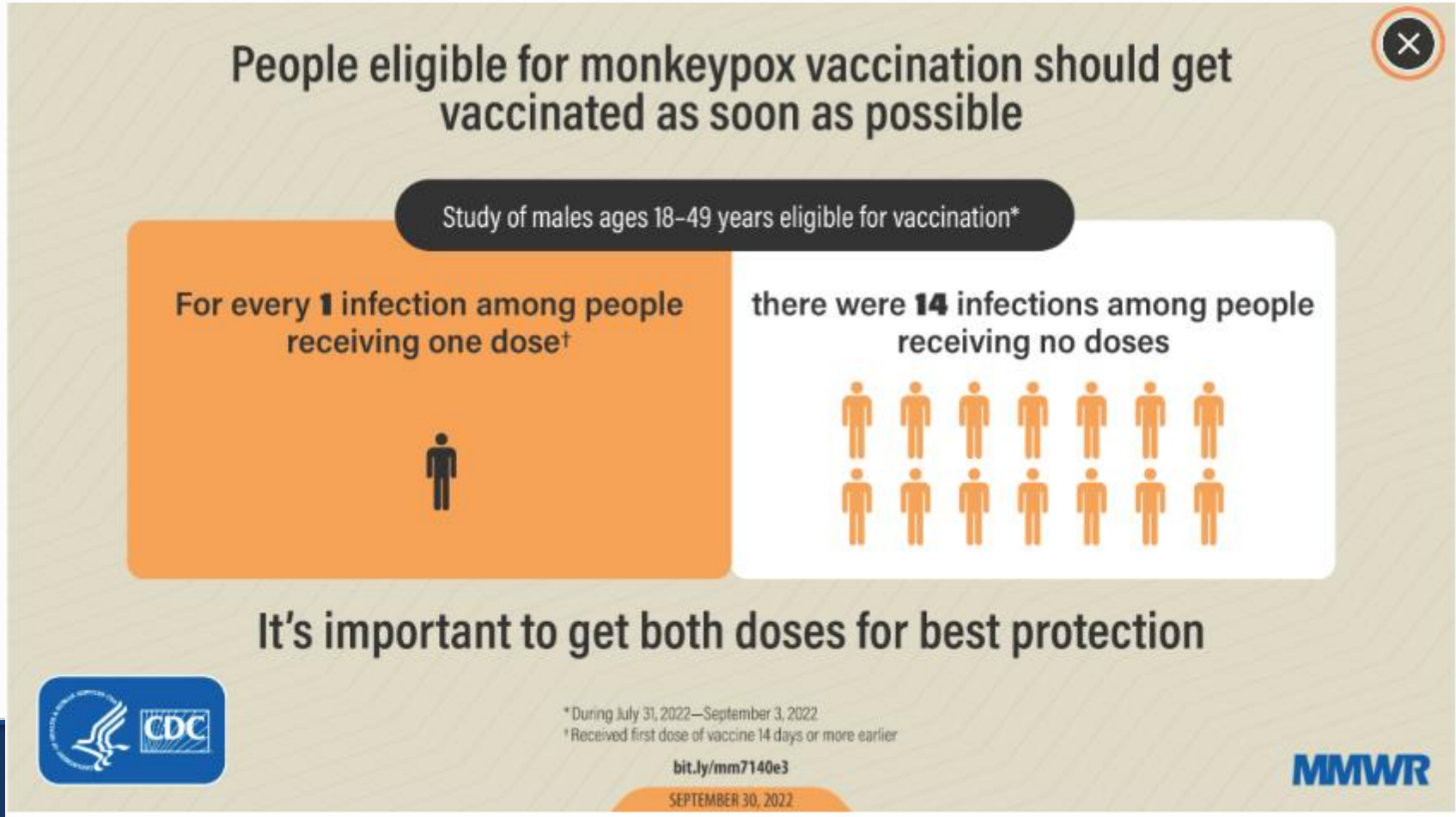
No vaccine is 100% effective. Infection after prior infection or vaccination is possible, (albeit **milder)** and less likely to result in hospitalization.

Getting vaccinated is still important

Morbidity and Mortality Weekly Report

Incidence of Monkeypox Among Unvaccinated Persons Compared with Persons Receiving ≥1 JYNNEOS Vaccine Dose — 32 U.S. Jurisdictions, July 31–September 3, 2022

Amanda B. Payne, PhD[1]; Logan C. Ray, MPH[1]; Kiersten J. Kugeler, PhD[1]; Amy Fothergill, PhD[1,2]; Elizabeth B. White, PhD[1,2];



