

Global Prevalence of Monkeypox from May to July 2022

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ABSTRACT

On July 23, 2022, the growing global monkeypox outbreak was deemed a Public Health Emergency of International Concern. Since early May 2022, there has been an increase in monkeypox cases. The aim of this study was to explore the global epidemiology of monkeypox cases. This was a retrospective epidemiological study that reported all confirmed cases of monkeypox worldwide between May 6, 2022, and July 21, 2022. We extracted data from the publicly available Global Health platform. A total of 15,510 confirmed cases of monkeypox were reported worldwide until July 21, 2022. The daily confirmed cases of monkeypox increased by 205-fold [from 1 case on May 6, 2022, to 206 cases on July 21, 2022]. The highest number of confirmed cases of monkeypox was seen in Spain which has reached 3,125 cases on July 21, 2022, followed by the United States with 2,316 cases, Germany with 2,191 cases, the United Kingdom with 2,142 cases, and France with 1,448 cases. Monkeypox outbreak is on the rise and the regulations adopted so far are not proving effective enough to tackle the problem. To improve public understanding of this illness and their capacity for prevention, awareness campaigns should be intensified.

Keywords: Epidemiology; Global; Monkeypox; Worldwide

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INTRODUCTION

The growing global monkeypox outbreak was deemed a Public Health Emergency of International Concern on July 23, 2022 by World Health Organization (WHO) Director-General. Currently, the WHO European Region is home to the vast majority of reported cases¹. A developing zoonotic infection known as monkeypox is brought on by a virus from the Orthopoxvirus genus of the Poxviridae family^{2,3}. After being originally identified in monkeys in 1958, the monkey virus started to infect humans in 1970⁴. Typically, monkeypox is a self-limiting illness with symptoms that last between two and four weeks². The case fatality rate has recently been between 3 and 6%. By coming into intimate contact with lesions, bodily fluids, respiratory droplets, and contaminated objects like bedding, the monkeypox virus can spread from one person to another². Monkeypox shares similarities with smallpox in terms of clinical manifestation, however it is less contagious and has milder symptoms. Clinical symptoms of monkeypox often include fever, rash, and swollen lymph nodes, and it can result in a variety of medical complications².

Until recently, the majority of monkeypox cases among tourists occurred in West and Central African nations⁵. Since early May 2022, there has been an increase in monkeypox cases in European nations (including the United Kingdom (UK)) and the United States^{5,6}. Identifying the epidemiological pattern of monkey pox transmission is helpful from a public health and prevention point of view. The aim of this study was to explore the global epidemiology of monkeypox during the first three months of its outbreak.

METHODS

Study Sources and the Population

This was a retrospective epidemiological study that reported all confirmed cases of monkeypox worldwide between May 6, 2022, and July 21, 2022. We extracted data from the publicly available Global Health platform⁷, which is the first of its type of global data visualization and repository platform permitting open access to real-time epidemiological anonymized line-list data.

Statistical analysis

The study's data were presented using Microsoft Excel software. The number of monkey pox incident cases was reported using the number of confirmed cases. A positive case that is supported by a lab test is referred to as a confirmed case.

RESULTS

A total of 15,510 confirmed cases of monkeypox were reported worldwide until July 21, 2022. The global number of confirmed cases of monkeypox increased from 1 case on May 6, 2022, to 15,510 cases on July 21, 2022 (Figure 1).

The daily confirmed cases of monkeypox increased by 205-fold [from 1 case on May 6, 2022, to 206 cases on July 21, 2022] (Figure 2).

The highest number of confirmed cases of monkeypox was seen in Spain which has reached 3,125 cases on July 21, 2022, followed by the United States with 2,316 cases, Germany with 2,191 cases, the United Kingdom with 2,142 cases, and France with 1,448 cases, (Table 1).

