

SHORT COMMUNICATION



Global Infectious Diseases in August 2023: A Monthly Analysis

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ABSTRACT

Infectious diseases frequently affect children and adults worldwide. Owing to their specific biology and mode of transmission, the presence of infected individuals or carriers in a region often leads to outbreaks of the disease in that region, and in severe cases, to the death of the infected individual. Infectious diseases have been one of the main causes of mass disability or death in humans for centuries. Surveillance of infectious diseases on a continental scale is therefore important for assessing, recognizing, and preventing the risks that these diseases may pose to animal and human health on a global scale. This report focuses on global infectious disease outbreaks and systematically summarises the timing and location of outbreaks in infected populations between 24 July and 23 August 2023 based on the Global Outbreak Information Surveillance System (GOSIS) of Shusi Technologies.

Key words: infectious diseases, COVID-19, dengue, MPOX

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INTRODUCTION

Due to the unbalanced density of the population and exposure to virulent diseases, infectious diseases have accompanied human development since ancient times, often causing epidemics and daily infections to vulnerable populations. Having demonstrated that microorganisms are the primary cause of human disease, we have made great strides in understanding how pathogens cause disease and in developing therapies to prevent and treat infections. Such revolutionary treatments include improvements in hygiene, the development of vaccines to prevent infections, the creation of pathogen-specific tests to diagnose disease, and the design of antimicrobial agents that then treat patients. Relying on the development of vaccines and medicines, the burden of infectious diseases has been greatly

reduced. Despite such successes, the swine fever of 2009, the Middle East Respiratory Syndrome coronavirus of 2012, Ebola virus of 2013–2016, the Zika virus of 2015, and the new coronavirus sweeping the globe in 2019 are evidence that infectious diseases are still the leading cause of morbidity and mortality today, even at a time when the economy and medical care have improved dramatically.

The journal “ZOONOSES” compiles and analyzes the development of global infectious diseases. The development of global infectious diseases is compiled and analyzed by regularly compiling and analysing information and visualizing the distribution of diseases. Using the Global Outbreak Information Surveillance System (GOSIS), other infectious disease types with relatively low incidence rates

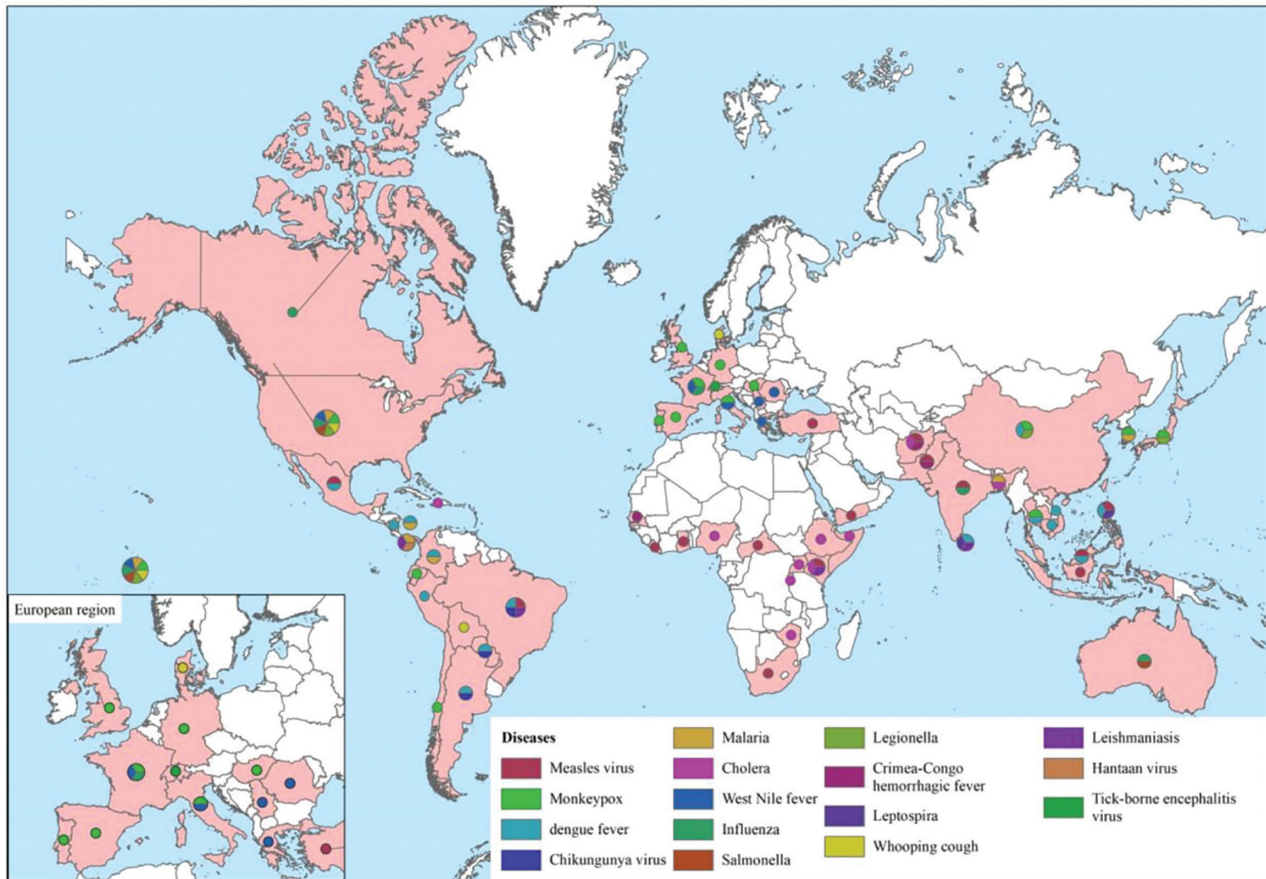


FIGURE 1 | Global distribution of infectious diseases from 24 July 2023 to 23 August 2023.

were analyzed for the period July 24, 2023 to August 23, 2023 (Fig 1).