Vaccine Effectiveness

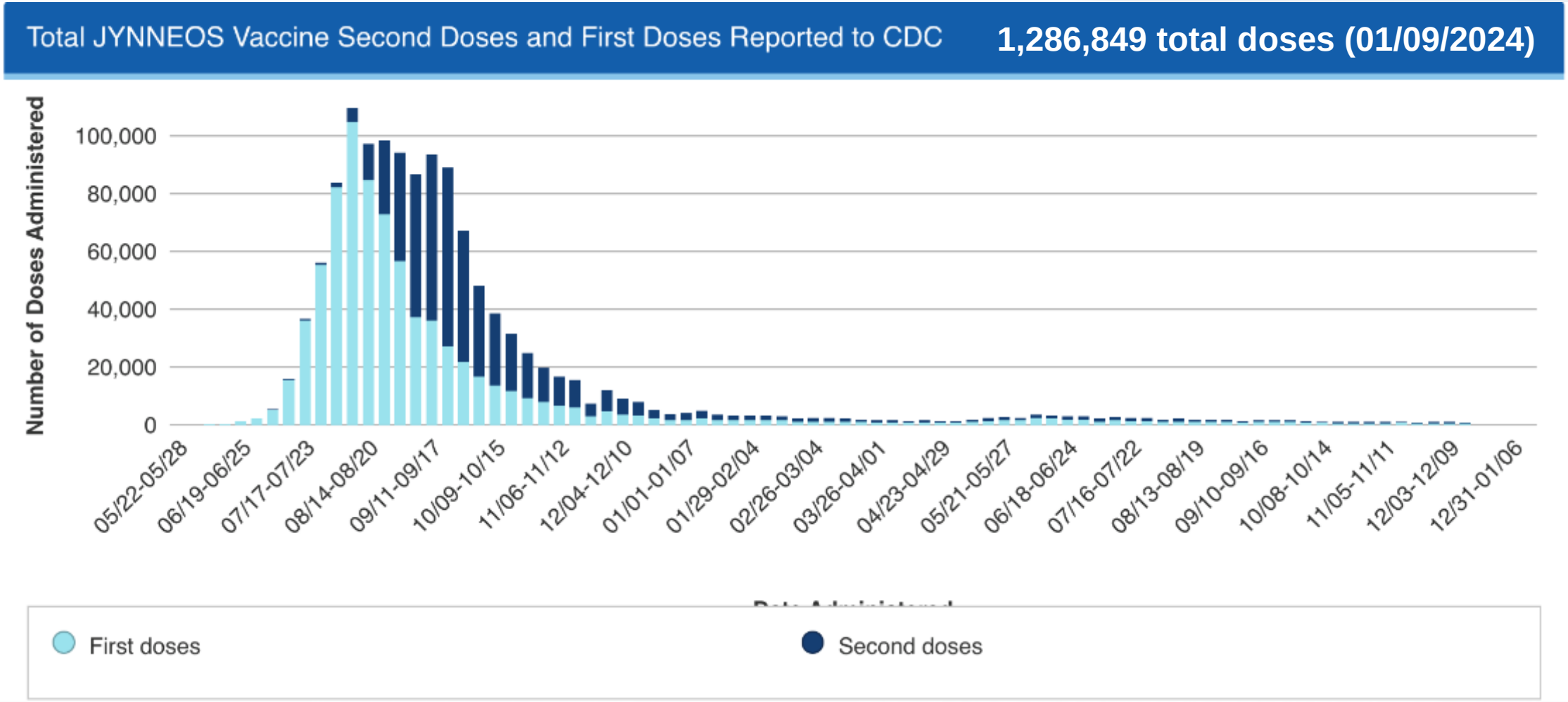
- Infections after vaccination can occur, but are milder and less likely to result in hospitalization

- Key questions remain
  - Effectiveness in people with immunocompromising conditions
  - Duration of protection or if protection decreases over time

- People who are vaccinated are encouraged to continue to protect themselves
  - Avoid close, skin-to-skin contact with people who have a rash that looks like mpox
  - Avoid contact with objects that a person with mpox has used
  - Wash hands often

MPOX RISK PERSISTS IN THE BACKGROUND

Improved Mpox Vaccine Uptake is Needed to Prevent Future Outbreaks and Severe Disease



