

Summary Points

Black and Latino populations have higher mpox case rates compared to White and Asian populations. Black and Latino populations have lower rates of mpox vaccination compared to White and Asian populations. Racial and ethnic mpox case and vaccination disparities were seen in the Virginia population as a whole and also in the men who have sex with men subpopulation. The ratio of vaccinated individuals to cases is highest among the Asian population and lowest among the Black population.

HUMAN MPOX OUTBREAK IN VIRGINIA, 2022

Mpox is an infectious viral disease that occurs in humans and some animals. It is endemic to central and western African countries with previous outbreaks usually originating from contact with infected wild animals. Typically, mpox presents with a 2-4 day prodrome of flu-like symptoms, followed by a rash, with transmissibility generally occurring only after rash presentation. Mpox can spread through respiratory droplets, contact with body fluids or lesions, and potentially contact with contaminated objects (e.g. clothing or linens).

The mpox outbreak in 2022 is the first documented multi-country outbreak occurring in countries where mpox is not endemic. The current outbreak has been atypical in several ways, including confirmed human-to-human transmission, the absence of a prodrome or rash in some patients, and the frequent occurrence of patients presenting with genital or perianal ulcers. The majority of cases in the current outbreak identify as men who have sex with men (MSM), and about 40% have HIV coinfection; however, mpox can be acquired by anyone, regardless of gender identity or sexual orientation.

Methods

Data used for case analysis was acquired through the Virginia Electronic Disease Surveillance System (VEDSS) which automatically receives mpox positive laboratory results. All case data presented in this analysis are confirmed cases of mpox which are those with a positive laboratory test. This report characterizes mpox cases by “event date” within the VEDSS system. Event date is defined as illness onset date or test collection date if onset date is unavailable. Case data consists of all cases with onset from May 1 - August 31, 2022 and reported as of September 26. Cases reported after this date are included in Figure 1, but are not included in the additional case analysis. Data used for vaccination analysis was acquired through the Virginia Immunization Information System (VIIS), a statewide registry system that receives vaccination history for all Virginians. Vaccination data is inclusive of any JYNNEOS vaccines administered from May 1 - August 31, 2022 and reported as of October 26. Individuals vaccinated after this date are included in

Figure 3, but not in the additional vaccination analysis. Demographic analysis includes first vaccine recipients only. To compare mpox cases and vaccinations by race/ethnicity, rates were calculated per 100,000 population.¹ To compare cases and vaccinations among males over the total MSM population by race and ethnicity, rates were calculated per 10,000. MSM rates were based on previous methodology and estimated MSM populations in the Commonwealth, stratified by race and ethnicity.² Asian and Pacific Islander MSM population estimates were not available. A rate is a common calculation used in public health that offers a standardized way to compare the burden of a health condition across different geographic areas, demographics, and time. This rate can then be compared to rates from other areas or demographic populations, regardless of population size. The race and ethnicity data presented follow VDH reporting guidelines.³

Results

Mpox Cases. There were 395 total mpox cases in Virginia between May and August 31, 2022. Of these cases, 381 (96.5%) report male sex and 14 (3.5%) report female sex. Of 110 (27.8%) cases who reported having an immunocompromising condition, 104 (94.5%) reported being HIV positive. Of those who reported symptoms,

71.6% reported a rash: 12.9% reported a rash on their genitals, 7.1% reported a rash on their arms, and 7.1% reported a rash in their perianal region. Figure 1 shows cases by onset week and includes cases with onset through September 4, 2022 to ensure a full week of data is depicted.

¹ This analysis is based on population data from the [2020 National Center for Health Statistics Estimates](#)

² [Estimating the Population Sizes of Men Who Have Sex With Men in US States and Counties Using Data From the American Community Survey: Estimating the Number of Men Who Have Sex with Men by Race/Ethnicity at the County Level in Texas](#)

³ [VDH Race and Ethnicity Reporting Update](#)

