



SHORT COMMUNICATION

Global Infectious Diseases in June 2023: Monthly Analysis

Shuqiong Zhang^{1, #}, Xin Fu^{1, #}, Shiping He¹, Jiazhen Zou¹, Yi Luo¹, Guodan Li¹, Qi Xiang¹, Taihan Li¹, Dayong Gu¹, Qun Su², Minjing He^{1, *} and Wenjin Yu^{3, *}

ABSTRACT

Infectious diseases are a class of diseases caused by various pathogens that can be transmitted between humans and animals or between humans and animals, thus seriously affecting the development of human society. To control the spread of infectious diseases worldwide and ensure the safety of people's lives, it is essential to regularly analyze global infectious disease cases. This review is based on data from the World Health Organization, the Centers for Disease Control in countries around the world, Outbreak News Today and many other epidemiological websites to predict the global infectious disease outbreak trend. In addition, using the Shuci Technology global epidemic information monitoring system, we analyzed the distribution of infectious diseases that occurred around the world from 24 May 2023 to 23 June 2023.

Keywords: Infectious diseases, COVID-19, Influenza, Monkeypox, Measles

#Shuqiong Zhang and Xin Fu have contributed equally to this work.

*Corresponding authors:

E-mail: minjinghe0818@163.com (MH); 1135529689@qq.com, Tel: +86-13538047813 (WY)

¹Department of Laboratory Medicine, Shenzhen Second People's Hospital, The First Affiliated Hospital of Shenzhen University, Health Science Center, Shenzhen, China

²School of Computer and Information Engineering, Xiamen University of Technology, Xiamen, Fujian, China

³Shenzhen Data Thinking Corporation, Shenzhen, China

Received: July 11 2023

Revised: July 13 2023

Accepted: July 13 2023

Published Online: July 28 2023

INTRODUCTION

Infectious diseases have threatened humanity throughout history. For example, the epidemic of severe acute respiratory syndrome coronavirus (SARS) in 2003, the prevalence of swine flu in 2009, the pandemic of Middle East respiratory syndrome coronavirus (MERS) in 2012, the outbreak of Ebola virus disease in 2013–2016, and the current pandemic of coronavirus disease 2019 (COVID-19) all resulted in severe morbidity and mortality and led to a devastating impact on global economy [1]. The increased international mobility, high-density urbanization, climate change, poor public health systems, and microbial adaptations are some of the main drivers for the emergence and spread of infectious diseases. Self-distancing, wearing masks, travel restrictions, avoiding gatherings, and vaccine administration are the common measures we have

adopted to control the pandemic diseases nowadays; however, the natural diversity of pathogens make the production of efficacious vaccines against diseases a large challenge. Therefore, monitoring the growing trends of global infectious diseases is particularly significant and necessary to control the pandemic.

In this review, data from epidemiologic websites were mined to predict the global outbreak trends of infectious diseases. We used the Shuci Tech Global Epidemic Information Monitoring System to analyze the global distribution of infectious diseases which have occurred between 24 May 2023 to 23 June 2023 (Fig 1).

COVID-19

The outbreak of the novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has clearly caused a major public health emergency

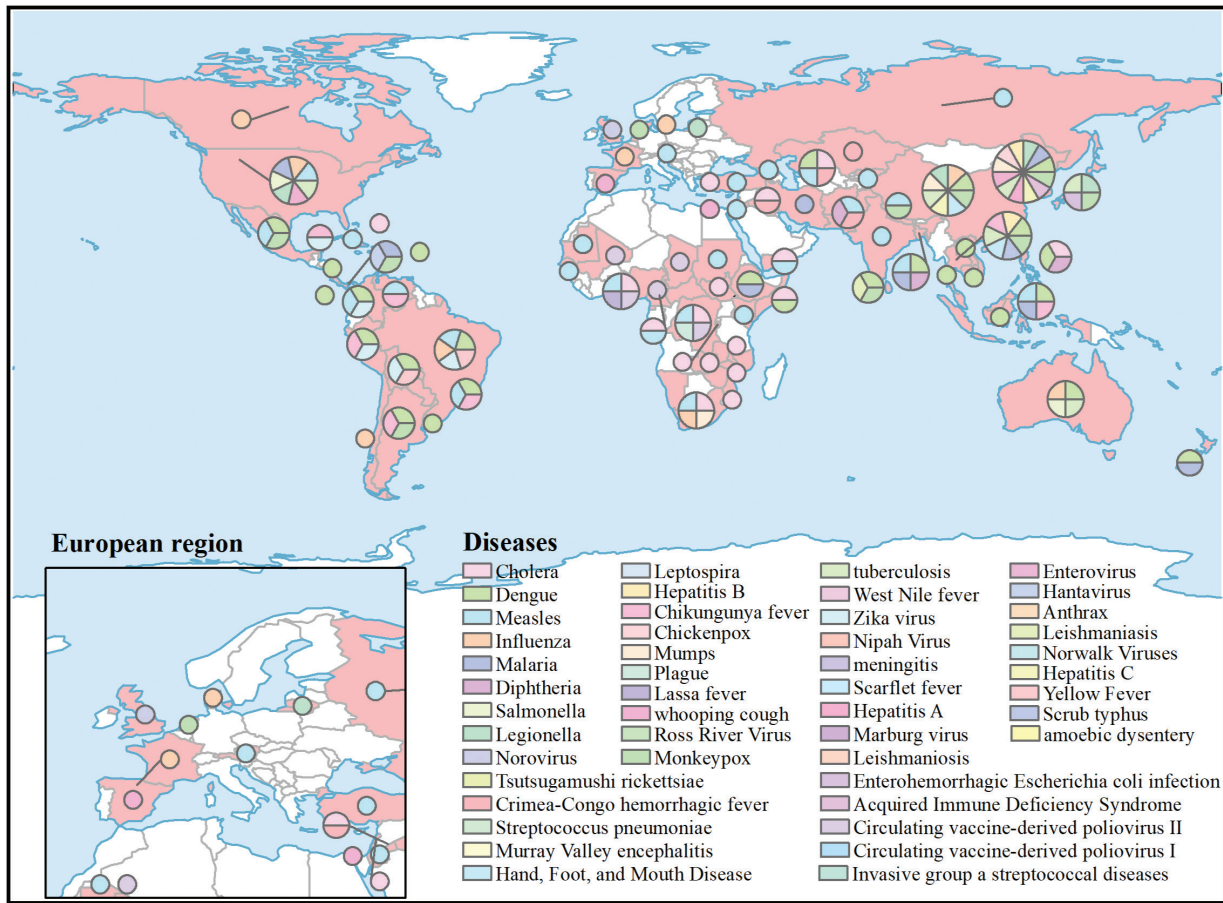


FIGURE 1 | Worldwide distribution of infectious diseases from 24 May to 23 June 2023.