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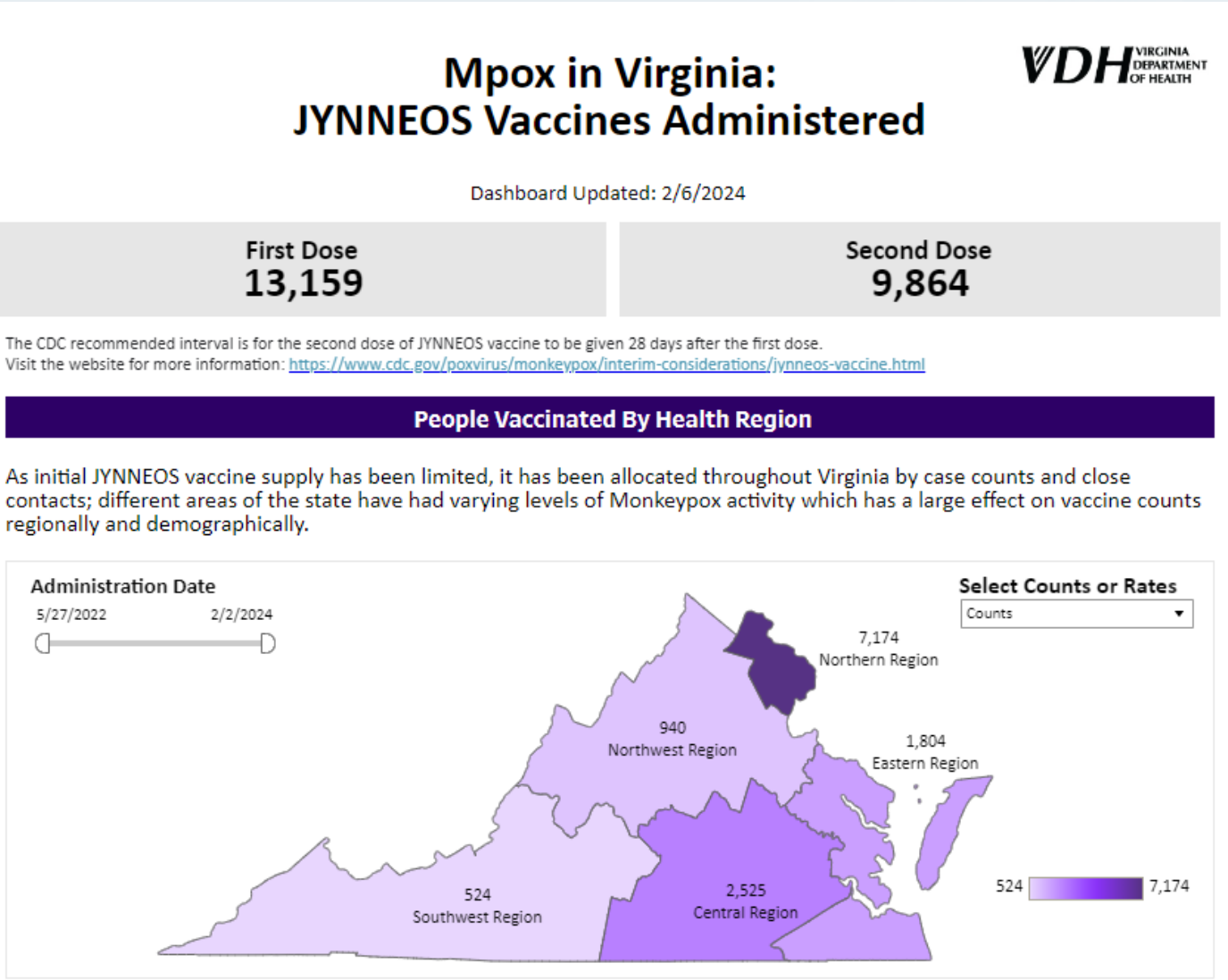
VDH Vaccine Administered Dashboard

- Launched August 2022
- 13,159 first doses and 9,864 second doses given to date
- Data as of 02/06/2024

*data as of 2/06/2024
VDH_Vaccine Administration Data



EXPANDING ACCESS THROUGH ROUTINE SCREEENING AND REFFERAL – A CHECKLIST APPROACH

WHAT IS MY RISK?	Response [Y] [N]
You had known or suspected exposure to someone with mpox	[Y] [N]
You had a sex partner in the past 2 weeks that was diagnosed with mpox	[Y] [N]
You are a gay, bisexual, or other man who has sex with men or a transgender, nonbinary, or gender-diverse person who in the past 6 months has had:	
A new diagnosis of 1 or more sexually transmitted diseases (e.g. chlamydia, gonorrhea, or syphilis)	[Y] [N]
More than 1 sex partner	[Y] [N]
You have had any of the following in the past 6 months	
Sex at a commercial sex venue (like a sex club or bath house)	[Y] [N]
Sex related to a large commercial event or in a geographic area (like a city or county, for example) where mpox transmission is occurring	[Y] [N]
You have a sex partner with any of the above risks	[Y] [N]
You anticipate experiencing any of the above scenarios	[Y] [N]