COVID-19

The coronavirus disease 2019 (COVID-19) pandemic, which was caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), continues to ravage the world due to the emergence of the omicron variant and its descendant subvariants. While BA.5 is currently the dominant subvariant globally, a range of different omicron subvariants have emerged and are competing in the so-called ‘variant soup.’ BQ.1 and BQ.1.1 were first detected in Nigeria in early July 2023, and have since spread across Europe and North America. XBB and XBB.1 were first detected in India in mid-August 2023 and have rapidly spread across India, Singapore, and other parts of Asia [1]. Globally, there was little change in the overall number of cases last month (24 July 2023 to 23 August 2023), with the total number of people living with the disease decreasing compared to the previous year. Europe still accounts for the majority of new cases in the affected population; however, there was a slight decrease in the number of people living with the disease in Europe compared to the previous month. As of August 2023 greater than 753 million

confirmed cases and greater than 6.76 million deaths have been reported worldwide (Fig 2).

MONKEYPOX (MPOX)

Two cases of Mpox virus infection in humans returning to the United States from Nigeria have been reported and found since 2021, with one of the infected individuals returning to Texas (July 2021) and the other returning to Washington, D.C. (November 2021) [2]. Shortly after these two cases were reported, the number of cases continued to climb. All cases have been associated with international travel or imported animals from Africa. While epidemics of the virus are more common in central and western Africa, the prevalence in developed countries has triggered troubling signs of global spread. As of August 2023, the number of new cases of Mpox in developed countries has continued to climb, with the total number of cases in developed countries increasing to 7565 in Spain, 4150 in France, and 3694 in Germany. The number of cases in the rest of the developing world included 557 in Ecuador, 10 in Taiwan, China, and 3 in Hong Kong, China (Table 1). The number of new cases of Mpox in developed countries has increased significantly since the beginning of the epidemic. The Mpox virus is transmitted