worldwide. The reason for this threat is the infectious nature of the virus and the ability of the virus to rapidly evolve and mutate, thus leading to the emergence of new, less common strains. According to the World Health Organization, from 24 May to 23 June 2023, there were 1,222,682 new cases of COVID-19 worldwide, and 6,973 new deaths, both down approximately 40% from the previous month. Among the 6 WHO regions, the Western Pacific region still has the largest proportion of new cases (approximately 60%), but the greatest number of new deaths occur in the European region (Fig 2). Although the status of the epidemic in some areas has improved, the epidemic still needs continuous attention, prevention, and control.

MONKEYPOX

Monkeypox is a zoonotic disease caused by the monkeypox virus [2]. According to an analysis of WHO data, the number of monkeypox cases reported weekly has declined significantly in recent months from the global peak of 7576 cases observed in the week of 8 August 2022. In the past month, the number of new monkeypox cases mainly occurred in the Americas and western Pacific, where the number of new cases exceeded 150 (Fig 3). The main

prevention of monkeypox involves avoiding contact with infected individuals, including not only the patient, but also the patient's clothing and household items.

CHOLERA

Cholera, caused by *Vibrio cholerae*, can result in hypovolemic shock due to the rapid loss of fluids and electrolytes [3]. During June 2023, cholera outbreaks occurred in several countries, including Afghanistan and Zimbabwe, as shown in Table 1. Local medical workers are taking active measures to contain the spread of the epidemic. A combination of surveillance, water, sanitation and hygiene, social mobilization, treatment, and oral cholera vaccines are used to control the spread of cholera.

DENGUE

Dengue is transmitted by mosquitoes of the genus *Aedes*. Virus amplification occurs during the viremia phase when mosquitoes become infected by biting humans [4]. Tens of thousands of people in Indonesia, Peru, the Philippines, Sri Lanka, and Thailand have been infected with dengue this year (Table 2). Nearly 2000 people are infected in Malaysia every week. Dengue continues to spread rapidly