A sample self-administered survey form

Look at the following questions

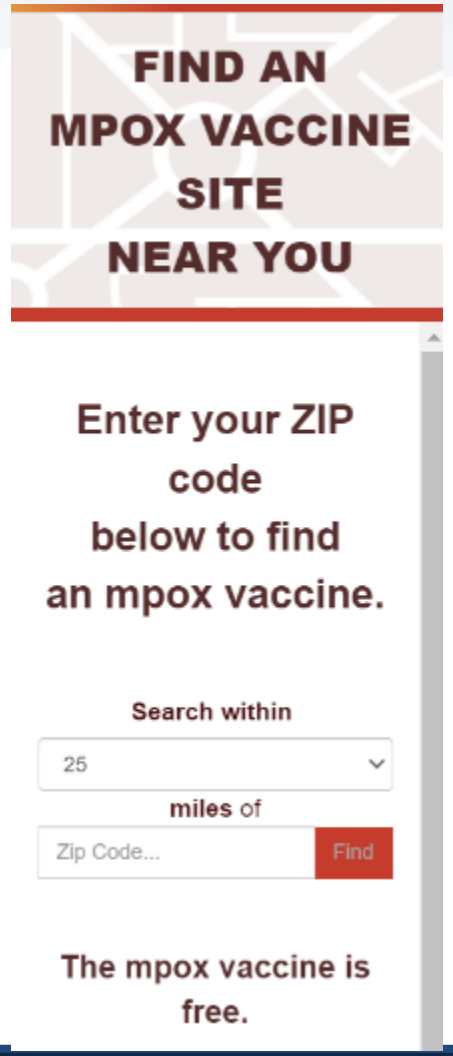
If you answer yes to any of the questions, ask your provider about the mpox vaccine or call your local health department for more information

May add Mpox vaccine locator as a QR code

CDC Mpox Vaccine Locator

- CDC has developed an mpox vaccine locator tool to help people find a location closest to them

- [CDC Mpox Vaccine Recommendations webpage]



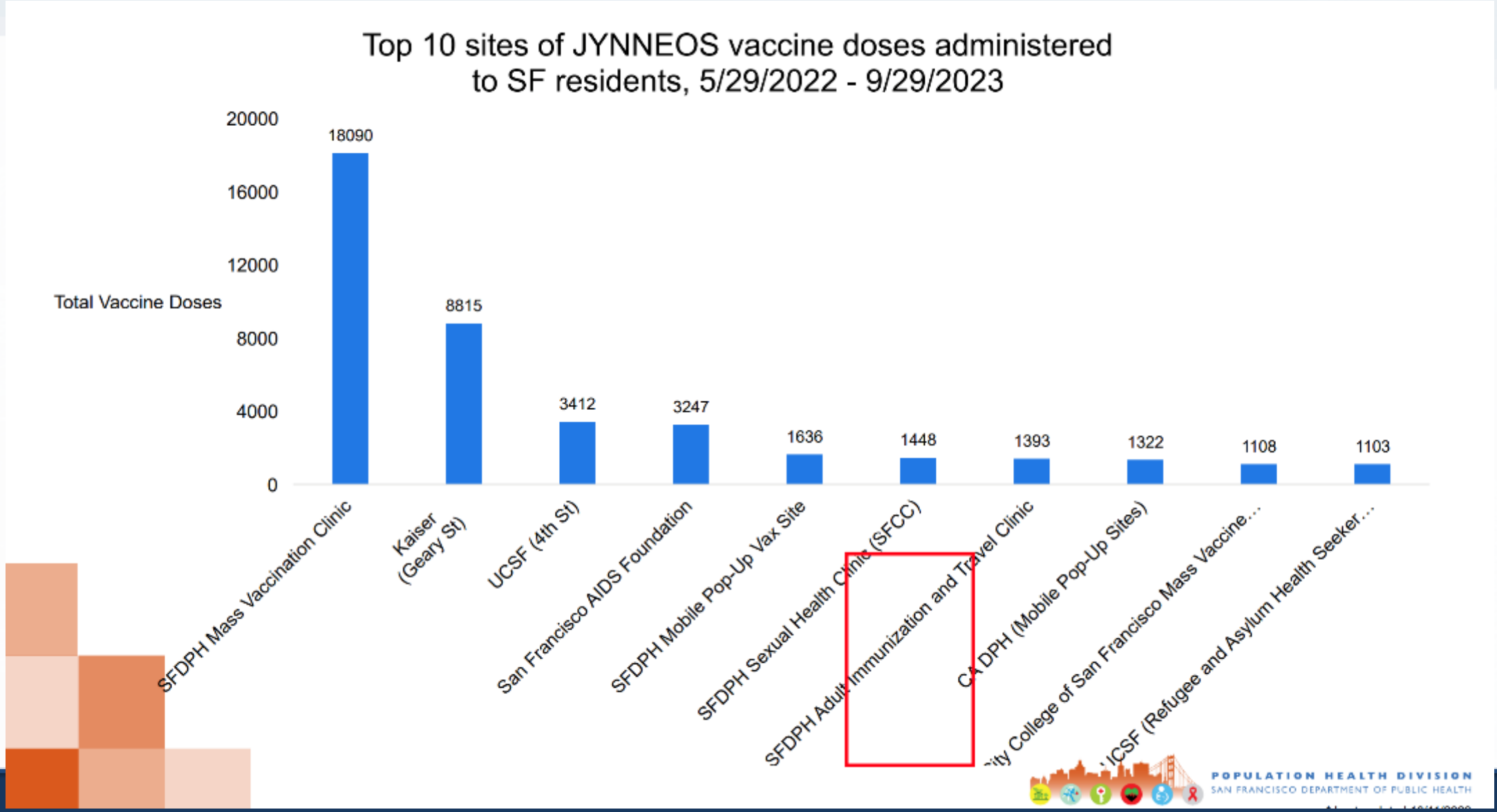
EXPANDING ACCESS THROUGH COMMUNITY PARTNERS
Vaccination by Non-LHD Providers

