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Crisis management for the future: Building a platform to provide information on emerging and re-emerging infectious diseases from normal times in Japan

Eisuke Adachi[1], Amato Otani[1], Hiroshi Yotsuyanagi[1], Masayuki Saijo[2,3], Tomoya Saito[4]

[1] Department of Infectious Diseases and Applied Immunology, IMSUT Hospital of the Institute of Medical Science, The University of Tokyo, Tokyo, Japan;
[2] National Institute of Infectious Diseases, Tokyo, Japan;
[3] Public Health Office, Health and Welfare Bureau, City of Sapporo, Sapporo, Japan;
[4] Center for Emergency Preparedness and Response, National Institute of Infectious Diseases, Tokyo, Japan.

Abstract: At the beginning of the mpox (disease caused by monkey pox) epidemic, there was no platform in Japan to provide appropriate information on emerging and re-emerging infectious diseases (EIDs), and the number of accesses to bioterrorism-related information sites increased rapidly. Even though the interest in mpox was much smaller than in coronavirus infectious disease, emerged in late 2019 (COVID-19), the increase in the number of views were much greater than during the COVID-19 epidemic. This may not be because mpox is bioterrorism-related as an analog of smallpox, but rather because there were no other websites providing information on mpox. For future crisis management, there should be a platform to provide information on possible epidemics of EIDs from normal times in Japan.

***Keywords*:** mpox, COVID-19, social media platforms, EIDs

Introduction

In the recent emerging and re-emerging infectious diseases (EIDs), such as coronavirus infectious disease, emerged in late 2019 (COVID-19) and mpox (disease caused by the monkeypox virus), once an epidemic started, many information web sites have been created. These include a variety of qualities from official government websites to personal blogs; there was a significant problem with social networking sites and websites that provide false information about COVID-19 and other health-related issues like mpox (*1*). The spread of misinformation and disinformation on these platforms can have serious consequences for public health and safety (*2*). On the other hand, however, unless it is a re-emerging infection caused by an already well-known disease, there are often no websites that provide correct information in normal times. This report takes an example of a bioterrorism-related information website and examined the need to provide the information on EIDs in normal times.

Bioterrorism Information Website in Japan

"baiotero-taio-homupeji" (a website providing information on bio-terrorism in Japanese), which was developed in 2008 to provide information on clinical diagnosis and testing procedures for bioterrorism-related diseases for medical institutions (*3*), and was opened to the public in 2016 in anticipation of international situations and mass gathering events in Japan (*3,4*). The database lists diseases that are expected to be used for bioterrorism, and related diseases that require identification and differentiation, and provides details of the diseases, definitive diagnostic methods, and treatment. The major bioterrorism-related diseases include anthrax, which has been used in bioterrorism, smallpox, which has a high fatality rate when used, viral hemorrhagic fever, rabies, and other 11 important diseases. And this list also includes 23 related diseases such as dengue fever, typhus rash, and relapsing fever. Most of the diseases listed are currently no cases of infection in Japan and difficult to diagnose or to differentiate from other fatal diseases.

Number of visits to bioterrorism information websites

The number of accesses to our website from 2019 to July 2023 in Figure 1. We found a rapid increase in the number of accesses after January 2020, when a case of

COVID-19 was confirmed in Japan. We did not provide information on COVID-19 on our website because it had already been more than a month since the case in Wuhan, China, and COVID-19 is not a bioterrorism-related disease. However, since information was provided on SARS as a disease that must be differentiated from bioterrorism, it can be assumed that the keywords used in the search led to visit to this website. The number of accesses to this site in May 2022, when mpox was prevalent in Europe and the United States, shows a sharp increase in the number of accesses to this site, which is much higher than the number of accesses at the start of the COVID-19 epidemic. Figure 2 shows the number of daily accesses in May 2022; the number of accesses increased rapidly on May 19, reaching the largest number of daily accesses ever. This was the day that Web news sites and TV news programs reported the confirmation of several domestic cases of mpox in the United States and the United Kingdom, with returnees from Nigeria as the index case. Despite the fact that mpox had a much smaller risk population and less interest in the general population than COVID-19, these results were achieved not only because of the increased sensitivity of the general population to information about media coverage of EIDs since the COVID-19 outbreak, but also there were no other informational websites about mpox. In fact, the website visits quickly declined and did not increase after 2023, when domestic cases began to increase in Japan (Figure 1). This is not only because social interest became smaller, but also because

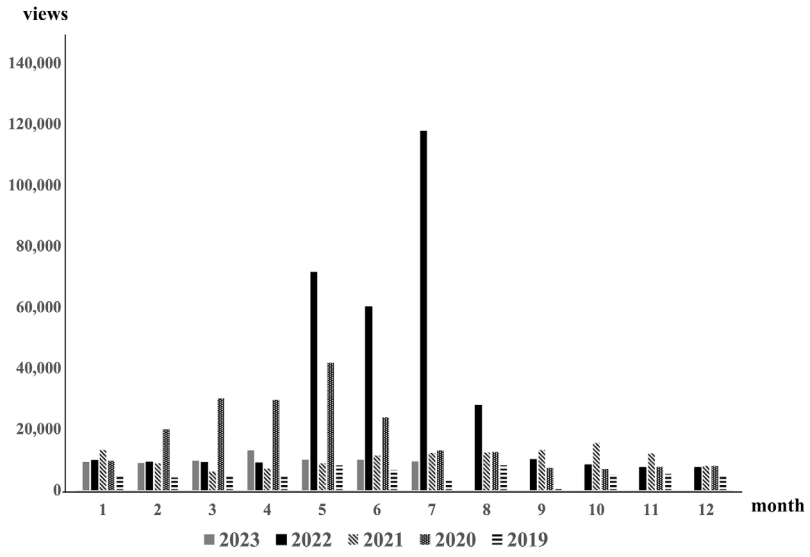

Figure 1. Bioterrorism-related information websites views from 2019 to July 2023. Data compiled through July 2023, no data after August, 2023.