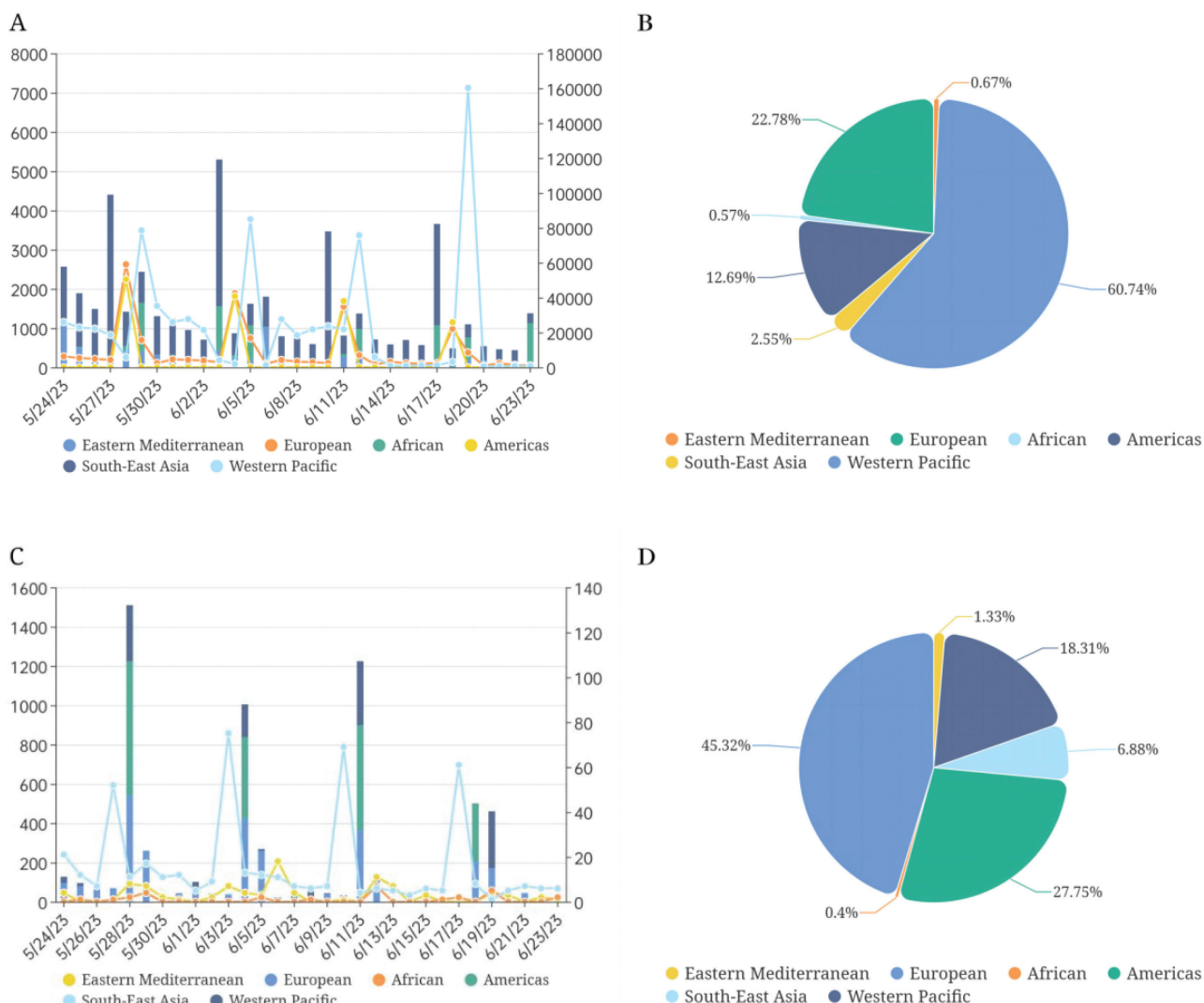


FIGURE 2 | Daily statistics on newly-confirmed cases and deaths due to COVID-19 worldwide. A, C: New cases and deaths due to COVID-19 have been reported daily on every continent (The primary coordinate on the left is the columnar ordinate, the secondary coordinate on the right is the broken line ordinate.). B, D: Continent-specific proportions of newly-confirmed cases and deaths due to COVID-19 (24 May 2023 to 23 June 2023; data were obtained from the WHO website [<https://COVID19.who.int/>]).

due to climate change, rapid urbanization, and population growth. Dengue outbreaks are usually seasonal, peaking during and after the rainy season, thus dengue is one of the infectious disease to watch closely during the hot and rainy summer months.

MEASLES

Measles, an acute respiratory infection caused by the measles virus, is easily transmitted between humans [5]. Since the development of the measles vaccine, measles deaths have declined worldwide and measles has been eliminated in some countries and territories, but measles remains one of the leading causes of death among young children worldwide. In June, new infections and deaths were reported in several countries, including Afghanistan and Nigeria (Table 3).

INFLUENZA

Influenza, caused by a negative-strand RNA virus of the Orthomyxoviridae family, is an acute respiratory infection that affects millions of people around the world annually [6]. The incidence of human influenza is seasonal because the viral survival and transmission is largely driven by climate conditions. As reported, the influenza cases in USA decreased at the beginning of summer compared to the past few months (Table 4). In contrast, the burden of flu infection remains high in Australia, where the influenza seasonal activity occurs in the winter months (June to August). To prevent an influenza epidemic, surveillance measures should be carried out continuously to monitor the directions of antigenic changes in the influenza virus.

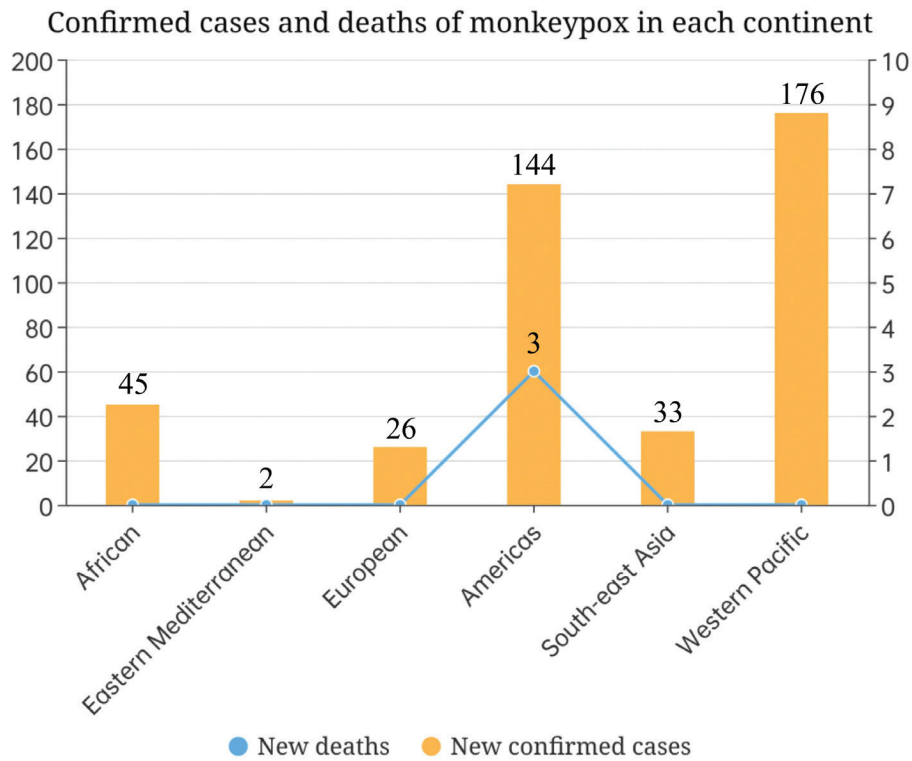


FIGURE 3 | Statistics of newly-confirmed monkeypox cases from 24 May 2023 to 23 June 2023. A: Confirmed monkeypox cases and deaths by continent (The primary coordinate on the left is the columnar ordinate, the secondary coordinate on the right is the broken line ordinate. Data were obtained from the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

TABLE 1 | Worldwide cholera cases reported between 24/05/2023 and 23/06/2023.

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the recorded period	Cumulative deaths reported during the recorded period	Data source
21/05/2023–27/05/2023	Afghanistan	4451	3	WHO Regional Office for the Eastern Mediterranean
28/05/2023–03/06/2023		4431		
04/06/2022–10/06/2023		3716	2	
01/01/2023–14/05/2023	Burundi	409 (175)	5	WHO Regional Office for Africa
15/05/2023–28/05/2023		41	2	
16/05/2023–30/05/2023	Cameroon	1070	26	Cameroon Ministry of Health
01/01/2023–15/05/2023	Democratic Republic of the Congo	20098	104	WHO
22/05/2023–28/05/2023		1167	18	United Nations Office for the Coordination of Humanitarian Affairs
02/10/2022–21/05/2023	Haiti	43320 (2835)	704	Haiti Ministry of Public Health and Population
22/05/2023–11/06/2023		3630 (241)	41	
01/01/2022–30/04/2023	Iraq	11097		WHO Regional Office for the Eastern Mediterranean
05/10/2023–11/06/2023	Lebanon	671	23	Outbreak News Today
03/03/2022–14/05/2023	Malawi	58673	1758	WHO Regional Office for Africa
15/05/2023–21/05/2023		78	2	
22/05/2023–28/05/2023		54	1	
29/05/2023–04/06/2023		16		
14/09/2022–07/05/2023	Mozambique	29808	131	WHO Regional Office for Africa