DISCUSSION

Monkeypox is a rare disease that was discovered in 1958. It is caused by infection with the monkeypox virus, which is part monkeypox of the same family of viruses that causes smallpox. monkeypox symptoms

are similar to smallpox symptoms, but milder, and monkeypox is rarely fatal⁸. African rodents and non-human primates (like monkeys) might harbour the virus and infect people, and the first human case of monkeypox was recorded in 1970. Prior to the 2022 outbreak, monkeypox had been reported in people in several African countries or through imported animals and was also reported in international travellers to countries where the disease commonly occurs⁸. During the 2022 monkeypox outbreak, however, Europe accounted for more than 85% of the global total cases, therefore, remaining the centre of this outbreak². Monkeypox spreads from person to person through close contact with someone who has a monkeypox rash, including through kissing, touching, oral and penetrative vaginal or anal sex with someone who is infectious². While everyone can catch monkeypox, not everyone is at equal risk. People who have close contact with an infectious person, including sexual contact, are more likely to become infected; this includes sexual partners, but also potentially household members and health workers².

People can spread the virus from the onset of symptoms until all lesions have scabbed and fallen off; with some evidence of spread for more than a week after lesions have crusted. Rash can be found in places that can be hard to see, including the mouth, throat, genitals, vagina, and anus/anal area. Therefore, identifying, tracing, and notifying sexual partners quickly is often difficult, but remains critical in order to stop the onward spread. In addition to more common symptoms, such as fever, headache, swollen lymph nodes, and rashes or lesions, some patients have also experienced inflammation of the rectum lining (proctitis)². People are considered infectious until all of their lesions have crusted over, the scabs have fallen off and a new layer of skin has formed underneath, though asymptomatic infection has been reported. Diagnosis can be confirmed by testing a lesion for the virus deoxyribonucleic acid (DNA). Pieces of DNA from the monkeypox virus have been found in semen, but it is not yet known whether infection can spread through semen, vaginal fluids, amniotic fluids, breastmilk, or blood^{8,9}.

The UK government official website reported that cases of monkeypox infection have mainly been in gays, bisexuals, and men who had sex with men without a documented history of travel to endemic countries⁹. Dr. Hans Henri P. Kluge, WHO Regional Director for Europe supported the UK government report, stating that the majority of reported cases in Europe have been among men who have sex with men¹⁰.

The numbers reported in this study until July 21st, 2022, have been on the rise on a daily basis. By the 14th July 2022, there were 1,856 laboratory confirmed cases in the UK, 1790 cases in Germany, and 3067 cases in Spain^{9,11,12}. The Center for Disease Control and Prevention (CDC) and WHO, in addition to various world governments, have issued statements to warn people that anyone with new and unusual rashes or skin lesions should avoid sexual contact until they have been checked for sexually transmitted infections (STIs) and monkeypox, and that anyone who has symptoms that could be monkeypox should seek advice from a health worker immediately^{2,8,9}. They also advised people with monkeypox to use condoms for 12 weeks after they recover until more is known about the levels of the virus and potential infectivity in semen during the period that follows recovery^{2,8}. They have also warned clinicians to not rule out monkeypox in patients with sexually transmitted infections since there have been reports of co-infections with syphilis, gonorrhoea, chlamydia, and herpes. Dr. Hans Henri P. Kluge, WHO Regional Director for Europe, advocated for "communities of gay, bisexual, and other men who have sex with men to raise awareness to protect those most at risk," and that a man who has sex with men should be aware of his own risk and take precautions to protect himself and others¹⁰.

