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Correspondence

Monkeypox emergence and hosting a safe FIFA World Cup 2022 in Qatar: Challenges and recommendations

Dear Editor

First discovered in 1970, monkeypox (MPX) is a zoonotic viral disease caused by the monkeypox virus (MPXV) that has recently emerged in multiple non-endemic countries [1]. As of August 30, 2022, there were more than 49144 confirmed infected cases across nearly 96 countries [2]. As a large double-stranded DNA virus, MPXV is more able to correct replication errors than an RNA virus such as HIV, meaning that the current MPX strain should have only accumulated a handful of mutations since it first started circulating in 2018 [1]. Recently, it has been reported that after collecting DNA from 15 MPX viral samples and reconstructing their genetic information, researchers found that the real mutation rate was six to 12 times higher than they expected [1]. The massive jump in the MPXV rate of mutation was reported to be far more than one would expect considering previous estimates of the substitution rate for Orthopoxviruses. Researchers highlighted the likelihood of ongoing viral evolution and potential human adaptation. Yet, genetic modifications are likely to affect virus parameters and functionalities such as transmissibility, illness severity, and immune evasion, creating significant ambiguity regarding the MPX fate.

Since the FIFA World Cup 2022 (WC2022) is expected to include teams and fans from countries where cases have recently emerged, transmission of the disease is possible in countries such as Qatar with 3 confirmed cases as of August 30, 2022 [2]. Additionally, the FIFA WC2022 in Qatar is expecting 1.7 million visitors throughout the tournament [3], excluding players, officials, and contract workers. The host country has set up stadiums with a capacity of about 47,500 seats, which are expected to be filled for each game [3].

MPX can spread from one person to another through close contact with respiratory droplets, infected lesions, body fluids, and contaminated materials (like clothing), all of which can happen in any mass gatherings (MGs), including the FIFA WC2022 [4]. Many MPX cases in the recent outbreak were associated with festivals and circumstances that encouraged close contact [5]. Since the number of attendees at the FIFA WC2022 is expected to be much higher than the events associated with recent clusters of MPX, an uncontrollable outbreak at the FIFA World Cup 2022 could change the course of MPX spread for the worse.

Furthermore, it has been reported that MPXV transmission occurs primarily through sexual contact. Although 98% of cases have been reported among men who have sex with men (MSM), anyone exposed can contract MPX, which is why WHO recommends that countries take steps to reduce the risk of transmission to other vulnerable groups, such as children, pregnant women, and immunocompromised people [4]. More importantly, MPX has a long incubation period, and some patients are asymptomatic during the early stages of the disease, which can make case identification and isolation difficult. As a result, MPX containment measures may become ineffective at this point [6].

Thus, the circumstances of such a large MG could turn it into a dangerous epicenter for virus transmission, particularly MPXV [4]. More specifically, an increase in MPX cases during the FIFA WC2022 may hasten the MPXV ongoing viral evolution.

While the risk of the MPX outbreak turning into a widespread pandemic has not yet reached an alarming level, it has reached the level of a public health emergency of international concern. The circumstances of the FIFA WC2022 warrant extra caution and a high level of alert, considering the magnitude of this mega-event and the MPX nature.

The State of Qatar and the World Health Organization (WHO) have joined forces to maintain safety of this mass gathering event from potential health hazards or public health concerns (PHEIC). Although their goals are aimed at promoting health, ensuring health security, and raising awareness [7], no specific preventive measures were discussed publicly or set in priority in case an MPX outbreak happens. Therefore, we propose a set of preventive measures that could help minimize MPX contagion and improve the response to an eventual outbreak.

Among the recommendations, we stress the importance of raising awareness on the measures to reduce exposure risk and promptly recognizing and acting on situations of exposure or infection. This requires the establishment of reliable communication channels between health authorities, as well as visitors and local population. These communication channels should be available in different languages and via various means, such as through mobile application, website, phone line, and printed materials included into the welcome packages, to ensure optimal and easy access to various subgroups of the population [8]. The communication channels should help establish a relationship of trust in the professionalism of the healthcare system and highlight the impartiality of healthcare workers. Visitors should not feel reluctant to seek diagnosis or care for fear of being judged or discriminated against [9]. In addition, healthcare providers should raise travelers' awareness of the importance of taking precautions to avoid sexually transmitted infections (STIs), especially since MPXV is typically diagnosed as a co-infection with other STIs.

The communication channels should be bilaterally efficient and should be readily available to individuals in the event of an outbreak or case of exposure. Those with suspicion of MPX should be sent materials, be guided to screening and safety, and be considered for contact tracing. Travelers visiting the FIFA WC2022 should cooperate with the event organizers regarding health communication and preventive health measures.

Due to this concerning situation, the WHO Director-General has issued a temporary recommendation in reaction to the multi-country MPX outbreak. Based on this recommendation, Countries were classified into four groups numbered from one to four. Group 1 is the region with no history of MPX in humans or no MPX cases identified in the last 21 days.

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Group 2 applies to countries that have recently imported MPX cases into their human societies and/or are experiencing human-to-human transmission of MPXV (advancement of Group 1). This group should impose several restrictions on international travelers and cross-border laborers. Group 3 is the group of countries that have identified zoonotic transmission of monkeypox. Group 4 is made up of the countries that have been given permission to work with WHO to make sure there are enough diagnostics, vaccines, medicines, and other supplies to meet the needs of the whole world [10]. Qatar belongs to Group 2. Their public health initiatives, such as geo-localization of infected people, lockdown, medical center management, and accurate re-opening of international borders, which have been successful during the COVID-19 pandemic, can be used to prevent MPXV [10].

With regards to vaccination, a few immunization approaches are available. Ring vaccination would be suitable for this particular event due to the benefits it provides of breaking off MPX transmission while preventing occurrence of severe disease [11]. While the risk-benefit ratio of non-targeted vaccination against MPX is unclear as of August 30, 2022, we recommend primary vaccination of high risk individuals, including but not limited to MSM [11]. Nevertheless, given its high efficacy in preventing secondary cases [11], post-exposure prophylactic immunization should remain an open option considering progression of disease spread and release of new evidence.

Also, ensuring readiness of the healthcare system should include training healthcare workers on how to detect and care for the disease, in addition to the logistic means for diagnosis and care in case of an outbreak. Personal protective equipment for healthcare workers, as well as pre-exposure prophylaxis measures, should be covered by logistical means in high-risk groups (i.e., healthcare workers).

Finally, we must emphasize that the COVID-19 pandemic is not over, making it much more difficult for healthcare authorities to host a safe FIFA WC2022, especially in view of the emergence of MPX. Given the paucity of evidence on the long-term persistence of immunity in vaccinated or previously infected individuals, the aforementioned measures should provide additional protective approaches to reduce the rate of MPX infection during the FIFA WC2022. During the FIFA WC2022, strict infection control policies will be the only barrier to limiting MXPV transmission.

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