TABLE 1 | (continued)

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the recorded period	Cumulative deaths reported during the recorded period	Data source
08/05/2023–15/05/2023		617		
16/05/2023–29/05/2023		902		
03/04/2023–30/04/2023	Nigeria	47	2	Nigeria CDC
01/01/2023–06/05/2023	Philippines	1218	13	Philippines Department of Health
05/01/2023–07/05/2023	Somalia	529	3	WHO Regional Office for the Eastern Mediterranean
08/05/2023–14/05/2023		531	2	
15/05/2023–21/05/2023		535		
22/05/2023–28/05/2023		479	1	
29/05/2023–04/06/2023		404	1	
15/05/2023–28/05/2023	South Africa	229		Outbreak News Today
02/03/2022–02/06/2023		129	30	WHO Regional Office for Africa
03/06/2023–18/06/2023		37	1	ProMED-mail
22/02/2023–16/05/2023	South Sudan	1471 (19)	2	WHO Regional Office for Africa
01/01/2022–30/04/2023	Yemen	23997		WHO Regional Office for the Eastern Mediterranean
20/01/2023–08/05/2023	Zambia	509 (103)	11	WHO Regional Office for Africa
09/05/2023–25/05/2023		179	2	
12/02/2023–28/05/2023	Zimbabwe	1649	44	WHO Regional Office for Africa
29/05/2023–13/06/2023		811	19	Xinhua Network

TABLE 2 | Worldwide dengue cases reported between 24/05/2023 and 23/06/2023.

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the recorded period	Cumulative deaths reported during the recorded period	Data source
21/05/2023–27/05/2023	Afghanistan	27		WHO Regional Office for the Eastern Mediterranean
11/06/2023–17/06/2023		8		
07/05/2023–13/05/2023	Argentina	6440		WHO Regional Office for the Americas
14/05/2023–20/05/2023		5611		
28/05/2023–03/06/2023		5115		
15/05/2023–28/05/2023	Australia	24		Australian Government Department of Health
22/05/2023–28/05/2023	Bangladesh	324		Bangladesh Ministry of Health and Family Welfare
29/05/2023–04/06/2023		605	3	
05/06/2023–11/06/2023		834	8	
22/06/2023		300		Outbreak News Today
28/05/2023–03/06/2023	Bolivia	825		WHO Regional Office for the Americas
01/01/2023–06/05/2023	Brazil	1515460 (554542)	387	WHO Regional Office for the Americas
07/05/2023–13/05/2023	Cambodia	219		WHO Regional Office for the Western Pacific
21/05/2023–27/05/2023		343		
07/05/2023–13/05/2023	Colombia	2729		WHO Regional Office for the Americas
21/05/2023–27/05/2023		2133		
28/05/2023–03/06/2023		2569		

TABLE 2 | (continued)

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the recorded period	Cumulative deaths reported during the recorded period	Data source
21/05/2023–27/05/2023	Costa Rica	2070		Outbreak News Today
04/04/2023–10/05/2023	Ethiopia	1638 (103)	9	WHO Regional Office for Africa
31/05/2023–06/06/2023		410	127	United Nations Office for the Coordination of Humanitarian Affairs
25/05/2023–01/06/2023	Hong Kong, China	1		Hong Kong Centre for Health Protection, China
01/01/2023–04/06/2023	Indonesia	35694	270	ProMED-mail
04/06/2023–10/06/2023	Korea	1		Korea CDC
07/05/2023–13/05/2023	Laos	272		WHO Regional Office for the Western Pacific
21/05/2023–27/05/2023		288		
07/05/2023–13/05/2023	Malaysia	2242	2	Ministry of Health Malaysia
14/05/2023–20/05/2023		2444	2	
21/05/2023–27/05/2023		2638	3	
28/05/2023–03/06/2023		2455	3	
13/06/2023		464		
30/04/2023–06/05/2023	Mexico	914		WHO Regional Office for the Americas
21/05/2023–27/05/2023		783		
04/06/2023–10/06/2023		1068		
04/2023	New Zealand	2		New Zealand Ministry of Health
30/04/2023–06/05/2023	Nicaragua	1680		WHO Regional Office for the Americas
04/06/2023–10/06/2023		3320		
21/05/2023–27/05/2023	Paraguay	369		WHO Regional Office for the Americas
01/01/2023–13/05/2023	Peru	83693 (43102)	93	WHO Regional Office for the Americas
14/05/2023–27/05/2023		32256 (17076)	73	
28/05/2023–03/06/2023		9194		
04/06/2023–10/06/2023		15760		Outbreak News Today
01/01/2023–06/05/2023	Philippines	40032	127	Philippines Department of Health
07/05/2023–13/05/2023		8077	49	WHO Regional Office for the Western Pacific
23/05/2023	Puerto Rico	245		Outbreak News Today
24/05/2023	Singapore	11		Ministry of Health, Singapore
26/05/2023		12		
30/05/2023		13		
12/06/2023		40		National Environment Agency, Singapore
01/09/2022–30/04/2023	Somalia	5350	18	WHO Regional Office for the Eastern Mediterranean
01/01/2023–03/06/2023	Sri Lanka	39409	25	Outbreak News Today
04/06/2023–09/06/2023		2775		
10/06/2023–15/06/2023		2356		
13/06/2023	Taiwan, China	1		China News Network
01/01/2023–21/05/2023	Thailand	16650	14	Outbreak News Today
22/05/2023–07/06/2023		2853	3	
26/05/2023	Uruguay	300		Outbreak News Today
22/05/2023–28/05/2023	Vietnam	943		WHO Regional Office for the Western Pacific

TABLE 3 | Worldwide measles cases reported between 24/05/2023 and 23/06/2023.