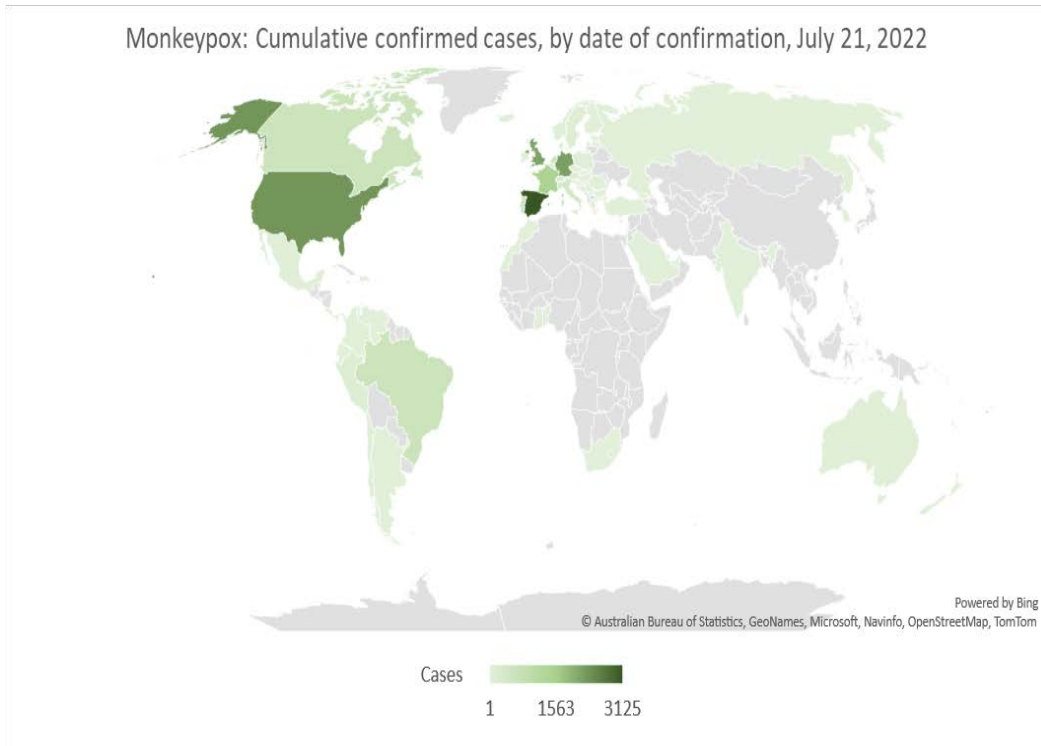


Figure 1. Geographical distribution of confirmed cases of monkeypox until July 21, 2022 (Cases are shown by the date on which they were confirmed by a test).

