

Research Letter

The First 179 Cases of Monkeypox in Hamburg—Demographic, Temporal, and Geographic Distribution

On 23 July 2022, the World Health Organization (WHO) declared the current global monkeypox outbreak a public health emergency of international concern (PHEIC). The first laboratory-confirmed monkeypox (MPX) case in Germany was reported on 20 May 2022. Since then, cases have been reported from all federal states, with Berlin having the highest cumulative incidence rates among the states (45 cases/100 000 inhabitants), followed by Hamburg with 10 cases/100 000 inhabitants (1). In this report we describe the course of the MPX outbreak in Hamburg.

Methods

We analyzed all laboratory-confirmed cases that were reported according to sections 6 and 7 of the German Protection Against Infection Act (IfSG) to the local health authorities by 15 September 2022. The legal registration data refer to the official place of residence for each case. Information was recorded in a standardized manner using the reporting software.

The program R (version 4.2.1) was used for statistical evaluation. Categorical variables were compared using the chi-square test between HIV-positive and HIV-negative persons, as well as between vaccinated and unvaccinated persons.

Results

All 179 reported cases were male. The median age was 38 years (range 20 to 67 years old). Up to submission of our manuscript, no case of a minor had been reported, and only four of those affected were older than 60 years (Table). During the course of the disease, 5.0% of those affected were hospitalized; so far, none have died in associated with the disease. Of those affected, 97% with a stated sexual orientation are men who have sex with men (MSM); in five cases (3%), the statement “heterosexual” was given. Infection through sexual contact is the most frequently mentioned suspected transmission route (91%). The sexual encounters often took place anonymously at clubs, bars, saunas, and gay pride events, but also at private parties and at so-called cruising grounds. In 13 cases, those affected ruled out infection through sexual contact. Here, close physical contact (kissing) and contact with contaminated surfaces were given as probable transmission routes, or the route of transmission remained inexplicable for those affected. Less than half (42%) of those affected with known HIV status reported a detectable HIV viral load. About one-fifth (21%) of the cases with known vaccination status reported having received the vaccination “MPX” against the human smallpox virus in their childhood. The first case in Hamburg was reported on 31 May, 2022; since then, cases have been reported from all districts of Hamburg. Districts close to the city center, i.e. Hamburg-Nord and Hamburg Mitte, which are attractive for the affected community, documented the most cases and the highest cumulative incidences (22.2 and 14.3 cases/100 000 inhabitants, respectively). More than 53% of those affected became infected in Hamburg (Figure); the second most common place of exposure was abroad (15%). Another 12% became infected in Berlin. In some cases, the place of exposure could not be narrowed down due to extensive travel. The median

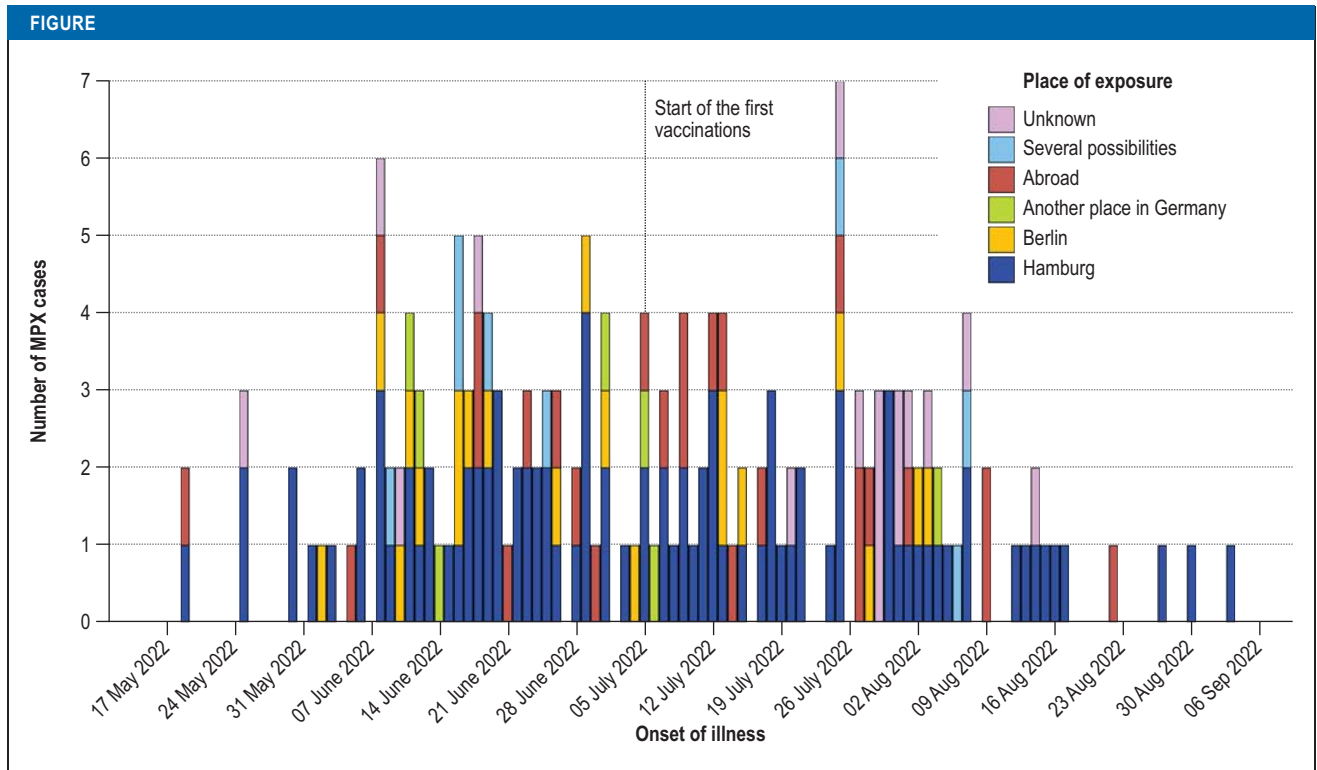
TABLE		
Characteristics of laboratory-confirmed MPX cases in Hamburg		
Sex, n (%)	Male	179 (100.0)
Age groups in years, n (%)	0–17	0 (0.0)
	18–30	35 (19.5)
	31–40	76 (42.5)
	41–50	44 (24.6)
	51–60	20 (11.2)
	over 60	4 (2.2)
Vaccination status, n (%)	vaccinated for smallpox* ¹	32 (21.2)
	not vaccinated for smallpox* ²	119 (78.8)
	unknown	28
HIV status, n (%)	positive	55 (42.0)
	negative	76 (58.0)
	unknown	48
Sexual orientation, n (%)	MSM	164 (97.0)
	not MSM	5 (3.0)
	unknown	10
Suspected mode of transmission, n (%)	sexually	137 (91.3)
	not sexually	13 (8.7)
	unknown	29
Hospitalization, n (%)	hospitalized during the course	9 (5.0)
	not hospitalized	169 (94.4)
	not ascertainable	1 (0.6)