Recorded period-Measles	Location	Cumulative suspected cases (confirmed cases) reported during the recorded period	Cumulative deaths reported during the recorded period	Data source
21/05/2023–27/05/2023	Afghanistan	537	2	WHO Regional Office for the Eastern Mediterranean
28/05/2023–03/06/2023		494	1	
04/06/2023–10/06/2023		524		
11/06/2023–17/06/2023		513	2	
31/03/2023–08/05/2023	Armenia	57		ProMED-mail
01/01/2023–26/05/2023	Austria	120		ProMED-mail
01/01/2023–06/05/2023	Bangladesh	286 (6)		WHO
01/01/2023–03/06/2023	Brazil	53	8	WHO Regional Office for the Americas
01/01/2023–07/05/2023	Cameroon	4504 (4152)	18	WHO Regional Office for Africa
01/01/2023–20/05/2023	Colombia	595		WHO Regional Office for the Americas
01/01/2023–05/06/2023	Côte d'Ivoire	2942 (600)		WHO
01/01/2023–03/06/2023	Cuba	1154		WHO Regional Office for the Americas
01/01/2023–30/04/2023	Democratic Republic of the Congo	92164 (1636)	1135	United Nations Office for the Coordination of Humanitarian Affairs
01/05/2023–28/05/2023		29946 (273)	511	
01/01/2023–25/05/2023	Eastern Samoa	76 (2)		Outbreak News Today
01/01/2023–05/06/2023	India	80136 (47155)		WHO
28/05/2023	Jordan	27		Healthmap
01/01/2023–11/05/2023	Kenya	270 (108)	4	WHO Regional Office for Africa
01/01/2023–19/05/2023	Kyrgyzstan	352		ProMED-mail
01/01/2023–05/06/2023	Malaysia	1720 (166)		WHO
01/01/2023–07/05/2023	Mauritania	285 (186)	3	WHO Regional Office for Africa
08/05/2023–14/05/2023		47 (17)	1	
07/05/2023–20/05/2023	Mexico	123		WHO Regional Office for Africa
01/01/2023–05/06/2023	Nepal	1582 (929)		WHO
01/01/2023–09/05/2023	Nigeria	5486 (1095)		WHO
10/05/2023–05/06/2023		2688 (198)		
01/01/2023–05/06/2023	Pakistan	9647 (5024)		WHO
01/01/2023–20/05/2023	Paraguay	1043		WHO Regional Office for the Americas
01/01/2023–05/06/2023	Russia	1051		WHO
01/01/2023–14/05/2023	Senegal	371		WHO Regional Office for Africa
23/04/2023–13/05/2023	South Africa	28		ProMED-mail
14/05/2023–20/05/2023		19		
01/01/2023–05/06/2023	Sudan	1013 (405)		WHO
01/01/2023–05/06/2023	Turkey	1440		WHO
02/06/2023	USA	1		ProMED-mail
01/01/2023–20/05/2023	Venezuela	652		WHO Regional Office for the Americas
01/01/2023–15/05/2023	Yemen	17451 (139)		WHO Regional Office for the Eastern Mediterranean
01/01/2023–05/06/2023		16706 (14441)		WHO

TABLE 4 | Worldwide influenza cases reported between 24/05/2023 and 23/06/2023.

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the recorded period	Data source
15/05/2023–28/05/2023	Australia	17277	Australian Government Department of Health
29/05/2023–11/06/2023		27540	
02/01/2023–21/05/2023	Brazil	11610	WHO
07/06/2023		1	
30/04/2023–20/05/2023	Canada	1205	Public Health Agency of Canada
02/01/2023–21/05/2023	Chile	4425	WHO
02/01/2023–21/05/2023	Denmark	18572	WHO
02/01/2023–21/05/2023	France	18337	WHO
23/05/2023	Macao, China	4	Government of the Macao Special Administrative Region
24/05/2023		3	
25/05/2023		1	
01/01/2023–28/05/2023	South Africa	454	ProMED-mail
14/05/2023–20/05/2023	USA	355	US CDC
21/05/2023–27/05/2023		331	
28/05/2023–03/06/2023		352	
04/06/2023–10/06/2023		255	

MALARIA

The data in Table 5 shows that approximately 3000 residents in Ethiopia are at risk of malaria within one week. Malaria remains a serious public health threat in Ethiopia. Widespread insecticide resistance in mosquito vectors, weaknesses in malaria surveillance, and a lack of high-quality healthcare are some of the major factors

that hinder progressive steps toward elimination of the disease [7].

TUBERCULOSIS

Tuberculosis (TB), caused by bacteria of the *Mycobacterium tuberculosis* complex, is one of the major killers of the human population after HIV/AIDS [8]. Data from Table 6

TABLE 5 | Worldwide malaria cases reported between 24/05/2023 and 23/06/2023.

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Data source
30/04/2023–06/05/2023	Bangladesh	89	WHO
31/05/2023–06/06/2023	Ethiopia	3153	United Nations Office for the Coordination of Humanitarian Affairs
31/05/2023	Iran	1	Outbreak News Today
01/01/2023–10/06/2023	Korea	173	Korea CDC
04/06/2023–10/06/2023		15	
01/01/2023–03/06/2023	Malaysia	840	ProMED-mail
01/04/2023	New Zealand	3	New Zealand Ministry of Health
21/05/2023–27/05/2023	Panama	123	Panama Ministry of Health
28/05/2023–03/06/2023		101	
04/06/2023–10/06/2023		88	
27/05/2023	USA	2	Outbreak News Today
04/06/2023–10/06/2023		14	U.S. CDC
20/06/2023		1	Outbreak News Today

TABLE 6 | Worldwide tuberculosis cases reported between 24/05/2023 and 23/06/2023.

