



SHORT COMMUNICATION

Global Infectious Diseases in July 2023: Monthly Analysis

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ABSTRACT

Many infectious diseases are ubiquitous and pose persistent adverse effects on public health. Infectious diseases have also been leading causes of high mortality in different periods of history. Real-time monitoring and analysis of global infectious disease transmission can provide a comprehensive understanding of critical information regarding the transmission routes, scope, velocity, and effects of viruses or bacteria. Here, using Shusi Tech's Global Epidemic Information Monitoring System, we analyzed the prevalence of infectious diseases worldwide. We describe types of infectious diseases with relatively low incidence from 24 June 2023 to 23 July 2023 as comprehensively as possible.

Key words: Infectious disease, COVID-19, Mpox, Dengue virus, Chikungunya

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Received: August 14 2023

Revised: August 14 2023

Accepted: August 14 2023

Published Online: August 24 2023

INTRODUCTION

The diversity of infectious disease threats is currently unprecedented. Novel infectious diseases can emerge in any region of the world. Because of globalization, infectious diseases can be exponentially transmitted among populations in a relatively short period, thus adversely affecting general public health and potentially the economy. The risk of infection remains prevalent in our fast-paced world, and the number of deaths caused by infection is expected to remain at approximately 13–15 million annually until 2030 [1].

Therefore, to better inform public health measures, we conducted continual surveillance of global infectious diseases from 24 June to 23 July 2023 by using Shusi Tech's Global Epidemic Information Monitoring System (Fig 1). Although the worldwide count of COVID-19 cases has decreased since May 2023, the burden of

morbidity and mortality associated with the COVID-19 pandemic still falls most heavily on people in developing countries in Western Pacific and African countries. Mpox and other infectious diseases still pose a broad and persistent challenge in public health worldwide.

COVID-19

To elucidate the fact, we have used COVID-19 to refer to the disease and SARS-CoV-2 to refer to the infectious agent, per WHO. Over the past few years, the global community has been confronted with the formidable challenge of managing the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) virus, causing the disease COVID-19. Recognizing that the SARS-CoV-2 virus is undergoing mutations that may result in immune evasion, is critical. According to the World Health Organization's (WHO) latest

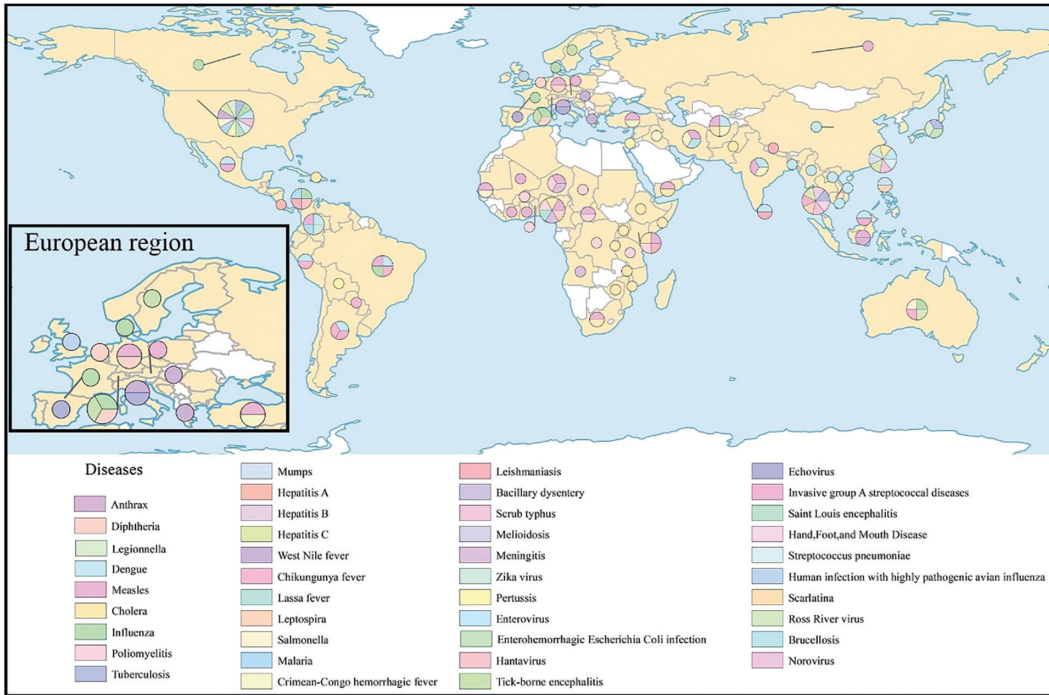


FIGURE 1 | Worldwide distribution of infectious diseases from 24 June 2023 to 23 July 2023.