- As of October 2022, non-LHD, trusted providers can order and administer JYNNEOS
  - Trusted partners were compiled with LHD input

- Instructions for ordering and administering vaccine available on the VDH Healthcare Providers Vaccine Guidance webpage

VDH Healthcare Provider Vaccine Guidance

THE SAN FRANCISCO CITY CLINIC STORY



POPULATION HEALTH DIVISION
SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH

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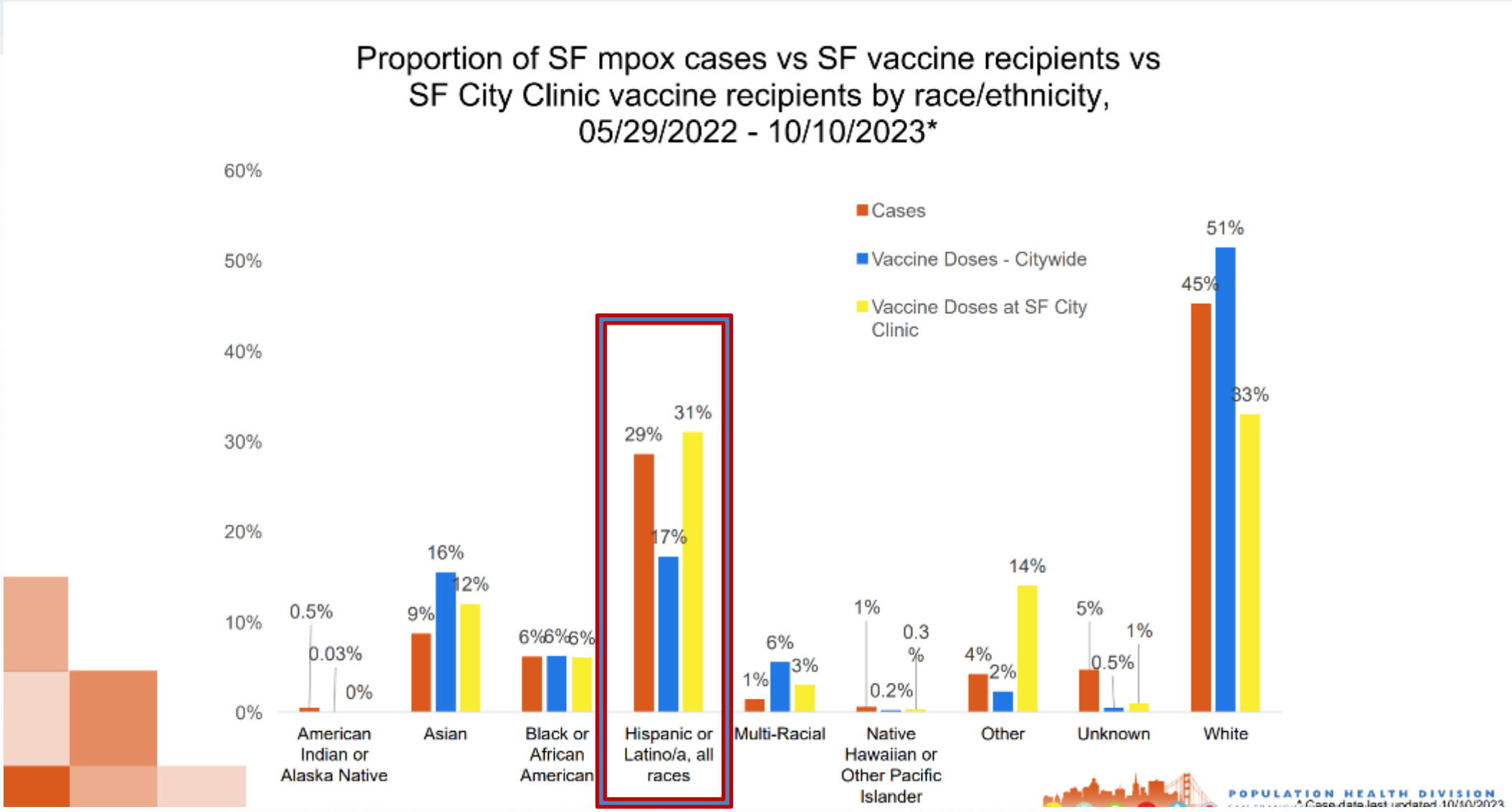
THE SAN FRANCISCO CITY CLINIC STORY