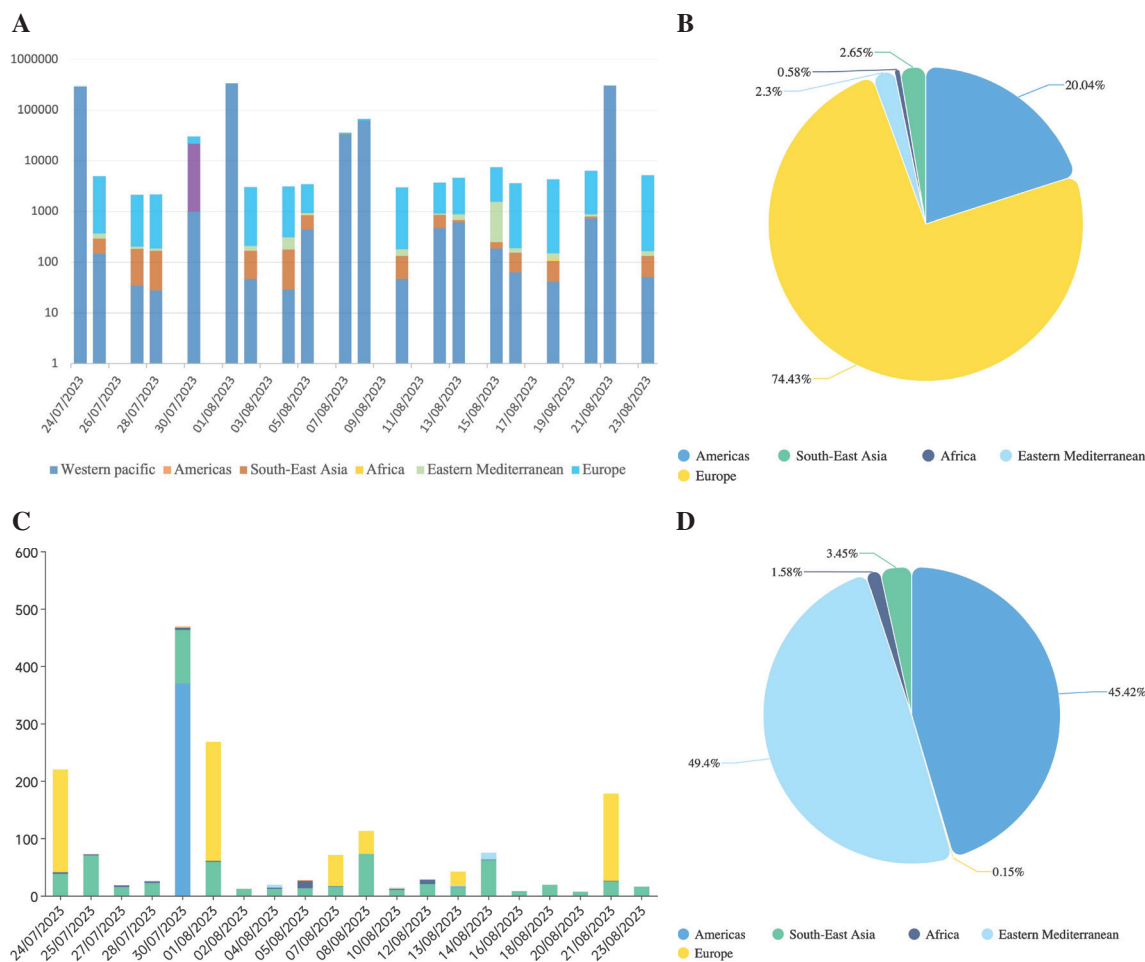


FIGURE 2 | Global daily statistics on the number of new confirmed cases and deaths due to new cases of coronavirus pneumonia. A,C: New cases and deaths of COVID-19 reported daily for each continent. B,D: Specific proportions of new confirmed cases and deaths due to COVID-19 for the European continent (24 July 2023 to 23 August 2023; data from the WHO website: <https://COVID19.who.int/>).

TABLE 1 | Worldwide monkeypox cases reported from 24/07/2023 to 23/08/2023.

Recorded period	Location	New cases (death cases) during the record period	Cumulative cases (deaths) reported since 01/01/2023	Data source
01/01/2022-09/08/2023	Germany	3694		WHO
01/01/2022-18/07/2023	Ecuador	557 (3)		WHO
01/01/2022-19/08/2023	France	4150		WHO
17/07/2023-23/07/2023	South Korea	2	127 (22/06/2023-23/07/2023)	South Korea CDC
22/06/2022-30/07/2023		129		
31/07/2023-06/08/2023		4	133 (22/06/2022-06/08/2023)	
07/08/2023-13/08/2023		2	135 (22/06/2022-13/08/2023)	
01/01/2022-14/08/2023	Netherlands	1266		WHO
20/07/2023-02/08/2023	USA	36 (1)	30647 (46) (18/05/2022-02/08/2023)	US CDC
03/08/2023-09/08/2023		24	30671 (46)	
01/01/2022-09/08/2023	Portugal	1002 (1)		WHO
01/01/2022-14/08/2023		1005 (1)		
10/07/2023-16/07/2023	Japan	2	193 (25/07/2022-16/07/2023)	Japan National Infectious Disease Research Institute

TABLE 1 | (continued)

Recorded period	Location	New cases (death cases) during the record period	Cumulative cases (deaths) reported since 01/01/2023	Data source
17/07/2022-23/07/2023		194		
25/07/2022-13/08/2023		195		
21/07/2022-16/08/2023	Thailand	170		ProMED-mail
21/07/2022-14/08/2023		189 (1)		
01/01/2023-15/08/2023		217 (1)		
01/01/2023-09/08/2023	Spain	7560 (3)		WHO
10/08/2023-14/08/2023		5	7565 (3)	
01/01/2022-14/08/2023		7565 (3)		
01/01/2022-24/07/2023	Singapore	26		WHO
01/01/2022-14/08/2023	Italy	958		WHO
01/07/2023-31/07/2023	Britain	10	3771 (06/05/2023-31/07/2023)	British Health and Safety Authority
01/01/2022-18/07/2023	Chile	1442 (3)		WHO
19/07/2023-23/07/2023	Taiwan, China	11	254 (24/06/2022-23/07/2023)	China Taiwan Disease Control Agency
25/07/2023-30/07/2023		5	259 (24/06/2022-30/07/2023)	
02/08/2023-06/08/2023		7	266 (24/06/2022-07/08/2023)	
08/08/2023-14/08/2023		14	280 (24/06/2022-14/08/2023)	
15/08/2023-21/08/2023		10	290 (24/06/2022-21/08/2023)	
25/07/2023	Hong Kong, China	2	16 (06/09/2022-25/07/2023)	Hong Kong, China Centre for Health Protection
28/07/2023-29/07/2023		4	20 (06/09/2022-29/07/2023)	
02/08/2023-09/08/2023		7	27 (06/09/2022-09/08/2023)	
10/08/2023-15/08/2023		3	30 (06/09/2022-15/08/2023)	
16/08/2023-21/08/2023		5	35 (06/09/2022-21/08/2023)	

TABLE 2 | Worldwide cholera cases reported between 23/07/2023 and 24/08/2023.

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
09/07/2023-15/07/2023	Afghanistan	7238	3	WHO Regional Office for the Eastern Mediterranean
16/07/2023-22/07/2023		7103	4	
23/07/2023-29/07/2023		7081	3	
30/07/2023-05/08/2023		7474	5	
06/08/2023-12/08/2023		8255	4	
27/08/2022-16/07/2023	Ethiopia	13322	172	WHO Regional Office for Africa
27/08/2022-31/07/2023		16346	212	
27/08/2022-23/07/2023		15685	189	
27/08/2022-20/08/2023		17007	212	
01/01/2023-23/07/2023	Burundi	594	9	WHO Regional Office for Africa
28/06/2023-29/07/2023	Democratic Republic of the Congo	(65)		WHO Regional Office for Africa

TABLE 2 | (continued)