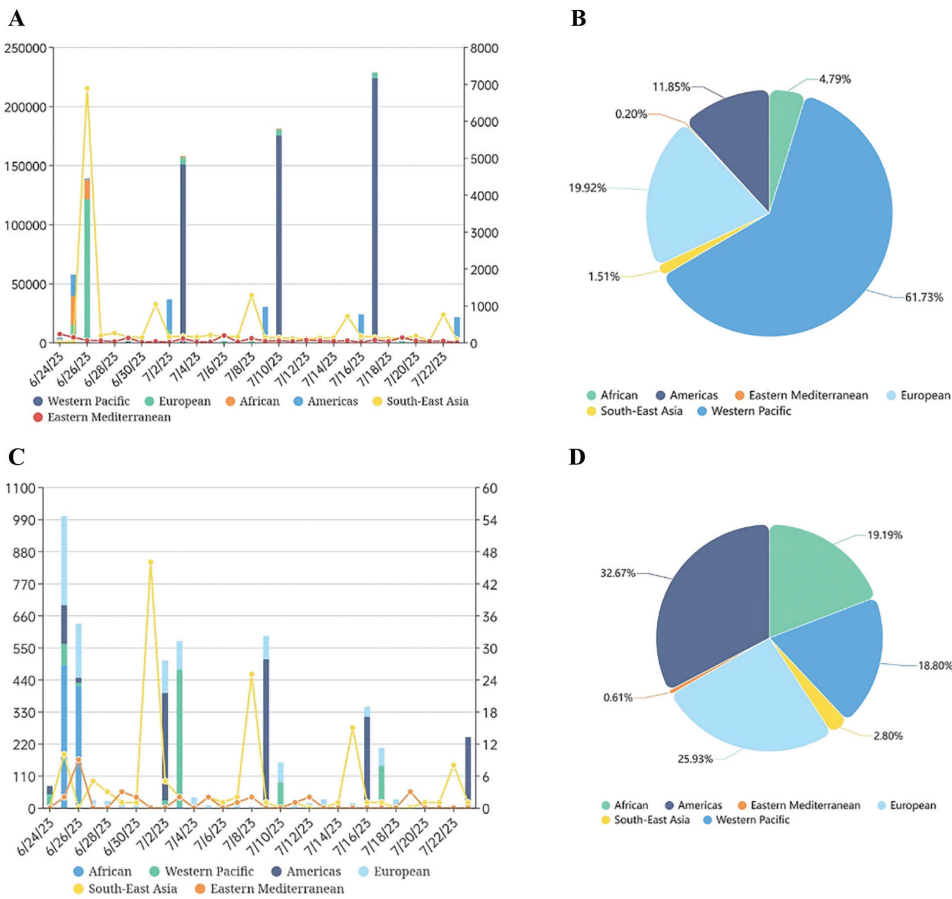


FIGURE 2 | Statistics on new confirmed cases and deaths due to COVID-19 worldwide daily. A, C: New cases and deaths due to COVID-19, reported daily on every continent. B, D: Continent-specific proportions of new confirmed cases and deaths due to COVID-19 (24 June 2023 to 23 July 2023; data were obtained from the WHO website: <https://COVID19.who.int/>).

report spanning 24 June to 23 July 2023, 930,478 new cases and 4,794 new fatalities occurred, representing a noticeable decline with respect to the preceding month. The proportion of new patients in the Western Pacific remains highest, accounting for approximately 70% (Fig 2). Although the number of COVID-19 cases has decreased, the risk and potential future effects must not be underestimated.