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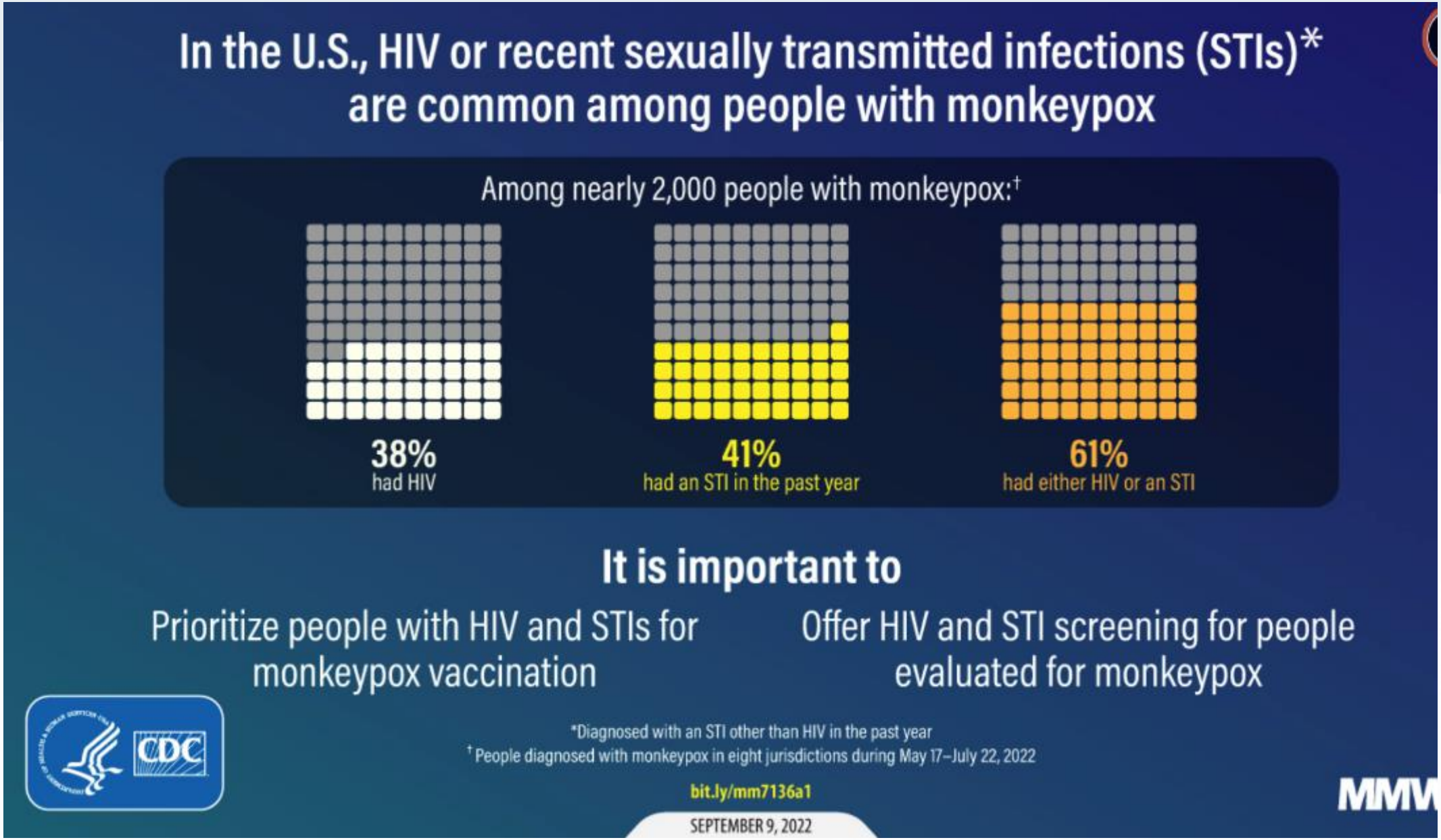
MPOX SHOULD BE INTEGRATED INTO HIV AND SEXUAL HEALTH CARE USING A “SYNDEMIC” APPROACH



Curran KG, et al. HIV and Sexually Transmitted Infections Among Persons with Monkeypox — Eight U.S. Jurisdictions, May 17– July 22, 2022. MMWR Morb Mortal Wkly Rep 2022;71:1141–1147

Persons who require treatment for STDs – eg syphilis, chlamydia, gonorrhea should be evaluated for risk of contracting Mpox and offered the vaccine if the risk exists

Offer HIV and STI screening plus preventative strategies for persons who present with Mpox

HPV
Hepatitis A
Hepatitis B

WHAT ABOUT VACCINE HESITANCY?