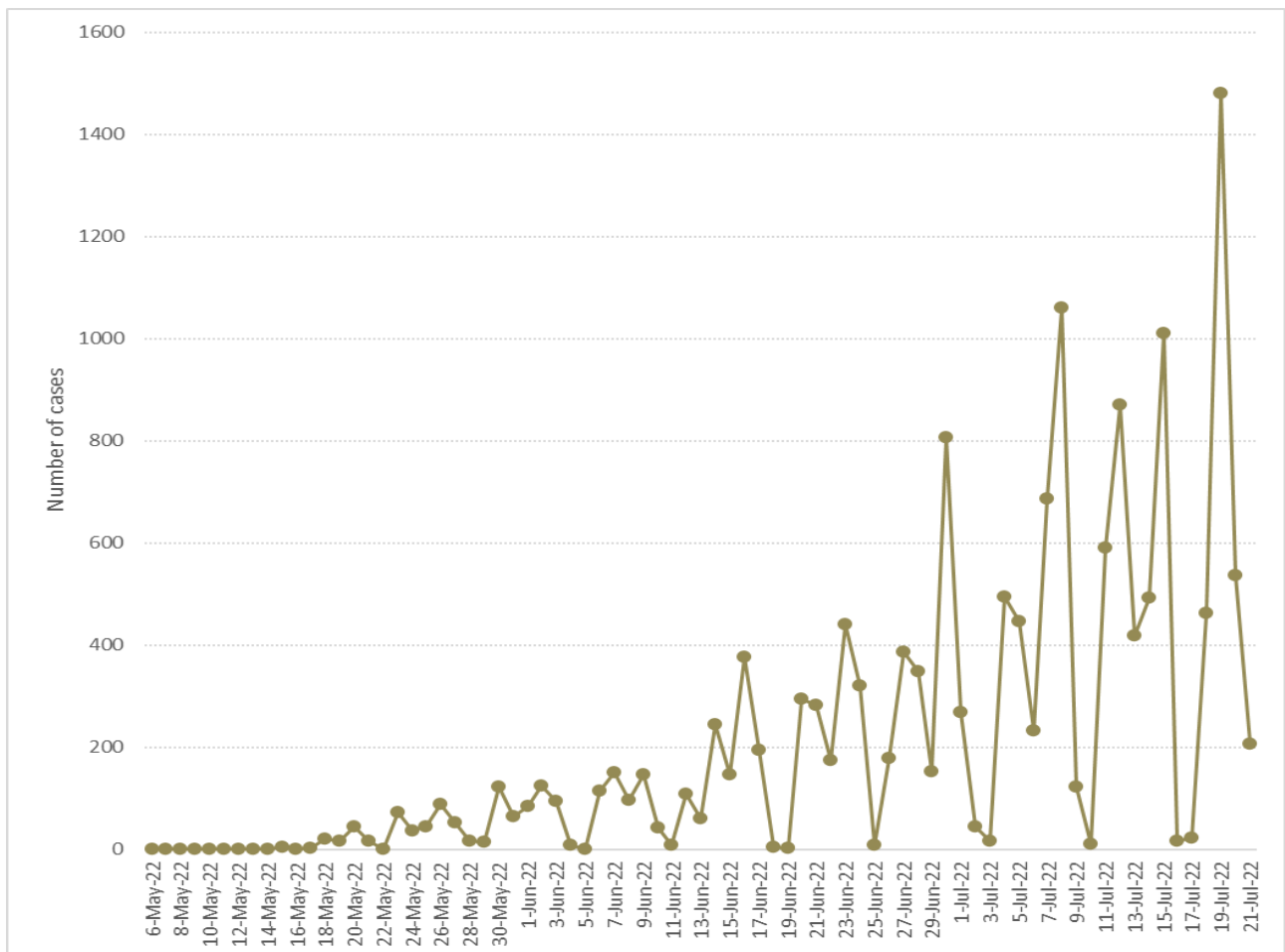


Figure 2. Daily confirmed cases of monkeypox

Table 1. Number of confirmed cases of monkeypox stratified by country

Country	Date	May 8, 2022	May 15, 2022	May 22, 2022	May 29, 2022	June 5, 2022	June 12, 2022	June 19, 2022	June 26, 2022	July 3, 2022	July 10, 2022	July 17, 2022	July 21, 2022	Trend
Argentina		0	0	0	2	2	3	3	4	6	9	13	13	
Australia		0	0	2	2	6	8	11	11	12	24	33	41	
Austria		0	0	0	1	1	1	11	20	37	62	83	83	
Barbados		0	0	0	0	0	0	0	0	0	0	1	1	
Belgium		0	0	4	9	17	25	62	77	117	168	224	311	
Benin		0	0	0	0	0	0	3	3	3	3	3	3	
Bosnia and Herzegovina		0	0	0	0	0	0	0	0	0	0	1	1	
Brazil		0	0	0	0	0	3	8	20	78	218	347	607	
Bulgaria		0	0	0	0	0	0	0	2	3	3	3	3	
Canada		0	0	5	26	80	116	177	235	312	378	538	604	
Chile		0	0	0	0	0	0	1	8	9	14	24	26	
Colombia		0	0	0	0	0	0	0	3	5	5	7	10	
Costa Rica		0	0	0	0	0	0	0	0	0	0	0	1	
Croatia		0	0	0	0	0	0	0	1	1	1	3	6	
Czechia		0	0	0	5	6	6	6	7	8	11	12	12	
Denmark		0	0	0	2	2	4	8	13	18	28	37	48	
Dominican Republic		0	0	0	0	0	0	0	0	0	1	1	3	
Ecuador		0	0	0	0	0	0	0	0	0	1	1	2	
Estonia		0	0	0	0	0	0	0	0	1	1	2	4	
Finland		0	0	0	1	2	3	4	4	4	10	13	13	
France		0	0	1	16	52	91	183	331	498	721	908	1448	
Georgia		0	0	0	0	0	0	1	1	1	1	1	1	
Germany		0	0	4	22	80	163	359	618	1040	1558	1919	2191	
Ghana		0	0	0	0	0	5	18	18	18	18	18	18	
Greece		0	0	0	0	0	1	2	3	7	11	13	20	
Hungary		0	0	0	0	1	1	6	12	19	24	30	30	
Iceland		0	0	0	0	0	0	3	3	4	6	6	6	
India		0	0	0	0	0	0	0	0	0	0	1	2	
Ireland		0	0	0	1	6	9	14	28	39	44	54	69	
Israel		0	0	1	2	2	4	5	16	42	61	96	105	
Italy		0	0	3	13	22	37	71	127	192	255	339	374	
Jamaica		0	0	0	0	0	0	0	0	0	1	1	1	
Country	Date	May 8, 2022	May 15, 2022	May 22, 2022	May 29, 2022	June 5, 2022	June 12, 2022	June 19, 2022	June 26, 2022	July 3, 2022	July 10, 2022	July 17, 2022	July 21, 2022	Trend
Latvia		0	0	0	0	1	2	2	2	2	2	2	2	
Lebanon		0	0	0	0	0	0	0	1	1	1	1	1	
Luxembourg		0	0	0	0	0	0	1	3	3	6	6	8	
Malta		0	0	0	1	1	1	2	4	4	4	9	9	
Martinique		0	0	0	0	0	0	0	0	0	0	1	1	
Mexico		0	0	0	1	1	2	9	9	11	27	39	40	
Morocco		0	0	0	0	1	1	1	1	1	1	1	1	
Netherlands		0	0	2	12	40	60	95	211	257	402	549	712	
New Zealand		0	0	0	0	0	0	0	0	0	1	2	2	
Norway		0	0	0	0	2	2	2	4	17	25	38	46	
Panama		0	0	0	0	0	0	0	0	0	1	1	1	
Peru		0	0	0	0	0	0	0	1	3	18	92	126	
Poland		0	0	0	0	0	1	12	12	12	12	22	28	