MPOX

Since early May 2022, cases of Mpox have been reported in multiple countries. The most affected countries globally are the United States, Brazil, Spain, France, Colombia, Mexico, Peru, the United Kingdom, Germany, and Canada. Together, these countries accounted for 83.5% of the cases reported

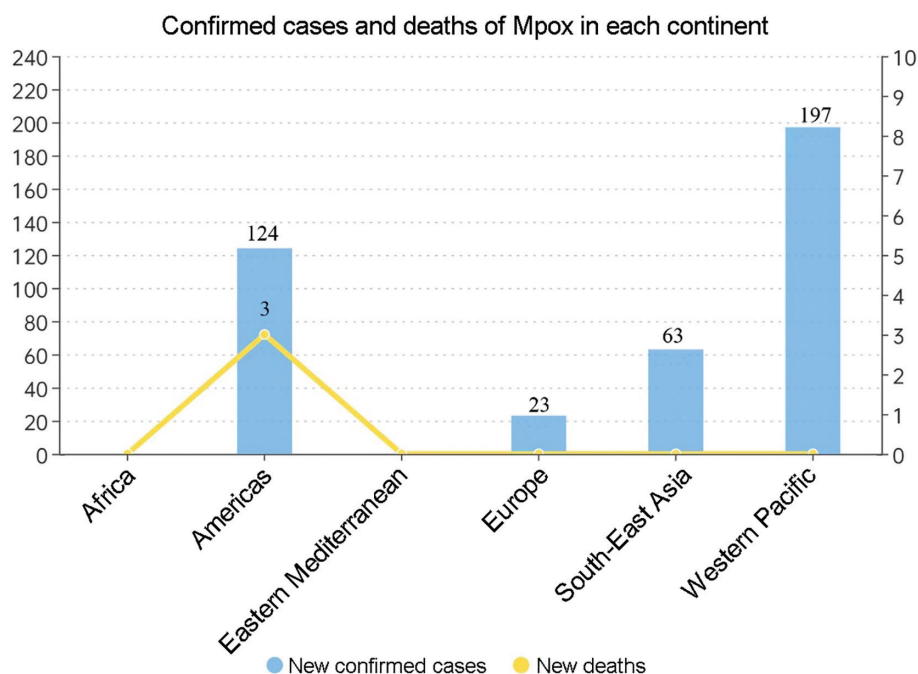


FIGURE 3 | Statistics of new confirmed Mpox cases from 24 June 2023 to 23 July 2023. A: Confirmed Mpox cases and deaths by continent (the primary coordinate on the left is the columnar ordinate, the secondary coordinate on the right is the broken line ordinate. Data were obtained from the WHO website (http://worldhealthorg.shinyapps.io/mpx_global/#3_Detailed_case_data).

TABLE 1 | Worldwide cholera cases reported between 24/06/2023 and 23/07/2023.

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
1/1/2023–22/7/2023	Afghanistan	105775	50	WHO Regional Office for the Eastern Mediterranean
27/8/2022–23/7/2023	Ethiopia	15685	189	WHO Regional Office for Africa
1/1/2023–10/7/2023	Pakistan	75		Outbreak News Today
1/1/2023–23/7/2023	Somalia	11469 (43)	30	WHO Regional Office for the Eastern Mediterranean
1/1/2023–9/7/2023	Burundi	574	9	WHO Regional Office for Africa
2/10/2022–15/7/2023	Haiti	54826	793	Haiti Ministry of Public Health and Population
12/2/2023–23/7/2023	Zimbabwe	3687 (841)	80	WHO Regional Office for Africa
5/10/2022–21/7/2023	Kenya	11872 (567)	194	WHO Regional Office for Africa
3/3/2022–25/7/2023	Malawi	58948	1767	Malawi Ministry of Health
14/9/2022–23/7/2023	Mozambique	33453	141	WHO Regional Office for Africa
3/2/2023–29/6/2023	South Africa	1301 (198)	43	WHO Regional Office for Africa
1/1/2023–2/7/2023	Nigeria	2052	55	Nigeria CDC
1/1/2023–30/6/2023	Yemen	3878	4	WHO Regional Office for the Eastern Mediterranean
6/7/2023–6/7/2023	Taiwan, China	1		Taiwan Centers for Disease Control, China

globally. In July, Trinidad and Tobago recorded its first case of Mpox. According to WHO data, the ongoing outbreak is developing primarily in networks of men who have sex with men. Fig 3 shows the new cases and deaths due to Mpox in each continent from 24 June to 23 July 2023.