WHO Global Health Threats - 2019

Air pollution and climate change

Noncommunicable diseases

Global influenza pandemic

Fragile and vulnerable settings

Antimicrobial resistance

Ebola and other high-threat pathogens

Weak primary health care

Vaccine hesitancy

Dengue

HIV

https://www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019 (accessed 01/30/2024)

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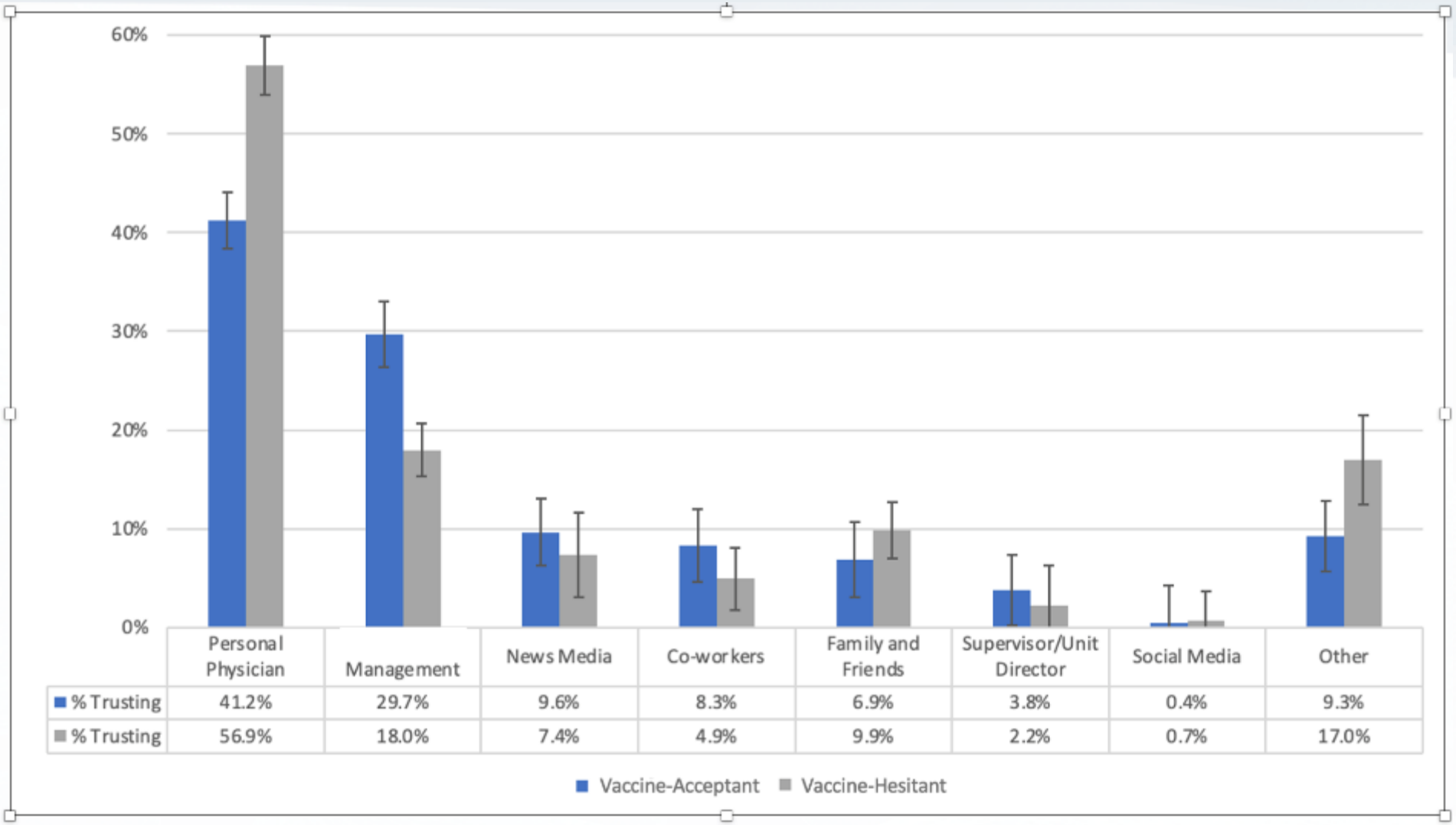
Trusted Sources of Vaccine Information