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Data source
15/05/2023–28/05/2023	Australia	45	Australian Government Department of Health
08/05/2023–14/05/2023	Japan	239	National Institute of Infectious Diseases, Japan
15/05/2023–21/05/2023		217	
22/05/2023–28/05/2023		235	
29/05/2023–04/06/2023		251	
14/05/2023–20/05/2023	Korea	395	Korea CDC
28/05/2023–03/06/2023		358	
04/06/2023–10/06/2023		339	
01/04/2023	Macao, China	16	Government of the Macao Special Administrative Region
05/2023	Thailand	348	Ministry of Public Health, Thailand
04/06/2023–10/06/2023	USA	48	US CDC

demonstrate that the prevalence of TB infection is higher in Japan and Korea than other countries with similar economic power. A global program, “End TB Campaign,” which is managed by the WHO, has the goal of reducing the incidence of TB by 90% to 10 per 100,000 population by 2035. Continued efforts are necessary in Japan and Korea to eradicate TB.

OTHER INFECTIOUS DISEASES

In addition to the above-mentioned diseases, other global infectious diseases that occurred during the last month are listed in Table 7, including acquired immune deficiency syndrome (AIDS), amoebic dysentery,

anthrax, circulating vaccine-derived poliovirus I, circulating vaccine-derived poliovirus II, chickenpox, Chikungunya fever, Crimea-Congo hemorrhagic fever, diphtheria, and enterohemorrhagic *Escherichia coli* infection, enterovirus, hand, foot, and mouth disease, hantavirus, hepatitis A, hepatitis B, hepatitis C, invasive group A streptococcal diseases, Lassa fever, legionellosis, leptospirosis, leishmaniasis, Marburg virus, meningitis, mumps, Murray Valley encephalitis, Norwalk virus, norovirus, Nipah virus, plague, poliomyelitis, Ross River virus, salmonellosis, scarlet fever, scrub typhus, *Streptococcus pneumoniae*, *Rickettsia tsutsugamushi*, West Nile fever, whooping cough, yellow fever, and Zika virus.

TABLE 7 | Worldwide sporadic infectious cases reported between 24/05/2023 and 23/06/2023.

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
Acquired immune deficiency syndrome				
14/05/2023–20/05/2023	Korea	13		Korea CDC
Amoebic dysentery				
14/05/2023–20/05/2023	Taiwan, China	11		Taiwan CDC, China
05/2023	Thailand	93		Ministry of Public Health, Thailand
Anthrax				
02/06/2023	Ghana	11	1	ProMED-mail
01/01/2023–19/06/2023		30	1	
08/06/2023	Kazakhstan	4		ProMED-mail
10/04/2023–22/05/2023	Kenya	15	3	Outbreak News Today
05/05/2023–30/05/2023	Vietnam	13		ProMED-mail
31/05/2023–06/06/2023		1		

TABLE 7 | (continued)

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
Chickenpox				
04/06/2023–10/06/2023	Korea	488		Korea CDC
Chikungunya fever				
07/05/2023–13/05/2023	Argentina	71		WHO Regional Office for the Americas
14/05/2023–20/05/2023		117		
21/05/2023–27/05/2023		74		
28/05/2023–03/06/2023		42		
15/05/2023–28/05/2023	Australia	1		Australian Government Department of Health
01/01/2023–27/05/2023	Belize	197		WHO Regional Office for the Americas
01/01/2023–13/05/2023	Malaysia	130		Ministry of Health Malaysia
14/05/2023–27/05/2023		4		
07/05/2023–13/05/2023	Paraguay	329		WHO Regional Office for the Americas
14/05/2023–27/05/2023		3051		
28/05/2023–03/06/2023		2386		
04/06/2023–10/06/2023		3582		
01/01/2023–13/05/2023	Peru	157 (47)		WHO Regional Office for the Americas
14/05/2023–27/05/2023		30 (4)		
28/05/2023–03/06/2023		20		
04/06/2023–10/06/2023		56		
01/01/2023–04/06/2023	Thailand	485		Outbreak News Today
01/01/2023–13/05/2023	Venezuela	147 (12)		WHO Regional Office for the Americas
14/05/2023–27/05/2023		26		
Crimea-Congo hemorrhagic fever				
21/05/2023–27/05/2023	Afghanistan	8 (2)		WHO Regional Office for the Eastern Mediterranean
28/05/2023–03/06/2023		4	1	
04/06/2023–10/06/2023		2	1	
11/06/2023–17/06/2023		35		
01/01/2023–04/06/2023	Iraq	150	20	Outbreak News Today
05/06/2023–11/06/2023		44	9	ProMED-mail
12/06/2023–19/06/2023		31		
01/01/2023–07/06/2023	Kazakhstan	3		ProMED-mail
01/01/2023–03/06/2023	Pakistan	35	6	ProMED-mail
Diphtheria				
01/01/2023–06/05/2023	Bangladesh	104 (3)	1	WHO
01/01/2022–30/04/2023	Pakistan	342	39	WHO Regional Office for the Eastern Mediterranean
01/01/2023–29/04/2023	Philippines	45	11	Philippines Department of Health
30/04/2023–06/05/2023		3		

TABLE 7 | (continued)

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
Enterohemorrhagic <i>Escherichia coli</i> infection				
08/05/2023–14/05/2023	Japan	32		National Institute of Infectious Diseases, Japan
15/05/2023–21/05/2023		68		
22/05/2023–28/05/2023		88		
29/05/2023–04/06/2023		77		
Enterovirus				
01/04/2023	Macao, China	83		Government of the Macao Special Administrative Region
23/05/2023		13		
Hand, foot, and mouth disease				
29/05/2023	Hong Kong, China	44		Hong Kong Centre for Health Protection, China
05/2023	Thailand	886		Ministry of Public Health, Thailand
Hantavirus				
01/01/2023–20/06/2023	Panama	11		Outbreak News Today
04/06/2023–10/06/2023		3		Panama Ministry of Health
Hepatitis A				
04/06/2023–10/06/2023	Korea	13		Korea CDC
Hepatitis B				
05/2023	Thailand	340		Ministry of Public Health, Thailand
04/06/2023–10/06/2023	Korea	3		Korea CDC
Hepatitis C				
14/05/2023–20/05/2023	Korea	109		Korea CDC
28/05/2023–03/06/2023		118		
04/06/2023–10/06/2023		79		
14/05/2023–20/05/2023	Taiwan, China	11		Taiwan CDC, China
21/05/2023–27/05/2023		15		
28/05/2023–03/06/2023		9		
04/06/2023–10/06/2023		11		
Invasive group A streptococcal diseases				
17/04/2023–30/04/2023	Australia	95		Australian Government Department of Health
01/01/2023–30/05/2023		867		
15/05/2023–28/05/2023		95		
Lassa fever				
15/05/2023–21/05/2023	Nigeria	197 (8)	2	Nigeria CDC
22/05/2023–28/05/2023		138 (7)	1	
29/05/2023–04/06/2023		92 (7)	1	
Legionellosis				
01/01/2023–20/05/2023	Hong Kong, China	23		Hong Kong Centre for Health Protection, China
21/05/2023–10/06/2023		8		