CHOLERA

Cholera cases have been reported in multiple countries since the start of 2023. Africa remains the most affected region, and 14 African countries have reported cholera cases since the beginning of the year. Developing countries such as Afghanistan, Zimbabwe, and Malawi remain the main areas of cholera outbreaks (Table 1). Nearly 10,000 people have lost their lives to cholera since 2023. Because of a global shortage in resources, including a lack of oral cholera vaccines, the ability to respond to multiple and simultaneous attacks remains limited.

DENGUE

Dengue fever is an acute infectious disease caused by the dengue virus, one of the world's most widely disseminated insect-borne infectious diseases. With increases in overseas

tourism and business trade, the number of dengue fever cases this year has increased significantly since last year. The prevention and control pressures have also increased. Brazil and Peru, located in tropical rainforest areas, have reported more than 2 million cases of dengue fever this year, and nearly 1,000 people have died. Notably, Bangladesh, Laos, Malaysia, and other countries have also reported tens of thousands of dengue fever outbreaks (Table 2).

MEASLES

Measles is highly contagious among humans but can be prevented through vaccination. The immunization rate against measles has gradually declined since the onset of the COVID-19 pandemic. Millions of children are susceptible to contracting the measles virus. The data indicated that Afghanistan, Nigeria, and India have had substantial measles outbreaks (Table 3).

CHIKUNGUNYA

Chikungunya virus (CHIKV) is a virus belonging to the Alphavirus genus. CHIKV is transmitted through mosquito bites and can cause intense joint pain in humans. This virus

TABLE 2 | Worldwide dengue cases reported between 24/06/2023 and 23/07/2023.

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
1/1/2023–8/7/2023	Afghanistan	425	1	WHO Regional Office for the Eastern Mediterranean
1/1/2023–22/7/2023	Argentina	120714	65	WHO Regional Office for the Americas
1/1/2023–22/7/2023	Brazil	2490885 (1133538)	866	WHO Regional Office for the Americas
1/1/2023–22/7/2023	Philippines	85692	299	Philippines Health Ministry
1/1/2023–15/7/2023	Colombia	54789	30	WHO Regional Office for the Americas
1/1/2023–15/7/2023	Cambodia	6683	14	WHO Regional Office for the Western Pacific
1/1/2023–18/7/2023	Laos	11833	6	Xinhuanet
1/1/2023–20/7/2023	Malaysia	65836	45	Ministry of Health of Malaysia
8/6/2023–7/7/2023	Mauritius	147		WHO Regional Office for Africa
1/1/2023–23/7/2023	Bangladesh	32977	176	Ministry of Health and Family Welfare, Bangladesh
1/1/2023–15/7/2023	Peru	206890	357	WHO Regional Office for the Americas
1/1/2023–15/7/2023	Burma	6685	30	Xinhuanet
1/1/2023–1/7/2023	Mexico	32497 (4515)	5	WHO Regional Office for the Americas
1/1/2023–4/7/2023	Sri Lanka	50054	31	Outbreak News Today
20/7/2023–21/7/2023	Singapore	23		Singapore Environment Agency
20/7/2023	India	5		Outbreak News Today
1/1/2023–16/7/2023	Vietnam	46658	11	WHO Regional Office for the Western Pacific
1/1/2023–20/7/2023	Taiwan, China	431	1	Taiwan Disease Control Agency, China
1/1/2023–20/7/2023	Hong Kong, China	19		Centre for Health Protection, Hong Kong, China

TABLE 3 | Worldwide measles cases reported between 24/06/2023 and 23/07/2023.