Figure 1. Mpox Cases by Week of Illness Onset Date, Virginia, May – August 2022

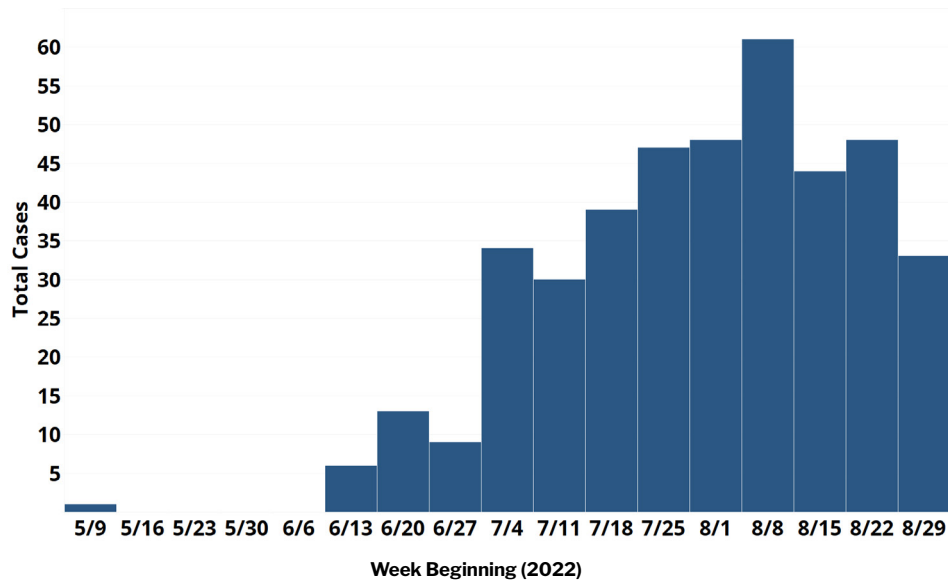
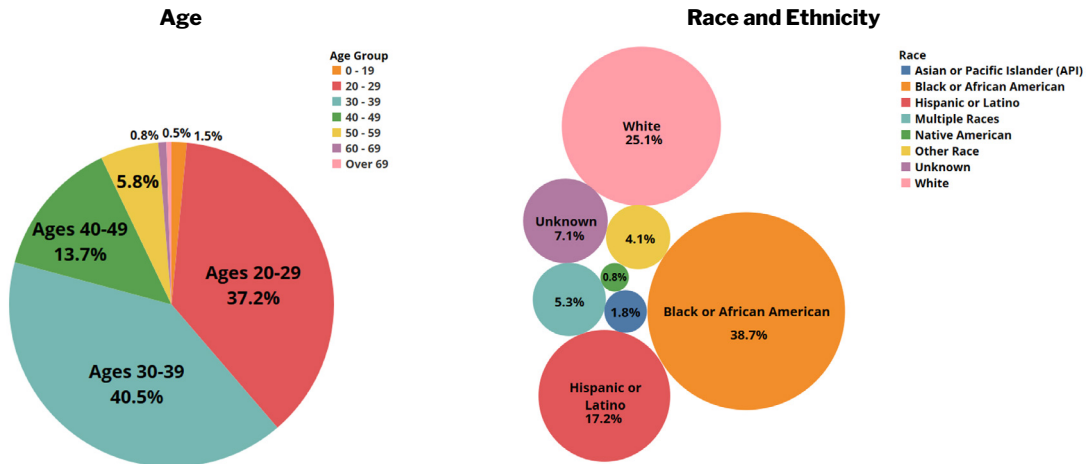


Figure 2. Mpox Case Demographics, Virginia, May – August 2022



Mpox Vaccinations. From May 1, 2022 until August 31, 2022 there were 7,787 individuals who had received at least one dose of JYNNEOS vaccine in Virginia. Of these, 7084 (91.0%) were persons who reported male sex at birth, 677 (8.7%) were persons who reported female sex

at birth, and 26 (0.3%) were unknown. Figure 3 shows vaccination date by week and includes vaccinations through September 4, 2022 to ensure a full week of data is depicted.