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
17/07/2023-23/07/2023		1040	5	United Nations Office for the Coordination of Humanitarian Affairs
01/01/2023-31/07/2023		31342	230	Outbreak News Today
02/10/2022-15/07/2023	Haiti	54826 (3520)	793	Ministry of Public Health and Population of Haiti
02/10/2022-25/07/2023		56580 (3612)	814	
02/10/2022-09/08/2023		58629 (3720)	826	
10/07/2023-16/07/2023	Zimbabwe	153	1	WHO Regional Office for Africa
12/02/2023-23/07/2023		3687 (841)	80	
12/02/2023-29/07/2023		3798 (846)	82	
12/02/2023-06/08/2023		3841	96	
05/10/2022-16/07/2023	Kenya	11861 (567)	194	WHO Regional Office for Africa
05/10/2022-21/07/2023		11872 (567)	194	
05/10/2022-30/07/2023		11897	194	
05/10/2022-06/08/2023		11941	195	
03/03/2022-25/07/2023	Malawi	(58948)	1767	Malawi Ministry of Public Health
03/03/2022-02/08/2023		58976 (1768)		
03/03/2022-09/08/2023		(58981)	1768	
03/03/2022-13/08/2023		(58982)	1768	
01/01/2023-05/08/2023	Bangladesh	121 (80)		WHO Regional Office for Africa
14/09/2022-16/07/2023	Mozambique	(33344)	141	WHO Regional Office for Africa
14/09/2022-23/07/2023		(33353)	141	
14/09/2022-30/07/2023		(33534)	141	
14/09/2022-20/08/2023		(33862)	144	
29/05/2023-02/07/2023	Nigeria	89 (2)	2	Nigeria CDC
03/07/2023-30/07/2023		77 (3)	3	
10/07/2023-16/07/2023	Somalia	227		WHO Regional Office for the Eastern Mediterranean
17/07/2023-23/07/2023		309		
24/07/2023-30/07/2023		235		
22/01/2023-22/07/2023	Tanzania	373	4	WHO Regional Office for Africa
15/07/2023-01/08/2023	Uganda	25 (10)	2	Xinhua Network
15/07/2023-29/07/2023		43	7	WHO Regional Office for Africa

through contact with infected skin, body fluids, and respiratory droplets, and mother-to-child transmission can occur through the placenta (congenital Mpox) or through close contact at birth and after birth [2]. The Mpox virus is transmitted by exchange of body fluids in the oral cavity and nasopharynx or by intradermal injection, followed by rapid replication at the site of inoculation and spread to nearby lymph nodes. Skin lesions begin in the oropharynx

and can spread throughout the body. Antibodies to the Mpox virus can be detected in serum approximately 2 weeks after exposure [3]. Depending on the clade of Mpox infection and medical resources, the mortality rate of the disease ranges from 1%–10% [4]. Mpox virus infection is usually mild and most patients recover without treatment. For patients with severe symptoms of Mpox, treatment with cidofovir (Vistide) is recommended

TABLE 3 | Worldwide dengue cases reported between 23/07/2023 and 24/08/2023.

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative confirmed cases (deaths) reported since 1/1/2023	Data source
23/07/2023-29/07/2023	Argentina	(410)	121124 (65)	WHO Regional Office for the Americas
16/07/2023-22/07/2023		(622)	120714 (65)	
30/07/2023-05/08/2023		(234)	121358 (65)	
16/07/2023-29/07/2023	Paraguay	(249)	7180 (10)	WHO Regional Office for the Americas
02/07/2023-22/07/2023	Brazil	114363	1133538 (866)	WHO Regional Office for the Americas
01/01/2023-15/07/2023	Philippines	80318		Philippines Ministry of Health
01/01/2023-22/07/2023		85692		PreMED-mail (19% decrease from the same period in 2022 [106,517 cases])
02/07/2023-08/07/2023	Colombia	2203	29446 (30)	WHO Regional Office for the Americas
09/07/2023-15/07/2023		2617	31407 (30)	
16/07/2023-22/07/2023		2458	33147 (33)	
30/07/2023-05/08/2023		2595	36906 (39)	
25/06/2023-01/07/2023	Kampuchea	1077		WHO Regional Office for the Western Pacific
23/07/2023-29/07/2023		1312	(32)	
19/06/2023-25/06/2023	Ivory Coast	107 (22)		WHO Regional Office for Africa
04/08/2023	Laos	(317)	17473 (12)	Xinhua Network
08/08/2023		(325)	18662 (13)	
16/07/2023-22/07/2023	Malaysia	2258	(47)	Ministry of Health Malaysia
23/07/2023-29/07/2023		2427	(47)	
30/07/2023-05/08/2023		2542	(49)	
08/06/2023-07/07/2023	Mauritius	147		WHO Regional Office for Africa
17/07/2023-23/07/2023	Bangladesh	(12099)	32977 (176)	Bangladesh Ministry of Health and Family Welfare
21/07/2023-06/08/2023		(17594)	66732 (313)	
07/08/2023-13/08/2023		(18679)	85411 (398)	
14/08/2023-20/08/2023		(14583)	99994 (476)	
23/07/2023-23/07/2023	Peru	3517	139366 (380)	WHO Regional Office for the Americas
23/07/2023-29/07/2023		3517	139366 (380)	
01/01/2023-15/07/2023	Burma	(6685)		Xinhua Network
09/07/2023-15/07/2023	Mexico	1963	5958 (13)	WHO Regional Office for the Americas
06/08/2023-12/08/2023		6231	9397 (13)	
01/01/2023-07/08/2023	Nepal	(9411)		UN Office for the Coordination of Humanitarian Affairs
01/01/2023-10/08/2023		(12499)		
16/07/2023-22/07/2023	Nicaragua	2030	1321 (1)	WHO Regional Office for the Americas
01/01/2023-08/08/2023	Sri Lanka	58000		Xinhua Network
01/01/2023-19/08/2023		60136		
01/01/2023-29/07/2023	Thailand	46855		Outbreak News Today
01/01/2023-05/08/2023		59372		
10/07/2023-16/07/2023	Vietnam	2098	(11)	WHO Regional Office for the Western Pacific