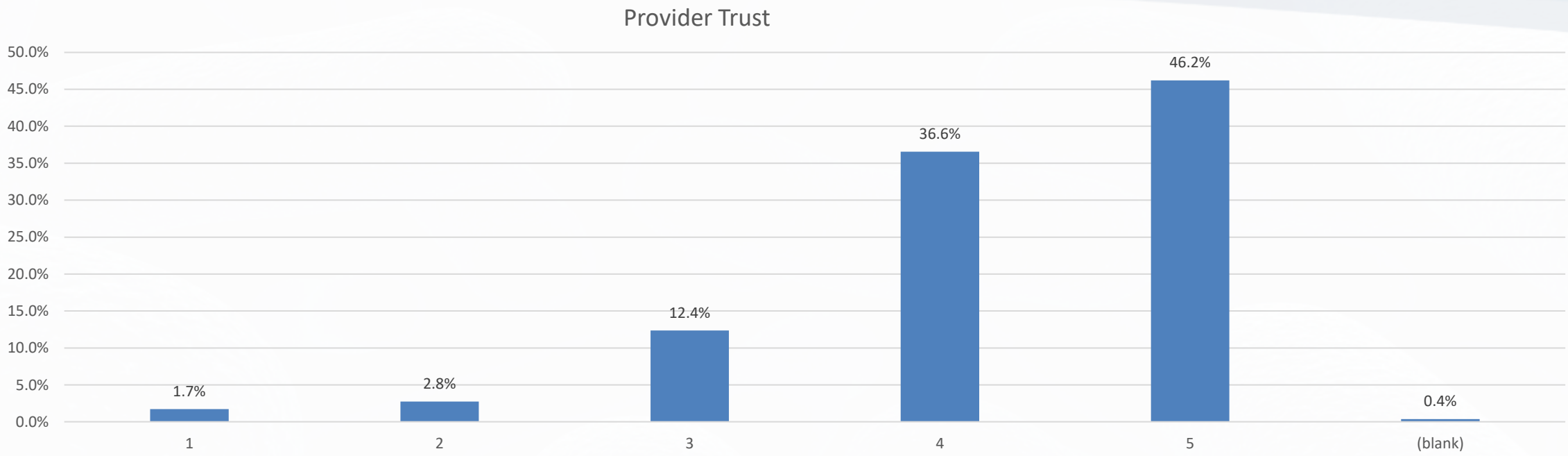


	Personal Physician	Management	News Media	Co-workers	Family and Friends	Supervisor/Unit Director	Social Media	Other
% Trusting	41.2%	29.7%	9.6%	8.3%	6.9%	3.8%	0.4%	9.3%
% Trusting	56.9%	18.0%	7.4%	4.9%	9.9%	2.2%	0.7%	17.0%

Swann MC, Bendetson J, Johnson A, Jatta M, Schleupner CJ, Baffoe-Bonnie A. Examining Drivers of COVID-19 Vaccine Hesitancy Among Healthcare Workers [published online ahead of print, 2022 Feb 14]. *Infect Control Hosp Epidemiol*. 2022;1-40. doi:10.1017/ice.2022.34

CARILION CLINIC

The Majority of Patients Trust Their Providers to Give them Good Advice



AMS Community Survey
Provider Trust

I trust my doctor's/nurse's advice as to whether I need antibiotics or not

Monkeypox (Mpox) Vaccine Hesitancy Among Mpox Cases: A Qualitative Study

Harit Agroia, DrPH, MPH, Emily Smith, MPH, [...], and Monika Roy, MD, MS +2 View all authors and affiliations

OnlineFirst | https://doi.org/10.1177/15248399231215054

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The purpose of this study was to assess vaccine knowledge, facilitators, and barriers to vaccine uptake among individuals previously diagnosed with mpox, or mpox cases, in Santa Clara County, California.

Among the 47 participants, 36 (77%) had heard of mpox before diagnosis, and of these, 20 (56%) did not think they were at risk of developing mpox, and 28 (78%) were aware that a vaccine was available.

Those who did not receive the vaccine stated vaccine access and availability were the main barriers. Among the six participants not interested in the vaccine, the main hesitancies were lack of perceived risk, stigma of being branded by scarring and labeled gay, and vaccine safety.

Overall, the following themes were attributed to reasons for vaccine hesitancy: (a) lack of awareness of the disease and vaccine, including perceived risks; (b) **lack of vaccine availability and accessibility**; and (c) **stigma associated with receiving the vaccine**, including being publicly labeled as “gay” and the scarring on forearm potentially seen as branding.

Tailoring outreach and educational campaigns to address reasons for mpox vaccine hesitancy.

Mpox Takeaways: What Providers Can Do

- **Cases and news coverage substantially decreased, but mpox is still spreading and risk remains**
  - Promote vaccination and increase awareness
  - Use educational materials available on VDH Communications Resources website or CDC website
  - Integrate mpox services into HIV and STI clinics and include mpox on your Sexual Health checklist

- **JYNNEOS vaccine is safe, effective, and the best way to protect people at risk and stop the spread**
  - Both doses offer the best protection - it is never too late to get the 2nd dose

- **If you aren't administering vaccine, consider doing so. If not possible, refer people to Mpox Vaccine Locator**

- **Stay connected**
  - Sign up for VDH Healthcare Professional Newsletters and CDC COCA Updates
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