Figure 3. Mpox Vaccination Date, Virginia May – August 2022

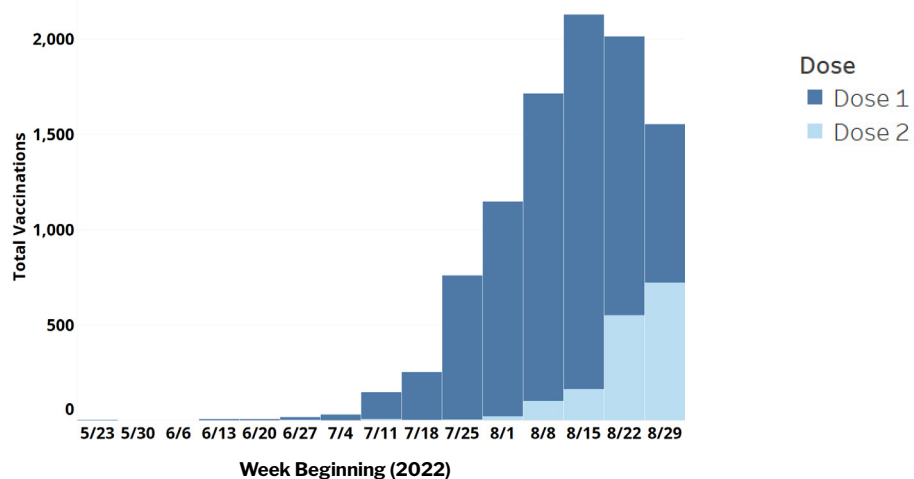
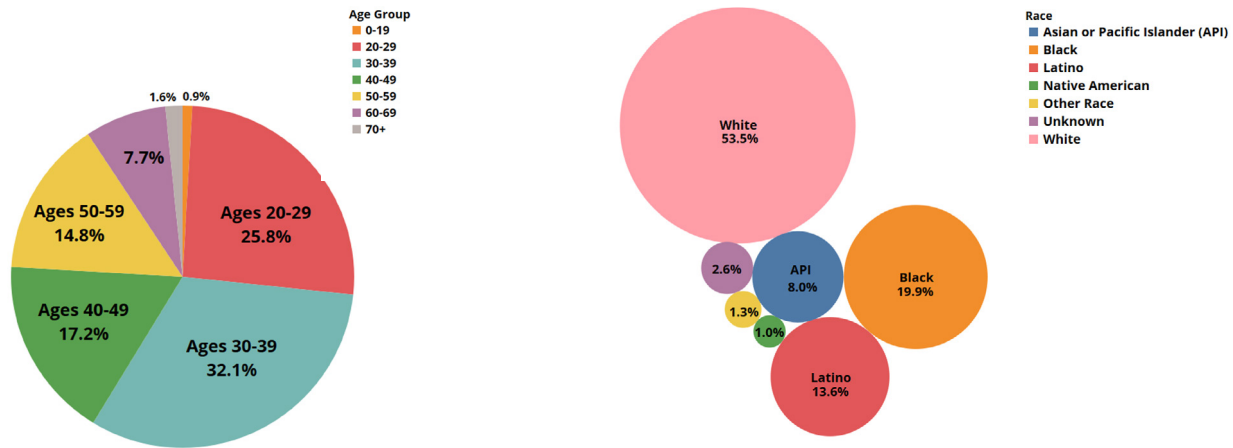


Figure 4. Demographics of Mpox Vaccination Recipients, Virginia, May – August 2022