TABLE 3 | (continued)

Recorded period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative confirmed cases (deaths) reported since 1/1/2023	Data source
01/01/2023-10/08/2023		57295		
18/07/2023-24/07/2023	Taiwan, China	(206)	630 (1)	China Taiwan Disease Control Agency
25/07/2023-31/07/2023		(215)	845 (1)	
01/08/2023-07/08/2023		(264)	1109 (1)	
08/08/2023-14/08/2023		(469)	1579 (1)	
07/07/2023-20/07/2023	Hong Kong, China	(3)	(19)	Centre for Health Protection, Hong Kong, China

according to guidelines provided by the Centers for Disease Control and Prevention (CDC) in the United States of America. The smallpox vaccine has the potential to provide some protection against Mpox infection due to the genetic similarity [5]. Considering the route of transmission of Mpox virus and the high incidence, isolation of patients who have been infected with Mpox is needed, and vaccination may be considered to help prevent Mpox infection in at-risk populations.

CHOLERA

Cholera is a virulent infectious disease caused by the bacterium, *Vibrio cholerae*. Cholera is an acute gastrointestinal illness that is often fatal. The typical epidemiologic form of the disease often presents as mild-to-potentially fatal acute watery diarrhoea, which in severe cases leads to severe dehydration and ultimately death within hours in undiagnosed patients. Prompt rehydration therapy with the use of antimicrobial drugs is the basis of treatment [6]. Two serogroups of *V. cholerae* (O1, to which the El Tor biotype belongs, and O139) are the main subgroups causing endemic cholera. *Vibrio cholerae* is excreted in the faeces of infected individuals and often contaminates water sources in places with poor sewerage systems, thus causing endemic cholera outbreaks. Since the 1991 cholera outbreak in the Americas, the World Health Organisation (WHO) estimated that the population at risk for cholera will reach a staggering 1.4 billion people; thus, almost all developing countries will be at risk for cholera [7]. Historically, cholera was endemic in the Asian subcontinent (i.e., India, Indonesia, Vietnam, and Bangladesh), but now cholera is endemic in Africa, Zambia, Sierra Leone, Nigeria, Angola, the Democratic Republic of Congo [DRC], Zimbabwe, the United Nations of Santanya, Yemen, Latin America, and the Caribbean (including Haiti, Cuba, and the Dominican Republic) [8]. As of August 2023, with the arrival of the high cholera season, the incidence of the disease has shown explosive growth in all regions, with 58,982 cases in Malawi, 58,629 cases in Haiti, 33,862 cases in

Mozambique Mauzaro, 31,342 cases in the Republic of the Congo, 17,007 cases in Ethiopia, and 11,941 cases in Kenya (Table 2).

DENGUE

Dengue is an insect-borne infection caused by one of the dengue viruses (DENV-1-4) transmitted by *Aedes aegypti* mosquitoes and is endemic in tropical and subtropical regions. Infection with DENV often results in patients presenting with clinical symptoms, such as nausea, vomiting, headaches, arthralgias and myalgias, and skin rashes. In the absence of effective prevention and control measures, the geographic scope and disease burden of dengue will increase [9]. Since the summer season, there has been a gradual increase in the number of cases in tropical and subtropical regions, especially in countries in the tropics, with 11,433 cases in Brazil, 85,692 cases in the Philippines, 60,136 cases in Sri Lanka, 59,372 cases in Thailand, 57,295 cases in Vietnam, 14,583 cases in the Republic of Bangladesh, and 124,999 cases in Nepal as of August 2023 (Table 3). Dengue fever is a self-limiting disease, although there is currently no clear treatment plan, but severely ill patients should be provided with individualised treatment, often based on intravenous rehydration, hormonal anti-inflammatories, and platelet transfusion for patients with severe bleeding [10]. The chimeric yellow fever dengue vaccine using yellow fever virus (YFV) strain 17D as the replication backbone (Chimerivax DEN; CYD-TDV) has been shown to have an overall combined protective efficacy of 65.6% and has been tested for safety and immunogenicity [11].

MEASLES

Measles is an acute viral infection caused by the measles virus, which is a seasonal disease in endemic areas. Transmission is mainly person-to-person through respiratory droplets in the air, but also through direct contact with infected secretions [12]. The incubation period for measles is usually 10-14 days, with symptoms often manifesting as fever, malaise,

TABLE 4 | Worldwide measles cases reported between 23/07/2023 and 24/08/2023.