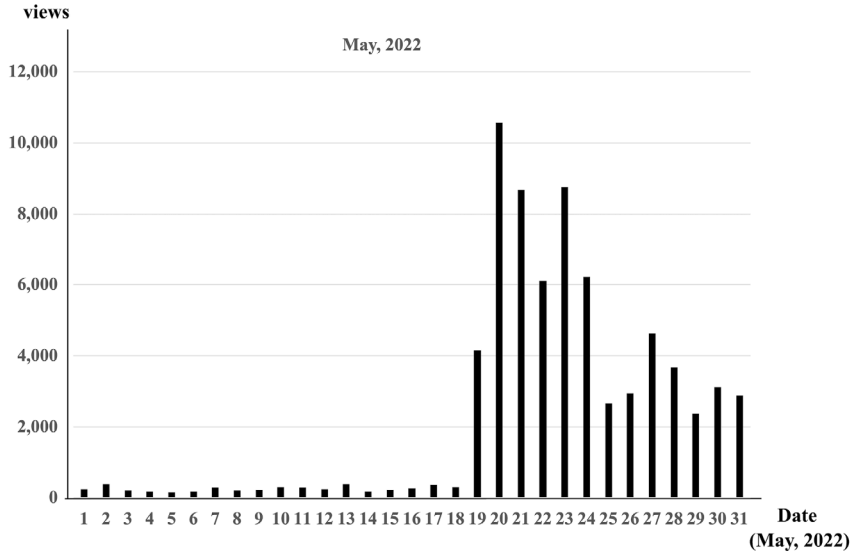

Figure 2. Number of views to bioterrorism-related informational websites per day in May 2022.

other websites were available around this time to convey information about mpox (*5,6*).

Is information on emerging and reemerging infectious diseases necessary even in normal times?

Having a dedicated information site that provides up-to-date and accurate information on EIDs helps to enhance preparedness efforts. When public health authorities and the general public are well-informed about potential threats, they can take proactive measures to prevent or mitigate the spread of diseases. EIDs may not always be at the forefront of public attention during normal times. Our website is only intended to provide information on bioterrorism and not to provide information on EIDs. It was not intended to be commercial in any way, nor was it intended to increase the number of views, so we were able to continue to provide information even in normal times. Under such circumstances, an actual and unexpected infectious disease outbreak occurred, making us aware of the need for a place to provide information in normal times.

An information site serves as a platform to raise awareness about EIDs can educate people about the signs and symptoms of diseases, modes of transmission, and prevention strategies. It becomes a dependable resource for healthcare professionals, researchers, policymakers, and the public. An information site can facilitate collaboration and coordination among different stakeholders, including healthcare organizations, government agencies, non-governmental organizations, and international partners. A dedicated information site can help combat misinformation and rumors, preventing the spread of panic and fear during infectious disease outbreaks. The site can serve as a hub for collecting and analyzing data related to infectious diseases. This data can be crucial for understanding trends, identifying risk factors, and designing evidence-based interventions. An information site can also showcase ongoing research and innovations in the field of infectious diseases. It can encourage researchers to share their findings, leading to advancements in diagnostics, treatments, and vaccines. Overall, an information site for emerging and re-emerging infectious diseases is a valuable tool for public health preparedness, response, and education, not only during crises but also during more stable periods. It contributes to building resilient healthcare systems and reducing the impact of future outbreaks.

The information sites for EIDs are necessary not only during times of crisis but also in normal times. Recently, Social media platforms like Twitter (named "X" from July 2023) have provided important insight into the public's perceptions of global outbreaks like mpox (*7*). Social media platforms also have many minority users such as LGBTQ+ (an abreviation for lesbian, gay, bisexual, transgender, queer, and/or questioning), and communities have formed. Therefore, like mpox, it can be an excellent tool with respect to EIDs that are prevalent in limited populations such as men who have sex with men (MSM) in each region, rather than being prevalent in different geographic parts of the world (*8*). However, it is well known that misinformation and disinformation about mpox is often spread on Twitter (named "X" from July 2023), and there are many unresolved issues.

Our bioterrorism information website may have played a certain role in providing information immediately after the mpox epidemic this time. However, this is not the original purpose of our website. In 2023, cases of presumed domestic infection began to occur, although new findings on mpox have also been reported from domestic cases *(9-12)*, it is difficult to continuously update necessary information other than bioterrorism after an epidemic. For future crisis management, there should be a platform to provide information on possible epidemics of EIDs from normal times in Japan.

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**Address correspondence to*:
Eisuke Adachi, Department of Infectious Diseases and Applied Immunology, IMSUT Hospital of The Institute of Medical Science, The University of Tokyo, 4-6-1 Shirokanedai, Minato-ku, Tokyo 108-8639, Japan.
E-mail: eadachi-ims@umin.ac.jp