Portugal		0	0	23	74	143	209	276	348	420	473	515	515	
Puerto Rico		0	0	0	0	0	0	0	0	1	2	8	8	
Romania		0	0	0	0	0	0	4	6	11	14	18	19	
Russia		0	0	0	0	0	0	0	0	0	0	1	1	
Saudi Arabia		0	0	0	0	0	0	0	0	0	0	1	1	
Serbia		0	0	0	0	0	0	1	1	1	1	1	1	
Singapore		0	0	0	0	0	0	0	1	1	4	6	6	
Slovakia		0	0	0	0	0	0	0	0	0	1	1	1	
Slovenia		0	0	0	2	3	6	7	9	9	18	19	27	
South Africa		0	0	0	0	0	0	0	1	2	2	3	3	
South Korea		0	0	0	0	0	0	0	1	1	1	1	1	
Spain		0	0	40	108	181	275	498	736	1196	2034	2835	3125	
Sweden		0	0	1	2	5	6	10	13	28	43	58	77	
Switzerland		0	0	1	4	8	14	31	55	91	140	198	216	
Taiwan		0	0	0	0	0	0	0	1	1	1	2	2	
Turkey		0	0	0	0	0	0	0	0	1	1	1	1	
United Arab Emirates		0	0	0	4	8	13	13	13	13	13	13	13	
United Kingdom		1	7	20	106	227	471	575	1077	1236	1553	1860	2142	
United States		0	0	2	17	32	57	133	252	553	964	1787	2316	
Venezuela		0	0	0	0	0	1	1	1	1	1	1	1	
World		1	7	109	433	932	1601	2629	4328	6351	9403	12824	15510	

CONCLUSION

It is clear from the above that the monkeypox outbreak is on the rise and the regulations adopted so far are not proving effective enough to tackle the problem. We believe that various countries are indulged in this dilemma by releasing legislation encouraging sex outside the normal man-woman relationship, admitting Lesbian, Gay, Bisexual, and Transgender (LGBT) entities as separate communities, and facilitating their sexual beliefs; on the other hand, closing eyes on the root of the problem while trying to treat the aftermath.

Authors' Contributions

Contributed to conception and design: A.Y.N. and S.I.H. Contributed to acquisition of data: S.I.H. Contributed to analyses of data: A.Y.N. and S.I.H. Contributed to interpretation of data: A.Y.N. and S.I.H. Drafting the work: A.Y.N., S.I.H., and S.Q. Revising the paper for important intellectual content: all authors. Final approval of the version submitted: all authors. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved: all authors. All authors have read and approved the manuscript.

Availability of Data and Materials: Publicly available dataset was analyzed in this study. This data can be found here: <https://github.com/globaldothealth/monkeypox>

Potential Conflicts of Interest: None

Competing Interest: None

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