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative deaths reported during the record period	Data source
16/07/2023-22/07/2023	Afghanistan	477	1	WHO Regional Office for the Eastern Mediterranean
23/07/2023-29/07/2023		463	1	
30/07/2023-06/08/2023		389		
01/01/2023-04/08/2023	Austria	(151)		UK Health Security Agency
01/01/2023-09/08/2023	Pakistan	20704 (10580)		WHO
01/01/2023-15/07/2023	Brazil	1208		WHO Regional Office for the Americas
01/01/2023-17/07/2023	Russia	3809 (1276)		WHO
01/01/2023-09/08/2023		5234 (2156)		
01/01/2023-17/07/2023	Philippines	1764 (680)		WHO
01/01/2023-23/07/2023	Democratic Republic of the Congo	190598 (2508)	3187	United Nations Office for the Coordination of Humanitarian Affairs
01/01/2023-27/07/2023	Kazakstan	(2694)		Outbreak News Today
01/01/2023-17/07/2023	Ghana	1956 (938)		WHO
01/01/2023-09/08/2023		2561 (1455)		
01/01/2023-09/08/2023	Ivory Coast	3791 (737)		WHO
01/01/2023-26/07/2023	Kenya	873 (177)	16	WHO Regional Office for Africa
31/12/2021-26/07/2023	Liberia	12637 (11995)	95	WHO Regional Office for Africa
01/01/2023-17/07/2023	Malaysia	2436 (2810)		WHO
01/01/2023-15/07/2023	Mexico	1222		WHO Regional Office for Africa
08/10/2022-22/07/2023	South Africa	6541 (115)		ProMED-mail
08/10/2022-29/07/2023		6552 (1118)		
08/10/2023-12/08/2023		6634 (1130)		
01/01/2023-17/07/2023	Nepal	1888 (997)		WHO
01/01/2023-09/07/2023	Niger	1650 (477)		WHO Regional Office for Africa
01/01/2023-15/07/2023		1678 (517)		
01/01/2023-09/08/2023	Nigeria	14079 (4427)		WHO
01/01/2023-22/07/2023	Senegal	(445)		WHO Regional Office for Africa
01/01/2023-17/07/2023	Turkey	3776 (2051)		WHO
01/01/2023-09/08/2023		5905 (2901)		
01/01/2023-17/07/2023	Yemen	25850 (22791)		WHO
01/01/2023-09/08/2023		28127 (24793)		
01/01/2023-17/07/2023	Iran	3713 (351)		WHO
01/01/2023-17/07/2023	India	96629 (53993)		WHO
01/01/2023-09/08/2023		108050 (61250)		
01/01/2023-17/07/2023	Indonesia	8083 (2250)		WHO
01/01/2023-09/08/2023		20802	5637	
01/01/2023-30/07/2023	UK	(138)		UK Health Security Agency
01/01/2023-02/07/2023	Central African Republic	1736 (1003)	1	WHO Regional Office for Africa

cough, conjunctivitis, and cough, with the characteristic rash appearing 2–4 days after the appearance of early symptoms or an aura. Prior to the introduction of measles vaccine in 1963, large epidemics have occurred approximately every 2–3 years. It is estimated that there are 30 million cases of measles and greater than 2 million deaths worldwide each year [13]. In the context of a significant decline in global measles virus deaths, the number of measles deaths globally fell from 535,300 in 2000 to 139,300 in 2010 (a 74% decrease) [14]. There are still geographic areas with poor sanitation, a lack of good medical resources, and difficulties in universal vaccination that have a relatively large number of measles cases, such as the Democratic Republic of the Congo and Liberia (Table 4).

INFLUENZA

Influenza, also known as the flu, is a highly contagious respiratory disease caused by a variety of RNA influenza viruses that infect humans. Complications from influenza can lead to severe morbidity and mortality. Globally, up to 500,000 people die each year from complications of influenza. Since 2010, the CDC has estimated that seasonal influenza infections have resulted in 9.3–45 million cases, 140,000–810,000 hospitalisations, and 12,000–61,000 deaths annually in the United States [14]. In the United States and all countries in the northern hemisphere, the influenza season usually begins in late October and continues through May. As of August 2023, countries in the northern hemisphere, such as France and Switzerland, and Australia in the southern hemisphere, still have a high number of infections, even after the common season for influenza has passed (Table 5). The severity of influenza each

year depends on the spread and characteristics of the influenza virus, the availability and vaccination rate of effective vaccines against the current pandemic strains, the host's immune response, and the presence or absence of co-morbidities in the individual [15]. Because of the high rate of mutation of influenza viruses, although influenza is prevented by vaccination of susceptible individuals, antiviral medications and prompt symptomatic treatment are always the cornerstone of treatment.

CHIKUNGUNYA VIRUS

Chikungunya virus (CHIKV), an Old World alphavirus belonging to the *Togaviridae* family of arboviruses, contains an RNA genome and is transmitted through mosquito bites (mainly *Aedes aegypti*, but also *Aedes albopictus*) [16]. There are three main genotypes of CHIKV (west African, east-south central Africa [ECSA], and Asian) and a fourth lineage belonging to ECSA (the Indian Ocean lineage) [17]. Sporadic outbreaks are currently being reported around the world, mainly in Africa, Asia, the Indian Ocean and Pacific regions, Europe, and recently even in the Americas. As of August 2023, the number of cases in Argentina and Brazil have decreased to varying degrees from the previous period, but the number of patients in Paraguay is still rising, along with a gradual increase in the number of fatal cases (Table 6). Symptomatic treatment with antipyretics, analgesics, and massive rehydration, as well as non-steroidal anti-inflammatory drugs (NSAIDs), hydroxychloroquine, corticosteroids, and disease-modifying anti-rheumatic drugs (DMARDs), are used to improve symptoms in viral arthritis.

TABLE 5 | Worldwide influenza cases reported between 23/02/2023 and 24/03/2023.