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
1/1/2023–22/7/2023	Afghanistan	18221 (2063)	50	WHO Regional Office for the Eastern Mediterranean
1/1/2023–14/7/2023	Austria	135		ProMED-mail
1/1/2023–17/7/2023	Ghana	1956 (938)		WHO
1/1/2023–15/7/2023	Brazil	1208		WHO Regional Office for the Americas
1/1/2023–2/7/2023	Germany	54		EU CDC
1/1/2023–17/7/2023	Russia	3809		WHO
1/1/2023–1/7/2023	Colombia	921		WHO Regional Office for the Americas
1/1/2023–27/7/2023	Kazakhstan	0 (2694)		Outbreak News Today
1/1/2023–17/7/2023	Cote d'Ivoire	3463		WHO
1/1/2023–7/7/2023	Kenya	710 (141)	10	WHO Regional Office for Africa
1/1/2023–17/7/2023	Malaysia	2436		WHO
1/1/2023–2/7/2023	Mali	634 (276)		WHO Regional Office for Africa
1/1/2023–15/7/2023	Mexico	1222		WHO Regional Office for the Americas
8/10/2022–22/7/2023	South Africa	6541 (1115)		ProMED-mail
1/1/2023–9/7/2023	Niger	1650		WHO Regional Office for Africa
1/1/2023–17/7/2023	Nigeria	11341		WHO
1/1/2023–9/7/2023	Senegal	410		WHO Regional Office for Africa
1/1/2023–17/7/2023	Turkey	3776		WHO
1/1/2023–17/7/2023	Yemen	25850		WHO
1/1/2023–17/7/2023	Iran	3713		WHO
1/1/2023–17/7/2023	India	96629		WHO
1/1/2023–17/7/2023	Indonesia	8083		WHO
1/1/2023–2/7/2023	Central African Republic	1736	1	WHO Regional Office for Africa

is now fully adapted to an urban transmission cycle, thus posing a considerable risk in many tropical and temperate regions. Several modeling studies have predicted that the intensification and expansion of vector-borne diseases are likely to be a major threat resulting from climate change in tropical and temperate zones [2]. In the past few weeks, outbreaks of CHIKV have been reported primarily in tropical countries such as Argentina, Paraguay, Brazil, and Thailand. Although Chikungunya fever is a self-limiting disease with a low associated fatality, cases of death have also been reported (Table 4).

INFLUENZA

Influenza, a respiratory infection, poses substantial clinical, humanistic, and economic burdens on patients, caregivers, and healthcare systems worldwide through seasonal epidemics and sporadic pandemics. Each year, an estimated 5 million cases of severe illness occur worldwide, and as many as 650,000 deaths are attributed to seasonal influenza [3]. The

spread of influenza has slowed since the previous month. As shown in Table 5, influenza outbreaks have been restricted mainly to America and Northern Europe. Influenza viruses are continually changing through antigenic drift (mutation) and shift (reassortment of the segmented viral genome), which help the viruses avoid vaccine immunity and develop resistance to drugs. Antigenic drift explains the occurrence of seasonal influenza infections and the need for annual influenza booster vaccines.

MALARIA

Although many countries have achieved tremendous progress in the past two decades in ameliorating the effects of malaria, malaria continues to be a challenging health problem in developing countries. More than 6,000 new cases in malaria-endemic countries were reported globally in 2023 (Table 6). Most of the increase in cases has been in Panama, Colombia, and Korea in the past few weeks, although no malaria deaths have been reported. Surveillance of emerging

TABLE 4 | Worldwide Chikungunya virus cases reported between 24/06/2023 and 23/07/2023.

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
1/1/2023–22/7/2023	Argentina	1604		WHO Regional Office for the Americas
1/1/2023–15/7/2023	Paraguay	105359	269	WHO Regional Office for the Americas
1/1/2023–22/7/2023	Brazil	209489 (90926)	69	WHO Regional Office for the Americas
1/1/2023–1/7/2023	Peru	382 (57)		WHO Regional Office for the Americas
1/1/2023–19/7/2023	Thailand	0 (637)		Thai Ministry of Health

TABLE 5 | Worldwide influenza cases reported between 24/06/2023 and 23/07/2023.

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
2/10/2022–22/7/2023	America	0 (356390)		US CDC
1/1/2023–23/7/2023	Austria	174898	162	Australian Department of Health
2/1/2023–9/7/2023	Brazil	18870		WHO
18/6/2023–22/7/2023	Canada	438		Public Health Agency of Canada
2/1/2023–25/6/2023	Denmark	18703		WHO
2/1/2023–16/7/2023	France	18774		WHO
1/1/2023–15/7/2023	Panama	850	33	Panamanian Ministry of Health
2/1/2023–16/7/2023	Switzerland	13257		WHO

TABLE 6 | Worldwide malaria cases reported between 24/06/2023 and 23/07/2023.

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
1/1/2023–22/7/2023	Panama	6282		Panamanian Ministry of Health
1/1/2023–18/7/2023	America	7		Outbreak News Today
1/1/2023–15/7/2023	Colombia	45171		ProMED-mail
1/1/2023–22/7/2023	Korea	0 (435)		Korea CDC

data on malaria is necessary to maintain prevention strategies that may effectively alleviate the worldwide malaria burden.

