Monkeypox clade IIb in France in 2023–2024

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Few cases of Clade IIb monkeypox virus (MPV) have been reported in Europe since the end of the WHO emergency in May 2023. This study describes mpox cases diagnosed in France and identified through the National Society for Infectious Diseases' mailing list. All cases were confirmed by PCR on skin and/or genital swab samples.

Between August 2023 and July 2024, 36 patients with MPV clade IIb were identified in 13 hospitals and sexual health clinics in France, mostly in Paris. The number of cases was consistent throughout the year. The median age was 32 years [IQR 29–38], with 32 (88%) men, including 28 (87%) men who have sex with men (MSM). All tested positive for MPV PCR [median Ct 23, IQR

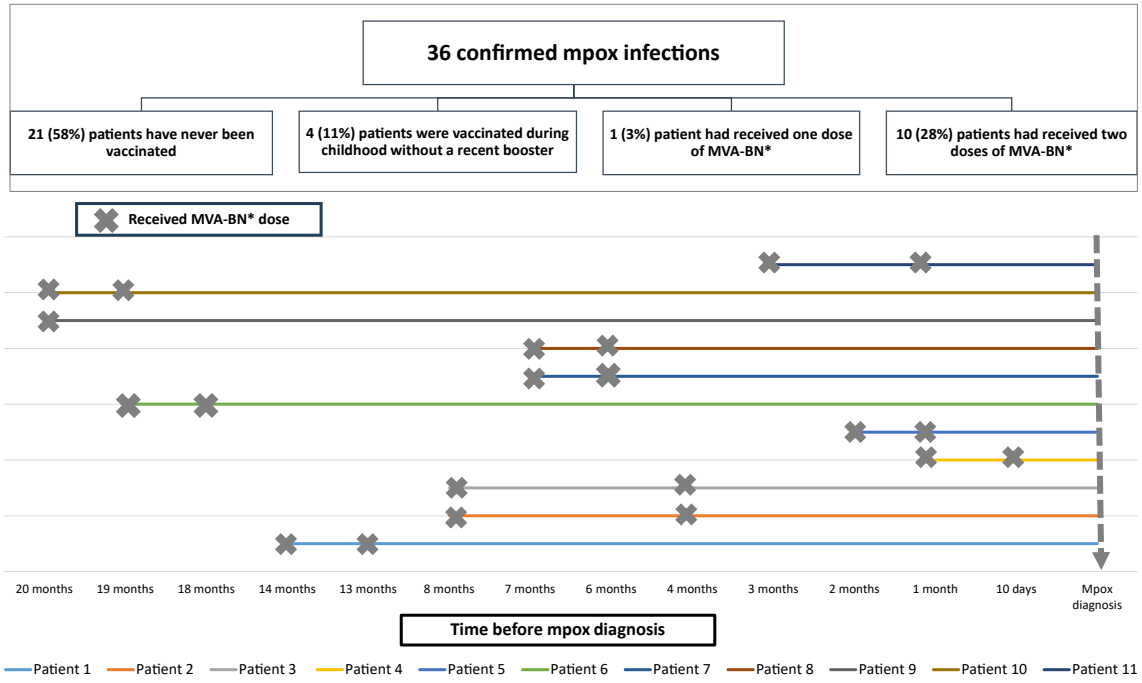

Fig. 1: Timeline of vaccination in relation to date of mpox diagnosis among those vaccinated in the reported group. * MVA-BN, Third-generation smallpox vaccine.

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20–27] with sequencing confirming MPV Clade IIb. The patients had a median of three sexual partners in the previous month (IQR 1–5), 13 (36%) used HIV pre-exposure prophylaxis (Prep) and three (8%) practiced chemsex. Most cases were sporadic, except two patients who were sexual partners. Twelve (33%) were living with HIV: nine had suppressed HIV on antiretroviral treatment, and three were diagnosed simultaneously with HIV and mpox. Two (5%) were immunocompromised: one kidney-transplant recipient with HIV and one newly diagnosed with HIV infection and Kaposi's sarcoma. Ten (28%) patients had received two doses of third-generation smallpox vaccine (MVA-BN), four (11%) were vaccinated during childhood without a booster, while 21 (58%) were never vaccinated despite eligibility (Fig. 1). Among unvaccinated patients, six (29%) were HIV positive and five (24%) were Prep users. Only ten out of the 36 patients (28%) had traveled in the previous month to MPV Clade II endemic countries. Eight (22%) reported sexual intercourse with partners with mpox symptomatic symptoms. At diagnosis, 14 patients (39%) had typical genital lesions with facial, limb or trunk lesions, 19 (53%) had isolated genital or anal lesions and three (8%) had atypical lesions. Unvaccinated patients had a median of 7 lesions [IQR 2–11] compared to 4 [2–7] in vaccinated patients (*t*-test p = 0.15). Only one was hospitalized for Kaposi's sarcoma and mpox lesions. No complications occurred.