TABLE 7 | (continued)

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
11/06/2023–17/06/2023		2		
15/05/2023–21/05/2023	Japan	35		National Institute of Infectious Diseases, Japan
29/05/2023–04/06/2023		52		
04/06/2023–10/06/2023	Korea	5		Korea CDC
02/05/2023–26/05/2023	Lithuania	24	7	ProMED-mail
14/05/2023–20/05/2023	Taiwan, China	6		Taiwan CDC, China
21/05/2023–27/05/2023		8		
28/05/2023–03/06/2023		9		
07/05/2023–13/05/2023	USA	62		US CDC
21/05/2023–27/05/2023		57		
Leptospirosis				
22/05/2023–28/05/2023	Afghanistan	10	2	Outbreak News Today
15/05/2023–28/05/2023	Australian	5		Australian Government Department of Health
01/01/2023–23/05/2023	Georgia	8		ProMED-mail
01/01/2023–13/06/2023	India	475	25	ProMED-mail
01/01/2023–24/05/2023	Iraq	139	20	ProMED-mail
01/01/2023–21/05/2023	Micronesia	21		United Nations Office for the Coordination of Humanitarian Affairs
23/05/2023	Namibia	1		ProMED-mail
01/05/2023–31/05/2023	New Caledonia	22		United Nations Office for the Coordination of Humanitarian Affairs
01/01/2023–27/05/2023	Peru	6833	5	Outbreak News Today
01/01/2023–29/04/2023	Philippines	1279	130	Philippines Department of Health
30/04/2023–06/05/2023		34	4	
09/05/2023	Senegal	1		WHO Regional Office for Africa
06/05/2023–12/05/2023	Sri Lanka	11		Ministry of Health, Sri Lanka
13/05/2023–19/05/2023		21		
20/05/2023–26/05/2023		21		
27/05/2023–02/06/2023		21		
05/2023	Thailand	173	1	Ministry of Public Health, Thailand
15/05/2023–24/05/2023	Vanuatu	7		Outbreak News Today
Leishmaniasis				
03/01/2020–11/05/2023	Kenya	2300 (2097)	10	WHO Regional Office for Africa
21/05/2023–27/05/2023	Panama	39		Panama Ministry of Health
28/05/2023–03/06/2023		28		
04/06/2023–10/06/2023		25		
06/05/2023–12/05/2023	Sri Lanka	35		Ministry of Health, Sri Lanka
13/05/2023–19/05/2023		64		
20/05/2023–26/05/2023		66		
27/05/2023–02/06/2023		56		

TABLE 7 | (continued)

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
Marburg virus				
24/05/2023	Equatorial Guinea		9	Global Incident Map
Meningitis				
01/01/2023–07/06/2023	Australia	9		ProMED-mail
02/06/2022–14/05/2023	Democratic Republic of the Congo	557 (10)	95	WHO Regional Office for Africa
Mumps				
14/05/2023–20/05/2023	Korea	211		Korea CDC
28/05/2023–03/06/2023		231		
04/06/2023–10/06/2023		151		
01/01/2023–26/04/2023	South Africa	580		Outbreak News Today
21/05/2023–27/05/2023	Taiwan, China	9		Taiwan CDC, China
04/06/2023–10/06/2023		6		
Murray Valley encephalitis				
01/05/2023	Australia	1	14	Outbreak News Today
01/01/2023–10/06/2023		7	2	United Nations Office for the Coordination of Humanitarian Affairs
Norwalk virus				
01/04/2023	Macao, China	22		Government of the Macao Special Administrative Region
2023/5/15–26/05/2023	USA	97		ProMED-mail
Norovirus				
01/05/2023–28/05/2023	U.K.	473		UK Health Security Agency
Nipah Virus				
04/06/2023–10/06/2023	Singapore	1		Ministry of Health, Singapore
Plague				
01/01/2023–14/06/2023	Democratic Republic of Congo	29	4	ProMED-mail
Poliomyelitis				
25/05/2023	Afghanistan	WPV1: 1		ProMED-mail
26/05/2023		56		Outbreak News Today
31/05/2023–06/06/2023		WPV1: 1		Global Polio website
24/05/2023–30/05/2023	Central African Republic	cVDPV2:1		Global Polio website
31/05/2023–06/06/2023	Chad	cVDPV2:2		Global Polio website
07/06/2023–13/06/2023	Côte d'Ivoire	cVDPV2:1		Global Polio Website
17/05/2023–23/05/2023	Democratic Republic of the Congo	cVDPV2: 9; cVDPV1: 3		Global Polio website
31/05/2023–06/06/2023		cVDPV2:5		
07/06/2023–13/06/2023		cVDPV2:6		
07/06/2023–13/06/2023		cVDPV1:10		

TABLE 7 | (continued)