SPORADIC INFECTIOUS DISEASES

The incidence of other infectious diseases has been sporadically detected (Table 7). Notably, among these reports, new cases of tuberculosis and hepatitis infection have increased rapidly. Although small outbreaks have occurred in several Asian countries, tuberculosis has not been reported to spread across continents. In contrast, hepatitis, particularly hepatitis C virus, is spreading quickly among populations in Asian countries. Because

chronic hepatitis C virus infection ultimately leads to fibrosis, cirrhosis, and other complications, increasing access to testing and treatment, as well as improving surveillance and monitoring, are urgently needed to address the public health burden.

CONCLUSION

The SARS-CoV-2 virus has spread worldwide in the past few years. Although many people believe that the virus has disappeared, the world seems to be gradually entering the “post-epidemic period.” From 1 January 2023 to 11 July 2023, a cumulative total of 88,288 laboratory-confirmed cases of Mpox were reported in 112 countries and

TABLE 7 | Worldwide sporadic infectious cases reported between 24/06/2023 and 23/07/2023.

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
Tuberculosis				
1/1/2023–30/6/2023	Thailand	4280	10	Thai Ministry of Health
1/1/2023–24/7/2023	Macau, China	121		Health Bureau of Macau, China
1/1/2023–22/7/2023	Korea	9177		Korea CDC
1/1/2023–22/7/2023	America	2816		US CDC
Pertussis				
1/1/2023–29/6/2023	Israel	326		ProMED-mail
1/1/2023–24/7/2023	Bolivia	473	7	Bolivian Ministry of Health and Sports
1/1/2023–22/7/2023	America	2179		US CDC
Crimean-Congo hemorrhagic fever				
1/1/2023–28/6/2023	Iran	19	1	ProMED-mail
5/7/2023–5/7/2–23	India	1	1	ProMED-mail
1/1/2023–4/7/2023	Turkey	41	2	ProMED-mail
1/1/2023–12/7/2023	Iraq	377	41	ProMED-mail
1/1/2023–9/7/2023	Georgia	12	1	ProMED-mail
21/4/2023–13/7/2023	Senegal	3	1	WHO Regional Office for Africa
1/1/2023–22/7/2023	Afghanistan	677 (225)	67	WHO Regional Office for the Eastern Mediterranean
Leishmaniasis				
1/1/2023–30/6/2023	Nepal	20		ProMED-mail
7/7/2023–7/7/2023	Korea	1		Korea CDC
1/1/2023–14/7/2023	Sri Lanka	1859		Sri Lanka Ministry of Health
3/1/2020–20/7/2023	Kenya	0 (2387)	10	WHO Regional Office for Africa
1/1/2023–22/7/2023	Panamanian	968		Panamanian Ministry of Health
Legionella				
1/1/2023–8/7/2023	Taiwan, China	160		Taiwan Disease Control Agency, China
1/1/2023–22/7/2023	Hong Kong, China	59		Centre for Health Protection, Hong Kong, China
1/1/2023–15/7/2023	America	2452		US CDC
1/1/2023–16/7/2023	Japan	1105		Japan National Institute of Infectious Diseases
Enterovirus				
1/1/2023–24/7/2023	Macau, China	2258		Health Bureau of Macau, China
Anthrax				
4/7/2023	Indonesia	90	3	ProMED-mail
Hantavirus				
1/1/2023–8/7/2023	Panamanian	26	1	Panamanian Ministry of Health
Leptospira				
1/1/2023–10/7/2023	Fiji	36	1	United Nations Office for the Coordination of Humanitarian Affairs
1/1/2023–29/6/2023	Vanuatu	85	6	United Nations Office for the Coordination of Humanitarian Affairs

TABLE 7 | (continued)

