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Letter to the Editor

Resurgence of syphilis in 2022 amongst heterosexual men and women in Osaka, Japan

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To the editor,

The COVID-19 pandemic has drastically changed human behaviour. The trends in the incidence of sexually transmitted infections, which are strongly influenced by human behaviour, have changed dramatically. Interestingly, the results vary widely amongst countries and regions. Although a decrease in syphilis cases was reported after the emergence of COVID-19 in many countries, such as Poland, Italy, and the United Kingdom, a steady increase was reported in other countries such as the United States. In Japan, immediately after the emergence of the COVID-19 pandemic, the number of reported syphilis cases decreased, whereas those of chlamydia and gonorrhoea increased in 2020 [1]. However, the number of syphilis cases reported nation-wide appears to have been increasing since early 2021 [1]. An increase in syphilis cases was observed in late 2021 in Osaka Prefecture, the most vibrant place in western Japan. With a population of 8.8 million, it is the second most densely populated prefecture in Japan after Tokyo. Previous reports from various countries have not described the detailed characteristics of syphilis trends. Therefore, we used the National Epidemiological Surveillance of Infectious Diseases (NESID) to investigate the updated trends and characteristics of syphilis cases in Osaka Prefecture.

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The details of the NESID system are described elsewhere [2]. Syphilis is a common notifiable disease in Japan. The reportable case definition of syphilis requires a positive result on both specific and non-specific treponemal tests or laboratory identification of *Treponema pallidum*. The NESID collects background information, such as sex, age, and syphilis stage, as well as details of sexual orientation (heterosexual or men who have sex with men [MSM]). We included positive syphilis cases in Osaka Prefecture between January 2018 and June 2022 in our analysis. Ethical approval or informed consent was not required because this study was conducted for public health purposes using legally notifiable surveillance data and identifiable information was not reported.

The number of reported syphilis cases in Osaka Prefecture was 1101 in 2019, 902 in 2020, 865 in 2021, and 730 in the first half of 2022; the actual number of cases by 2022 has doubled since 2021 (353 cases in the first half of 2021 and 730 cases in the first half of 2022). Men (56%) were in the age group of 25 to 60 years, whereas women (44%) were mostly in their 20s. With regard to sexual orientation, no considerable change in the number of syphilis cases amongst MSM was observed throughout the study period, whereas the number of heterosexual men and women with syphilis increased dramatically starting in the second quarter of 2021 (Fig. 1). The proportion of asymptomatic patients remained constant (285 cases [26%] in 2019, 233 cases [26%] in 2020, 227 cases [26%] in 2021, and 172 cases [24%] in the first half of 2022).

In 2022, Osaka Prefecture recorded the highest number of cases since 1955. We assumed that the increased number of cases was not due to biased reporting because the proportion of asymptomatic cases remained constant. Additionally, the number of tests at all anonymous and free voluntary counselling and testing facilities in Osaka Prefecture has remained stable, and the testing policy or diagnostic criteria have not changed. However, we cannot rule out the possibility of biased reporting because our surveillance system does not record the number of syphilis tests performed throughout the prefecture. The number of syphilis cases has increased in European Union countries, especially amongst MSM [3]. In Osaka, the number of syphilis cases amongst heterosexual individuals has increased dramatically since late 2021, after a decrease in the emergence of the COVID-19 pandemic. However, the number of

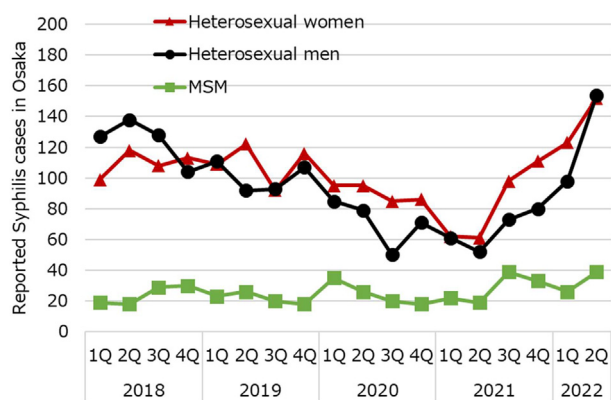


Fig. 1. Trend in the number of reported syphilis cases. MSM, men who have sex with men; Q, quarter.

cases amongst MSM did not change before and during the COVID-19 pandemic. The same trend was observed throughout Japan [4]. Based on these results, we hypothesized that countermeasures for the COVID-19 pandemic affected the number of syphilis cases amongst heterosexual individuals but did not change sexual behaviours amongst MSM. The cause of the rapid increase in the number of syphilis cases amongst heterosexual individuals since 2021 is not yet known. However, it may have been due to rebound in cases after unchecked community infections, resulting from the natural increase in the number of syphilis cases until 2018 [5]. Another possibility, as pointed out by experts, is that commercial sex workers (CSWs) who “were previously managed” by businesses are now conducting business privately through social media and other channels, which may have led them to engage in unprotected sex. A comprehensive approach is needed to deal with the unprecedented increase in the number of syphilis cases, including the expansion of testing systems to a wider target population, raising public awareness, and providing financial compensation to CSWs. However, CSWs recently lost court cases seeking economic compensation because their line of work has not been officially recognized in Japan.

Author contributions

TU was involved in conceptualization, methodology, writing of the original draft, review and editing, and project administration.

KK was involved in formal analysis (data from the National Epidemiological Surveillance of Infectious Diseases), and writing of the original draft. TK was involved in formal analysis (data from voluntary counselling and testing facilities in Osaka Prefecture), writing of the original draft, review and editing, supervision, and funding acquisition. TM was involved in writing of the original draft and supervision. NI was involved in writing of the original draft and supervision. KM was involved in review and editing as well as supervision.

Transparency declaration

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