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
07/06/2023–13/06/2023	Mali	cVDPV2:2		Global Polio Website
07/06/2023–13/06/2023	Nigeria	cVDPV2:4		Global Polio Website
Ross River virus				
17/04/2023–30/04/2023	Australia	67		Australian Government Department of Health
15/05/2023–28/05/2023		55		
Salmonellosis				
17/04/2023–30/04/2023	Australia	489		Australian Government Department of Health
07/05/2023–13/05/2023	USA	308		US CDC
14/05/2023–20/05/2023		347		
21/05/2023–27/05/2023		358		
28/05/2023–03/06/2023		419		
04/06/2023–10/06/2023		331		
Scarlet fever				
14/05/2023–20/05/2023	Korea	20		Korea CDC
04/06/2023–10/06/2023		8		
Scrub typhus				
05/2023	Thailand	234		Ministry of Public Health, Thailand
<i>Streptococcus pneumoniae</i>				
08/05/2023–14/05/2023	Japan	50		National Institute of Infectious Diseases, Japan
22/05/2023–28/05/2023		48		
04/06/2023–10/06/2023	Korea	9		Korea CDC
28/05/2023–03/06/2023	Taiwan, China	10		Taiwan CDC, China
04/06/2023–10/06/2023		11		
07/05/2023–13/05/2023	USA	186		US CDC
14/05/2023–20/05/2023		184		
21/05/2023–27/05/2023		178		
28/05/2023–03/06/2023		152		
04/06/2023–10/06/2023		163		
<i>Rickettsia tsutsugamushi</i>				
04/06/2023–10/06/2023	Korea	22		Korea CDC
West Nile fever				
01/01/2023–13/06/2023	USA	13		US CDC
07/06/2023		1		Outbreak News Today
19/06/2023		1		U.S. CDC
Whooping cough				
01/05/2023–14/05/2023	Australian	29		Australian Government Department of Health
01/01/2023–01/06/2023	Israel	215		ProMED-mail
04/06/2023–10/06/2023	Korea	2		Korea CDC
04/06/2023–10/06/2023	Singapore	1		Australian Government Department of Health

TABLE 7 | (continued)

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
01/01/2023–05/06/2023	Spain	45		ProMED-mail
14/05/2023–20/05/2023	USA	31		US CDC
28/05/2023–03/06/2023		38		
04/06/2023–10/06/2023		49		
Yellow fever				
13/06/2023	Bolivia	1		ProMED-mail
01/01/2023–29/05/2023	Brazil	4	2	ProMED-mail
08/05/2023	Côte d'Ivoire	1		WHO Regional Office for Africa
30/05/2023		1		World Epidemic Information Network
Zika virus				
01/01/2023–27/05/2023	Belize	322		WHO Regional Office for the Americas
01/01/2023–03/06/2023	Bolivia	793 (1)		WHO Regional Office for the Americas
01/01/2023–22/04/2023	Brazil	7352 (608)		WHO Regional Office for the Americas
19/06/2023		8414		Ministry of Health, Brazil
01/01/2023–27/05/2023	Colombia	93		WHO Regional Office for the Americas
01/01/2023–10/06/2023	Peru	31 (1)		WHO Regional Office for the Americas
31/05/2023	Singapore	3		Ministry of Health, Singapore
12/06/2023		1		National Environment Agency, Singapore

CONCLUSION

Infectious diseases affecting humans are ever-present, whether the common cold, cholera, and a plague, which adversely affect human society. With globalization, emerging infectious disease quickly spread widely around the world. To control the global spread of infectious diseases and ensure the safety of people's lives, it is necessary to regularly analyze global infectious disease cases.

The COVID-19 pandemic and other recent large-scale disease outbreaks have highlighted how healthcare facilities can contribute to the spread of infection if insufficient attention is paid to infection prevention and control. In the past month, new COVID-19 cases and deaths have decreased compared to the previous month, but because SARS-CoV-2 is highly variable and contagious, we still need continuous attention and prevention and control. The emergence of SARS-CoV-2 variants, such as XBB.1.5 and XBB.1.16, over the past few months highlights one of the major challenges facing this pandemic.

At the same time, seasonal outbreaks of influenza, dengue fever, and malaria remain public health concerns around the world. The number of influenza cases in the United States decreased in early summer compared to past months. In contrast, Australia, which is in winter, has had

a marked increase in influenza infections. In addition, we should be vigilant for sporadic infectious diseases, such as chikungunya, legionellosis, polio, scarlet fever, and Hantavirus, to avoid a global pandemic.

ACKNOWLEDGEMENTS

This project was conceived and designed by Wenjin Yu and Dayong Gu. Wenjin Yu and Dayong Gu conceived and designed the project. Shuqiong Zhang, Minjing He, and Xin Fu collected the data. Shuqiong Zhang and Xin Fu authored the manuscript, and Minjing He revised the manuscript. The study was supervised by Qun Su. 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 (ZDSYS20210623092001003, GJHZ20200731095604013, JSJGG20220301090003004, and GJHZ20210705142007022).

CONFLICTS OF INTEREST

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

REFERENCES

- Excler JL, Saville M, Berkley S, Kim JH. Vaccine development for emerging infectious diseases. *Nat Med.* 2021;27(4):591-600.

2. Huang Y, Mu L, Wang W. Monkeypox: epidemiology, pathogenesis, treatment and prevention. *Signal Transduct Target Ther.* Nov 2 2022;7(1):373.
3. Chowdhury F, Ross AG, Islam MT, McMillan NAJ, Qadri F. Diagnosis, management, and future control of cholera. *Clin Microbiol Rev.* Sep 21 2022;35(3):e0021121.
4. Trivedi S, Chakravarty A. Neurological complications of dengue fever. *Curr Neurol Neurosci Rep.* Aug 2022;22(8):515-529.
5. Walter K, Malani PN. What is measles? *JAMA.* Dec 20 2022;328(23):2370.
6. Kumari R, Sharma SD, Kumar A, Ende Z, Mishina M, Wang Y, et al. Antiviral approaches against influenza virus. *Clin Microbiol Rev.* 2023;36(1):e0004022.
7. Githure JI, Yewhalaw D, Atieli H, Hemming-Schroeder E, Lee MC, Wang X, et al. Enhancing malaria research, surveillance, and control in endemic areas of Kenya and Ethiopia. *Am J Trop Med Hyg.* 2022;107(4_Suppl):14-20.
8. Song JH, Huh K, Chung DR. Modern history of tuberculosis in Korea. *Infect Chemother.* 2019;51(4):414-426.