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
1/1/2023–14/7/2023	Sri Lanka	5173		Sri Lanka Ministry of Health
1/1/2023–30/6/2023	Thailand	1347	15	Thai Ministry of Health
1/1/2023–15/7/2023	Philippines	2079	225	Philippine Department of Health
Tick-borne encephalitis				
1/1/2023–4/7/2023	Sweden	70		ProMED-mail
1/1/2023–3/7/2023	Slovakia	85		ProMED-mail
1/1/2023–30/6/2023	Czech Republic	102		ProMED-mail
1/1/2023–24/7/2023	Switzerland	157		ProMED-mail
Melioidosis				
1/1/2023–30/6/2023	Hong Kong, China	7		Centre for Health Protection, Hong Kong, China
Meningitis				
1/1/2023–30/6/2023	Angola	103	42	ProMED-mail
31/10/2022–9/7/2023	Niger	2158	129	WHO Regional Office for Africa
Diphtheria				
1/12/2022–30/6/2023	Nigeria	798	80	Nigeria CDC
1/1/2023–10/7/2023	Germany	32		EU CDC
1/1/2023–10/7/2023	Switzerland	8		EU CDC
1/1/2023–10/7/2023	Belgium	6	1	EU CDC
1/1/2023–24/7/2023	Nigeria	836	83	Nigeria CDC
Hepatitis A				
19/7/2023	Costa Rica	4 (9)		Outbreak News Today
Hepatitis B				
1/1/2023–30/6/2023	Thailand	4522		Thai Ministry of Health
Hepatitis C				
1/1/2023–30/6/2023	Thailand	557		Thai Ministry of Health
1/1/2023–1/7/2023	America	2158		US CDC
1/1/2023–15/7/2023	Taiwan, China	318		Taiwan Disease Control Agency, China
1/1/2023–22/7/2023	Korea	4328		Korea CDC
Scrub typhus				
1/1/2023–30/6/2023	Thailand	2028	2	Thai Ministry of Health
1/1/2023–8/7/2023	Taiwan, China	75		Taiwan Disease Control Agency, China
Echovirus				
1/4/2023–26/6/2023	Italy	7		WHO
1/1/2023–26/6/2023	Spain	2	1	WHO
Invasive group A streptococcus diseases				
1/1/2023–9/7/2023	Argentina	118	16	Outbreak News Today
1/1/2023–9/7/2023	Australia	1284		Australian Department of Health

TABLE 7 | (continued)

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
Poliomyelitis				
28/6/2023–4/7/2023	Burkina Faso	1		The Global Polio website
28/6/2023–4/7/2023	Nigeria	6		The Global Polio website
5/7/2023–11/7/2023	Benin	2		The Global Polio website
5/7/2023–11/7/2023	Kenya	2		The Global Polio website
5/7/2023–11/7/2023	Central African Republic	3		The Global Polio website
5/7/2023–11/7/2023	Niger	1		The Global Polio website
12/7/2023–19/7/2023	Chad	15		The Global Polio website
12/7/2023–19/7/2023	Tanzania	1		The Global Polio website
12/7/2023–19/7/2023	The Democratic Republic of the Congo	93		The Global Polio website
Saint Louis encephalitis				
7/7/2023–7/7/2023	America	1		Outbreak News Today
Hand, foot, and mouth disease				
1/1/2023–30/6/2023	Thailand	19786		Thai Ministry of Health
11/7/2023–11/7/2023	Hong Kong, China	21		Centre for Health Protection, Hong Kong, China
Mumps				
1/1/2023–1/7/2023	Taiwan, China	140		Taiwan Disease Control Agency, China
1/1/2023–22/7/2023	Korea	5043		Korea CDC
Zika virus				
1/1/2023–1/7/2023	Columbia	78		WHO Regional Office for the Americas
1/1/2023–15/7/2023	Brazil	25970 (2736)	2	WHO Regional Office for the Americas
West Nile fever				
13/7/2023	Italy	1		EU CDC
13/7/2023–19/7/2023	Greece	1		EU CDC
13/7/2023–19/7/2023	Hungary	1		EU CDC
1/1/2023–18/7/2023	America	47		US CDC
Enterohemorrhagic Escherichia coli infection				
1/1/2023–23/7/2023	Japan	1475		Japan National Institute of Infectious Diseases
Bacillary dysentery				
1/1/2023–8/7/2023	America	7060		US CDC
Streptococcus pneumonia				
1/1/2023–15/7/2023	America	10237		US CDC
1/1/2023–15/7/2023	Taiwan, China	172		Taiwan Disease Control Agency, China
Human infection with highly pathogenic avian influenza				
1/3/2023–10/7/2023	England	4		Health and Safety Executive