Record period	Location	Cumulative cases (deaths) reported during the record period	Data source
10/07/2023-23/07/2023	Australia	22436	Australian Government Department of Health
24/07/2023-06/08/2023		18098	
01/01/2023-29/07/2023	Panama	950 (33)	Panama Ministry of Health
02/01/2023-16/07/2023	France	18774	WHO
18/06/2023-22/07/2023	Canada	438	Public Health Agency of Canada
09/07/2023-15/07/2023	USA	171	US CDC
16/07/2023-22/07/2023		225	
23/07/2023-29/07/2023		214	
30/07/2023-05/08/2023		263	
06/08/2023-12/08/2023		214	
02/01/2023-16/07/2023	Switzerland	13257	WHO
02/01/2023-23/07/2023	Iran	2806	WHO
02/01/2023-06/08/2023	India	1729	WHO

TABLE 6 | Worldwide Chikungunya virus cases reported between 23/07/2023 and 23/08/2023.

Record period	Location	Cumulative suspected cases (confirmed cases) reported during the record period	Cumulative cases (deaths) reported during the record period	Data source
01/01/2023-22/07/2023	Argentina	(1604)		WHO Regional Office for the Americas
01/01/2023-29/07/2023		(1614)		
30/07/2023-05/08/2023		(39)	1653	
02/07/2023-08/07/2023	Paraguay	(2200)	83165 (266)	WHO Regional Office for the Americas
09/07/2023-15/07/2023		(3396)	83236 (269)	
16/07/2023-29/07/2023		(5467)	83467 (271)	
02/07/2023-02/07/2023	Brazil	16667	(69)	WHO Regional Office for the Americas
23/07/2023-12/08/2023		9124	99272 (78)	

TABLE 7 | Worldwide polio cases reported between 23/07/2023 and 24/08/2023.

Record period	Location	Cumulative cases (deaths) reported during the record period	Data source
01/08/2023	Pakistan	1	Outbreak News Today
02/08/2023-08/08/2023	Burkina Faso	1	Global Polio website
09/08/2023-15/08/2023	Burundi	1	
12/07/2023-18/07/2023	Democratic Republic of the Congo	24	
19/07/2023-25/07/2023		1	
26/07/2023-01/08/2023		14	
09/08/2023-15/08/2023		3	
09/08/2023-15/08/2023	The Republic of Guinea	1	
19/07/2023-25/07/2023	Nigeria	2	
26/07/2023-01/08/2023		1	
12/07/2023-18/07/2023	The United Republic of Tanzania	1	
12/07/2023-18/07/2023	Chad	5	
02/08/2023-08/08/2023		5	
09/08/2023-15/08/2023		3	

POLIOMYELITIS

Polio is a serious and highly contagious disease that can affect the central nervous system. Polio, also known as poliomyelitis, is an infection caused by a virus (poliovirus). Polio usually affects children ≤ 5 years of age. Polio can cause muscle weakness, permanent disability, and even death. Polio is rare in the United States because the vaccine against polio is part of routine childhood immunisation. The polio virus is highly contagious and is easily spread through person-to-person contact. The virus is usually present in the throat of an infected person for 1–2 weeks and is excreted in the faeces for 3–6 weeks, even in asymptomatic people. Poliovirus enters the body through the mouth, and the most common mode of infection is through contact with the faeces of an infected person or

through contaminated food or water. Poliovirus can also be transmitted through saliva and respiratory droplets. Global vaccination efforts have been in place since the 1980s, and as a result polio is considered to be completely eradicated to date, although there are still cases of the virus in areas with poor sanitary and medical conditions. As of August 2023, there have been sporadic reports in some countries in Africa, including the Democratic Republic of the Congo, Nigeria, and the United Republic of Tanzania (Table 7).

SPORADIC INFECTIOUS DISEASES

Sporadic infectious diseases have occurred since January 2023. As of August 2023, other infectious diseases reported globally include malaria, leishmaniasis, Crimean-Congo

TABLE 8 | Worldwide cases of other infectious diseases reported between 23/07/2023 and 24/08/2023.

Record period	Location	Cumulative cases (deaths) reported during the record period	Cumulative cases (deaths) reported since 01/01/2023	Data source
Malaria				
09/07/2023-15/07/2023	Panama	78	6122	Panama Ministry of Health
16/07/2023-22/07/2023		54	6282	
23/07/2023-29/07/2023		28	6376	
09/07/2023-15/07/2023	Colombia	2579	45171	ProMED-mail
09/07/2023-15/07/2023	Korea	34	376	Korea CDC
23/07/2023-29/07/2023		28	461	
30/07/2023-05/08/2023		41	491	
06/08/2023-12/08/2023		29	519	
18/08/2023	USA	1		ProMED-mail (美国马里兰州40年来首例)
16/07/2023-22/07/2023	Bangladesh		115	UN Office for the Coordination of Humanitarian Affairs
30/07/2023-05/08/2023		163 (5)	119	WHO
Leishmaniasis				
09/07/2023-15/07/2023	Panama	27	948	Panama Ministry of Health
16/07/2023-22/07/2023		19	968	
23/07/2023-29/07/2023		23	993	
01/01/2023-31/07/2023	Brazil	1030		ProMED-mail
03/01/2020-07/07/2023	Kenya	2364 (10)		WHO Regional Office for Africa
03/01/2020-20/07/2023		2387 (10)		
08/07/2023-14/07/2023	Sri Lanka	77	1859	Sri Lanka Ministry of Health
15/07/2023-21/07/2023		85	1944	
22/07/2023-28/07/2023		79	2023	
29/07/2023-04/08/2023		69	2095	
05/08/2023-11/08/2023		58	2159	
Crimea-Congo hemorrhagic fever				
23/07/2023-29/07/2023	Afghanistan	10 (2)	239 (78)	WHO Regional Office for the Eastern Mediterranean
30/07/2023-05/08/2023		(1)	259 (86)	
23/07/2023-29/07/2023		(2)	239 (78)	
06/08/2023-12/08/2023		(1)	(91)	
01/01/2023-12/08/2023	Pakistan	26 (9)		ProMED-mail
01/01/2023-22/08/2023		28 (10)		
31/07/2023	The Republic of North Macedonia	1 (1)		Outbreak News Today
01/01/2023-10/08/2023	Kazakhstan	3037		ProMED-mail
01/01/2023-14/08/2023	Kyrgyzstan	1704 (2)		ProMED-mail
21/04/2023-13/07/2023	Senegal	3 (1)		WHO Regional Office for Africa
21/04/2023-20/08/2023		4 (1)		Africa CDC
01/01/2023-10/08/2023	Iraq	475 (62)		ProMED-mail