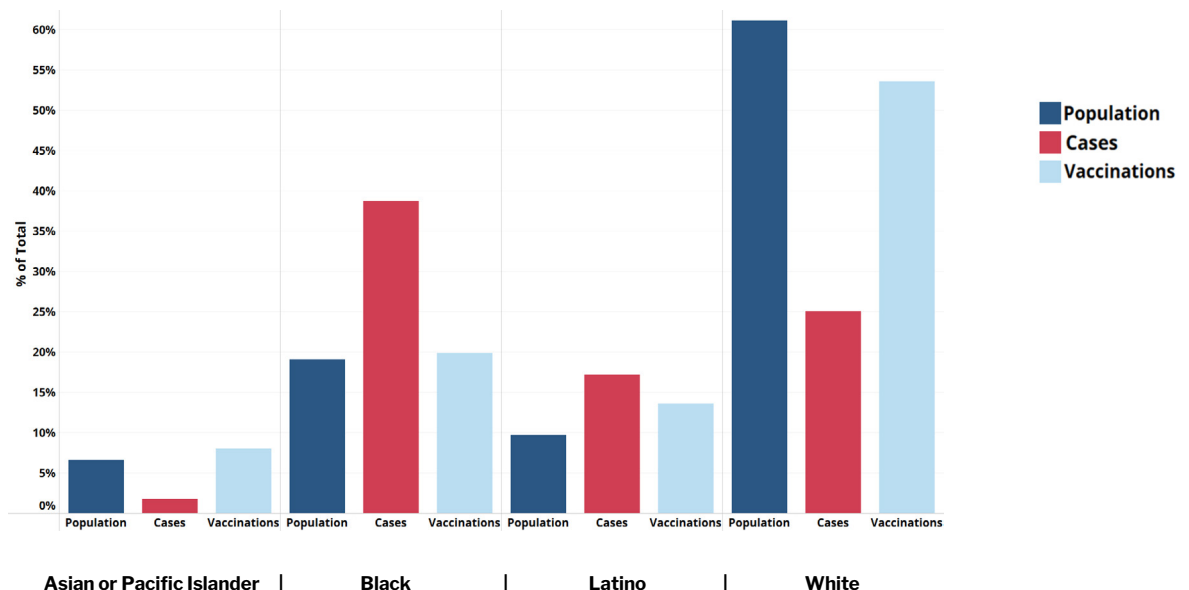
Mpox Cases and Vaccinations by Race and Ethnicity. Mpox case and vaccination rates and vaccination rate/case rate ratios varied substantially by race/ethnicity as

seen in Table 1. Figure 5 shows monkeypox cases and vaccination percentages by race/ethnicity compared to the total Virginia population by race/ethnicity.

Table 1. Mpox Cases and Vaccinations by Race and Ethnicity, Virginia, May – August 2022

Race and Ethnicity	Cases	Cases Per 100,000	Individuals Vaccinated	Individuals Vaccinated per 100,000	Vaccination Rate/Case Rate Ratio
Asian or Pacific Islander	7	1.1	626	96.3	89.4
Black	153	8.9	1,553	90.2	10.2
Latino	68	8.0	1,058	123.7	15.6
White	99	1.9	4,163	78.0	42.1

Figure 5. Mpox Cases and Vaccinations by Race and Ethnicity Compared to Percent of Total Population of Virginia, May – August 2022



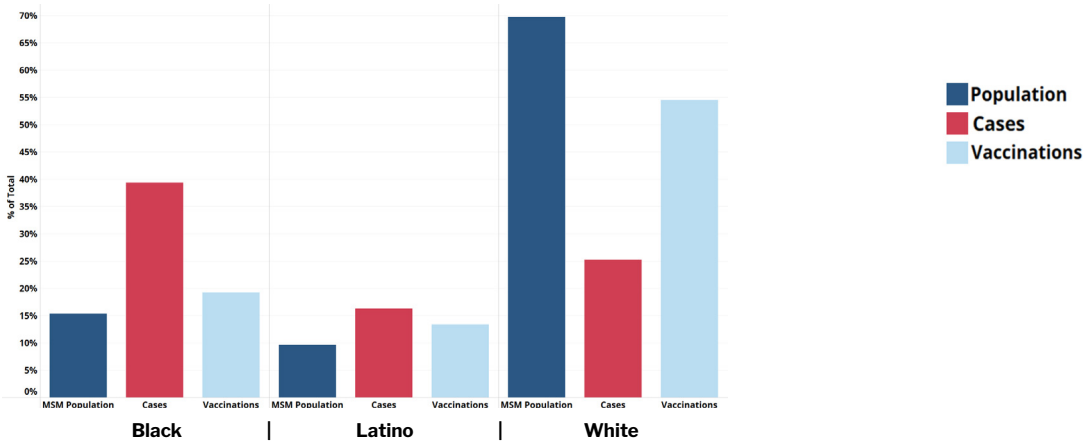
Mpox Cases and Vaccinations by Race and Ethnicity Among MSM. Data suggest that men who have sex with men (MSM) make up the majority of cases in the current mpox outbreak, with an estimate that 94% of U.S. cases were MSM.⁴ Among the Virginia cases through August, of 152 (40%) males with mpox who identified their sexual orientation, 130 (86%) identified as gay and 10 (7%) identified as bisexual. The estimates

in Table 2 show case rates and vaccination rates by race/ethnicity among the MSM population in Virginia. Cases per 100,000 and individuals vaccinated per 10,000 refers to number of males over that number of people in the MSM population for each race. Figure 6 shows mpox cases and vaccination percentages by race/ethnicity compared to the population of MSM by race/ethnicity.