*¹ Before 2022. *² Of the group of unvaccinated persons, 22 infected persons indicated that they had been vaccinated with the IMVANEX[®]/JYENNOS[®] vaccine either prophylactically or post-exposure within the last few weeks. MSM, men who have sex with men

incubation period was seven days (interquartile range [IQR]: 4 to 10). The skin manifestations typical of monkeypox were mentioned as a symptom by 159 (89%) of the infected people. About half of all infected people reported fever (51%), flu-like symptoms (49%), pain (46%), and swollen lymph nodes (41%) as other symptoms. Every third or fourth patient suffered from headache (33%) and/or muscle pain (25%). There was no statistically significant difference in the frequency of the symptoms between vaccinated and unvaccinated people. HIV-negative people reported flu-like symptoms more frequently than HIV-positive people (60% versus 39%, p = 0.020). One infected person developed no symptoms despite sexual contact with several confirmed cases; in this case, the nucleic acid was detected from an anal swab. This asymptomatic individual reported having been vaccinated against smallpox as a child. Most of the cases recorded so far in the global MPX outbreak show typical symptoms (2). Asymptomatic cases in the current outbreak have only been described in isolated cases (3). It is thus unclear at this time how many people have contracted asymptomatic monkeypox.

Discussion

The competent authorities have supported the information campaign in Hamburg through an existing close cooperation with the German AIDS Service Organization and the counseling and health center Hein & Fiete. According to the recommendation of the



Standing Vaccination Committee of 21 June, 2022, the vaccination campaign with the JYNNEOS vaccine (the Modified Vaccinia Ankara [MVA] vaccine) was started in Hamburg on 5 July, 2022. By 31 August, 2022, 2,095 vaccinations had been carried out as part of pre- and post-exposure prophylaxis. The number of infections in Europe and throughout Germany, specifically in Hamburg, is currently decreasing significantly (1, 4). This trend could indicate that the prevention and vaccination campaigns are contributing to a positive effect, and that a certain level of immunity has been reached in the mainly affected community. However, it has also been reported that fewer and fewer affected people are contacting the health system, in order to avoid reporting the infection to the health authorities and the resulting 21-day isolation period. The isolated occurrence of cases of monkeypox in women and children should also be carefully monitored and investigated, as the infection process could also spread outside the MSM community (4). As a limitation of our evaluation, we should note that the personal information is based on statements made by the persons affected to the employees of the responsible health authorities.

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Kohelia Choudhury*, Kirsten Alexandra Eberhardt*, René Haugk, Nicolette Holtz, Johanna Claass, Jürgen Duwe, Annegret Eckhardt-Ringel, Johann Fontaine, Susanne Kleinsorge, Alexandra Thalmann-Goetsch,

Moritz Geisthövel, Gudrun Rieger-Ndakorerwa, Monika Lotze-Rupp, Anita Plenge-Bönig, Silja Kristina Bühler

*The authors share co-first authorship

Division of Hygiene and Infectious Diseases, Institute for Hygiene and Environment, Hamburg, Germany (Choudhury, Eberhardt, Haugk, Plenge-Bönig, Bühler), Postgraduate Training for Applied Epidemiology (PAE), Department of Infectious Disease Epidemiology, Robert Koch Institute, Berlin, Germany (Bühler) silja.buehler@hu.hamburg.de; Health Department Nord (Holtz); Sozialbehörde, Department of Health (Claass, Fontaine, Kleinsorge); CASAbianca (Claass); Health Department Bergedorf (Duwe); Health Department Wandsbek (Eckhardt-Ringel); Health Department Mitte (Thalmann-Goetsch); Health Department Altona (Geisthövel); Health Department Eimsbüttel (Rieger-Ndakorerwa); Health Department Harburg (Lotze-Rupp)

Conflict of interest statement

The authors declare that no conflict of interest exists.

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