TABLE 7 | (continued)

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
Scarlatina				
1/1/2023–24/7/2023	Macau, China	36		Health Bureau of Macau, China
Salmonella				
1/1/2023–22/7/2023	America	21642		US CDC
1/1/2023–9/7/2023	Australia	6501		Australian Department of Health
Ross River virus				
1/1/2023–9/7/2023	Australia	1201		Australian Department of Health
Lassa fever				
1/1/2023–23/7/2023	Nigeria	6597 (1009)	171	Nigeria CDC
Norovirus				
1/1/2023–30/6/2023	America	13		US CDC
Brucellosis				
1/1/2023–24/7/2023	Iran	1860		ProMED-mail

regions worldwide. In comparison, in recent months, the number of new Mpox cases has been relatively high in the Western Pacific region, including China. Compared with that in European and American regions, the transmission level of Mpox in Southeast Asia has significantly increased, primarily as a result of local community transmission in Thailand. According to the WHO, as of 11 July, 96.2% of confirmed cases were in males, with a median age of 34, and the age and sex distribution has remained stable. By disseminating knowledge regarding hygiene, increasing public awareness of protection methods, and taking timely and effective preventive measures, the risk of infection can be significantly decreased, and the spread of the epidemic can be effectively controlled. A recent report from the WHO has indicated that the number of dengue fever cases has continually increased in Southeast Asian countries this year. Cambodia, Laos, Malaysia, and the Philippines have all seen substantial increases in dengue fever cases over the same period last year, thus indicating challenges to regional public health systems. Global climate change may result in warmer seasons, thus accelerating the reproduction and transmission of disease vectors [4]. To prevent the spread of dengue fever, countries in Southeast Asia have implemented several measures. Since mid-2021, the world has faced an acute cholera upsurge, in the number, size, and concurrence of multiple outbreaks in the 7th cholera pandemic. Spread to areas that had been free of cholera for decades, and alarming high mortality rates, have been reported. In 2021, 23 countries reported cholera outbreaks, mainly in the WHO regions of Africa and the Eastern Mediterranean.

This trend continued into 2022, when 30 countries across five of the six WHO regions reported cholera cases or outbreaks. Among those, 14 had not reported cholera in 2021, including countries that had not reported cholera cases over 3 years (Haiti and the Dominican Republic), whereas most of the remaining countries have reported higher case numbers and case fatality ratios than in previous years. According to seasonality patterns, large parts of the world are currently in a low or interepidemic transmission period. This number could increase in future months. According to the WHO, in July of this year, a man from the United Arab Emirates was diagnosed with Middle East respiratory syndrome, and 108 people had had close contact with him, thus drawing attention from many countries. Middle East respiratory syndrome, also known as camel flu, is a zoonotic disease with a fatality rate as high as 35%, which ranks as the fifth most lethal disease [5]. The WHO continually monitors the situation and urges other countries to promptly consider their countries. This warning should prompt the world to remain vigilant, and to take timely and effective measures to control the spread of the virus. In addition, the WHO has reported the first outbreak of Marburg virus, a filovirus that causes a hemorrhagic fever similar to the Ebola virus, in an African country. This virus can be transmitted from person to person and has a high fatality rate of approximately 90%. A total of 15 confirmed cases, 23 suspected cases, and 34 deaths have been reported. In addition, the global trends of epidemics such as cholera, influenza virus, and hepatitis virus require continuous tracking and attention.

ACKNOWLEDGEMENTS

This project was conceived and designed by Jing Xie and Dayong Gu. Jing Xie and Dayong Gu conceived and designed the project. Guodan Li, Dongliang Liu, and Ying Zhou collected the data. Guodan Li and Dongliang Liu authored the manuscript, and Shiping He revised the manuscript. The study was supervised by Jing Xie. This research was supported by the National Key Research and Development Program of China (No. 2022YFC2302700), the Guangdong Science and Technology Foundation (Nos. 2021A1515220084 and 2020B1111160001), and the Shenzhen Science and Technology Foundation (Nos. ZDSYS20210623092001003, GJHZ20200731095604013, JSJG20220301090003004, and GJHZ20210705142007022).

CONFLICTS OF INTEREST

The authors declare no potential conflicts of interest with respect to the research, authorship, and publication of this article.

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