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Mpox Reinfections in California, May 2022 to August 2024

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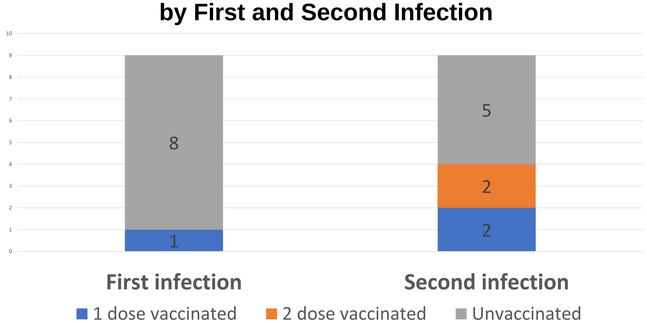
BACKGROUND

- At the onset of the 2022 global mpox outbreak, infection from *monkeypox virus* (MPXV) was believed to offer long-term immunity.
- However, the first mpox reinfection in California was detected in April 2023.
- **We sought to identify the frequency of mpox reinfections and associated characteristics to develop clinical and public health guidance to mitigate mpox morbidity.**

METHODS

- We reviewed laboratory confirmed mpox cases in California from May 2022 to August 2024 for possible mpox reinfection, defined as two positive PCR results >60 days apart.
- Possible reinfections underwent medical chart review to verify symptom resolution between test results.
- Cases were classified as suspect, probable, or confirmed per the CDC case definition of mpox reinfection. Confirmed mpox reinfection requires genetic variation between MPXV sequences from two separate episodes.
- Specimens from both episodes of mpox infection were sought from local health jurisdictions/laboratories to conduct genetic sequencing to confirm reinfection.
- Epidemiological descriptive analyses were done using R software.

Figure 1. Number of JYNNEOS Vaccinations by First and Second Infection



While rare, **mpox reinfection can occur** and may be underrecognized. Clinicians should consider mpox in patients with clinically compatible symptoms despite previous infection.

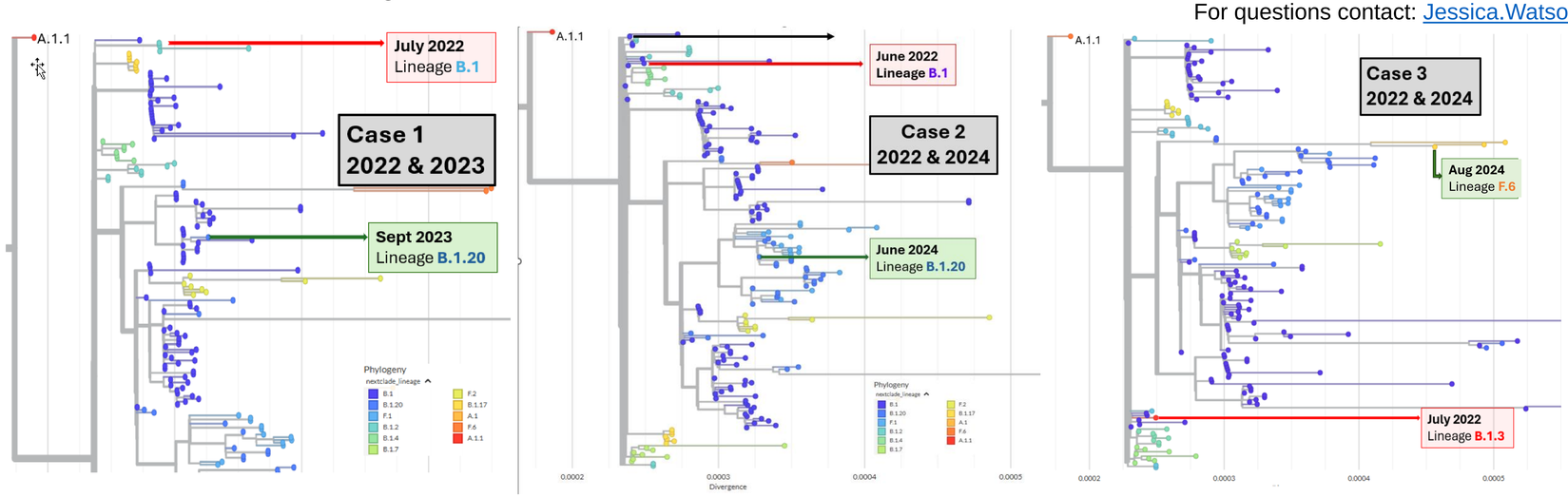
RESULTS

Out of 6476 reported mpox cases, 9 (0.14%) confirmed/probable mpox reinfections were identified and had the following characteristics:

- Age ranged from 26 to 59 years
- All reported being gay, bisexual, or a man who has sex with men
- 56% were Hispanic/Latinx
- 44% were living with HIV
- Time interval between infections was 266 to 778 days (median 448 days)
- Number of sexual partners ranged from 1-10 for first infection and 1-15 for second infection

Three cases had samples available from both infections. Whole genome sequencing (WGS) identified distinct clade IIb MPXV lineages across time, confirming reinfection in all three cases (Figure 2).

Figure 2. The phylogenetic trees highlight the two distinct clade IIb MPXV lineages from both infections in Cases 1-3, confirming reinfection for each case.



LIMITATIONS

- **Mpox reinfection may be underrecognized either due to mild or subclinical disease, undertesting, or lack of recognition.**
- Comparisons of severity data were inconclusive due to missing data and low sample size.

CONCLUSIONS

- **While rare, reinfection with mpox can occur.**
- Clinicians should consider mpox in patients with compatible symptoms even if they have been previously infected with MPXV.
- More research is needed to understand the risk factors, need for vaccination post-infection, and clinical outcomes among people who are infected with mpox multiple times.

ACKNOWLEDGEMENTS

California Local Health Departments/Labs for facilitating medical chart and specimen acquisition, and CDPH STD and VRDL staff, including Monica Haw and Chantha Kath for their WGS work.

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The findings and conclusions in this presentation are those of the author(s) and do not necessarily represent the views or opinions of the California Department of Public Health or the California Health and Human Services Agency.