Table 2: Mpox Cases and Vaccinations by Race and Ethnicity Among the MSM Population, Virginia May – August 2022

Race and Ethnicity	Cases	Cases Per 100,000	Individuals Vaccinated	Individuals Vaccinated per 10,000	Vaccination Rate/Case Rate Ratio
Black	150	39.9	1,363	362.8	9.1
Latino	62	26.2	950	401.6	15.3
White	96	5.6	3,859	225.8	40.2

Figure 6: Mpox Cases and Vaccinations Among Males by Race and Ethnicity Compared to Percent of MSM Populations in Virginia, May – August 2022



While not the main focus of this report, cases and vaccinations also varied by age group. Individuals aged 20-29 years received a disproportionately low number of vaccinations: 37.2% of cases were among

individuals aged 20-29, but this age group received only 25.8% of vaccinations. 20.8% of cases were among individuals aged 40 and older, but they received 41.2% of vaccinations.

Discussion

Analysis of mpox cases and vaccinations by race and ethnicity, compared to their populations in Virginia revealed several disparities. Black and Latino individuals had disproportionately high mpox case rates compared to White and Asian populations. Case rates for Black individuals were about five times that of White individuals; case rates for Latino individuals were about four times that of White individuals. Black and Latino individuals received a disproportionately low number of vaccinations compared to their share of mpox cases. For every one mpox case among Black individuals, there were 10.2 individuals vaccinated; for every one mpox

case among Latino individuals, 15.6 individuals were vaccinated. For every one mpox case among White individuals, 42.1 individuals were vaccinated.

When stratified by the MSM subpopulation, there were similar case and vaccination disparities seen by race/ethnicity. In this subpopulation, compared to White males, Black males had about seven times the mpox case rates; and Latino males had close to five times the case rates.

⁴Philpott D, Hughes CM, Alroy KA, et al. Epidemiologic and Clinical Characteristics of Monkeypox Cases — United States, May 17–July 22, 2022. MMWR Morb Mortal Wkly Rep 2022;71:1018-1022. DOI: <http://dx.doi.org/10.15585/mmwr.mm7132e3>

Limitations

The data in this report do not encompass all the cases in the mpox outbreak in Virginia, but those from the first four months. While this time was selected to capture the majority of cases in the outbreak, the demographic breakdown of cases and those vaccinated after this four-month time period was not included.

An estimate of the subpopulation of MSM in Virginia was used for some analyses in this report. While female mpox cases were removed for analyses of MSM, all male cases were included. This may have included males who do not identify as MSM.

The report discusses vaccinated individuals. While JYNNEOS vaccine is a two-dose series, this report defines vaccinated individuals as individuals who have received one or more vaccine doses. Virginia residents might have only received mpox vaccinations in other states and these individuals would not be included as vaccinated in this report.

This analysis did not include a review of the geographic distribution of mpox cases and vaccinations. The distribution of cases and vaccinations by region should also be considered to ensure resources are appropriately distributed.

Recommendations

Virginia stakeholders should continue a multi-pronged approach to mpox that embraces a collection of activities and efforts. These recommendations are cross-cutting and may entail a variety of community partners and organizations to address the following domains:

- **Surveillance:** Tracking case and vaccination disparities by region, race/ethnicity, and age group to determine in which populations and communities vaccination is not keeping up with case rates
- **Vaccination:** Draw on successful vaccination pop-up clinics, grassroots community organization messaging, and multi-sector listening sessions to understand how to best bridge unmet vaccination needs of the higher risk groups (Black, Latino, MSM)
- **Treatment:** Disseminate clear and timely clinical guidance to providers and health systems on treatment protocols, and encourage clinicians to remain engaged with high-risk groups and local health districts
- **Behavioral:** Develop accessible and intentional messaging to the public on high-risk behaviors, evolving treatments, and vaccination clinics that can decrease stigma around mpox and encourage safe, health-seeking behavior