This study shows ongoing MPV Clade IIb transmission and endemic mpox in France in 2023–2024, as 72% of the patients had not traveled abroad. Most patients were immunocompetent MSM. Contact with asymptomatic carriers could explain, at least partially, current transmission, since 78% of patients had no contact with symptomatic individuals. Our results align with a study showing 6.5% of asymptomatic MSM tested positive for MPV in anal samples.[1] Moreover, the number of mpox cases may be underestimated, as mildly symptomatic individuals may not seek care. Although all patients were at high-risk of mpox, only 42% received at least one vaccine dose. Therefore, continued vaccination efforts seem necessary. The spread of MPV may also relate to declining neutralizing antibodies after MVA-BN. Although pre- and post-exposure vaccination likely helped decrease the 2022 mpox outbreak,[2–4] long-term studies show neutralizing antibodies decrease significantly by day 180.[5] Further research is needed on mpox dynamics and vaccine effectiveness.

Contributors
Yazdan Yazdanpanah, Jade Ghosn and Nathan Peiffer-Smadja had the original idea of the work. Data collection was performed by Mayda Rahi, Sebastien Fouere, Marie Gilbert, Antoine Bachelard, Fabien Taieb, Baptiste Sellem, Florian Herms, Charles Cazanave, Nadia Valin, Gentiane Monsel and the MPV 23-24 Study group (Romain Salle, Romain Hembert, Romuald Cruchet, Morgane Mailhe, Racha Ibrahim, Juliette Besombes, Quentin Le Hingrat, Johan Chanal, Marion Favier, Théophile Cochérie, Laure Barthod, Isabelle Bouchard, Hassan Tarhini, Diane Ponscarme, Stéphane Marot, Charlotte Pronier, Emmanuel Lafont, Nadhira Houhou-Fidouh, Valérie Pourcher, Francois-Xavier Lescure, Sonia Burrel, Diane Descamps, Paul-Henri Consigny, Jean-Michel Molina). Mayda Rahi performed the statistical analyses. Mayda Rahi and Nathan Peiffer-Smadja drafted the manuscript. Mayda Rahi, Sebastien Fouere, Marie Gilbert, Antoine Bachelard, Fabien Taieb, Baptiste Sellem, Florian Herms, Charles Cazanave, Nadia Valin, Gentiane Monsel, Yazdan Yazdanpanah, Jade Ghosn and Nathan Peiffer-Smadja critical reviewed the manuscript.

Data sharing statement
The individual participant data that support the findings in this correspondence will be available after de-identification along with data dictionaries, the study protocol and the statistical analysis plan. This data will be available for researchers with a sound methodologically proposal, from the time of publication until five years after. Proposals must have investigator support and should be directed to nathan.peiffer-smadja@aphp.fr.

Declaration of interests
We declare no conflict of interests.

Appendix A. Supplementary data
Supplementary data related to this article can be found at https://doi.org/10.1016/j.lanepe.2024.101114.

References
1 Ferré VM, Bachelard A, Zaidi M, et al. Detection of monkeypox virus in anorectal swabs from asymptomatic men who have sex with men in a sexually transmitted infection screening program in Paris, France. *Ann Intern Med*. 2022;175(10):1491–1492. https://doi.org/10.7326/M22-2183.
2 Thy M, Peiffer-Smadja N, Mailhe M, et al. Breakthrough infections after postexposure vaccination against mpox. *N Engl J Med*. 2022;387(26):2477–2479. https://doi.org/10.1056/NEJMc2211944.
3 Deputy NP, Deckert J, Chard AN, et al. Vaccine effectiveness of JYNNEOS against mpox disease in the United States. *N Engl J Med*. 2023;388(26):2434–2443. https://doi.org/10.1056/NEJMoa2215201.
4 Ghosn J, Assoumou L, Ouattara M, et al. Impact of vaccination with third generation modified vaccinia Ankara and sexual behaviour on mpox incidence in men who have sex with men: analysis among participants of the ANRS-174 DOXYVAC trial. *Lancet Reg Health Eur*. 2024;45:101020.
5 Griffin I, Berry I, Navarra T, et al. Serologic responses to the MVA-based JYNNEOS mpox vaccine in a cohort of participants from the District of Columbia (D.C.). *Vaccine*. 2024;42(19):4056–4065. https://doi.org/10.1016/j.vaccine.2024.05.017.