TABLE 8 | (continued)

Record period	Location	Cumulative cases (deaths) reported during the record period	Cumulative cases (deaths) reported since 01/01/2023	Data source
Salmonellosis				
09/07/2023-15/07/2023	USA	475	20370	US CDC
16/07/2023-22/07/2023		459	21642	
30/07/2023-05/08/2023		538	25026	
26/06/2023-09/07/2023	Australia	310	6501	Australian Department of Health
Leptospira				
08/07/2023-14/07/2023	Sri Lanka	22	1860	Sri Lanka Ministry of Health
22/07/2023-28/07/2023		179	5553	
15/07/2023-21/07/2023		15	5326	
29/07/2023-04/08/2023		16	5756	
01/01/2023-15/07/2023	Philippines	2079 (225)		Philippines Department of Health
01/01/2023-30/07/2023	The Republic of Vanuatu	98 (6)		UN Office for the Coordination of Humanitarian Affairs
Zika virus				
11/06/2023-15/07/2023	Brazil		(2)	WHO Regional Office for Americas
Diphtheria				
01/05/2022-09/07/2023	Nigeria	969 (86)		WHO Regional Office for Africa
01/05/2022-16/07/2023		1290 (98)		
01/07/2023-31/07/2023		579 (39)	1534 (2022/5/1-2023/7/31) (137)	Nigeria Centers for Disease Control and Prevention
02/08/2023	Algeria	16		ProMED-mail
01/01/2023-22/07/2023	Bangladesh	5 (1)		UN Office for the Coordination of Humanitarian Affairs
01/01/2023-08/08/2023	Germany	35		EU Center for Disease Control and Prevention
01/01/2023-07/08/2023	Switzerland	10		EU Center for Disease Control and Prevention
Whooping cough				
01/01/2023-24/07/2023	Bolivia	473 (7)		Ministerio de Salud y Deportes (Bolivia)
01/01/2023-17/08/2023		789 (8)		
17/07/2023-22/07/2023	USA	56	2179	US CDC
01/07/2023-31/07/2023	Denmark	291	685 (01/05/2023-31/07/2023)	Outbreak News Today
Hantavirus				
01/01/2023-15/07/2023	Panama	28 (2)		Panama Ministry of Health
01/01/2023-29/07/2023		33 (2)		
Tick-borne encephalitis virus				
09/07/2023-15/07/2023	Switzerland	19	141	ProMED-mail
01/01/2023-24/07/2023			157	
25/07/2023-31/07/2023		14	172	
01/08/2023-07/08/2023		31	202	

TABLE 8 | (continued)

Record period	Location	Cumulative cases (deaths) reported during the record period	Cumulative cases (deaths) reported since 01/01/2023	Data source
Legionellosis				
09/07/2023-15/07/2023	USA	77	2452	US CDC
23/07/2023-29/07/2023		63	2816	
30/07/2023-05/08/2023		62	3094	
06/08/2023-12/08/2023		61	3293	
10/07/2023-16/07/2023	Japan	64	1105	Japan National Infectious Disease Research Institute
17/07/2023-23/07/2023		55	1168	
24/07/2023-30/07/2023		47	1220	
23/07/2023-29/07/2023	Taiwan, China	11	191	China Taiwan Disease Control Agency
16/07/2023-22/07/2023		11	180	
30/07/2023-05/08/2023		7	198	
16/07/2023-22/07/2023	Hong Kong, China	5	59	Centre for Health Protection, Hong Kong, China
30/07/2023-05/08/2023		3	63	
06/08/2023-12/08/2023		2	65	
West Nile fever				
27/07/2023-02/08/2023	France	3		EU Center for Disease Control and Prevention
27/07/2023-16/08/2023		7		
03/08/2023-09/08/2023	Romania	5		EU Center for Disease Control and Prevention
10/08/2023-16/08/2023		1 (1)		
26/07/2023-01/08/2023	USA	21	90	US CDC
02/08/2023-08/08/2023		36	126	
09/08/2023-15/08/2023		64	190	
16/08/2023-22/08/2023		57	247	
03/08/2023-09/08/2023	Republic of Serbia	9		EU Center for Disease Control and Prevention
10/08/2023-16/08/2023		14	23	
13/07/2023-19/07/2023	Greece	1		EU Center for Disease Control and Prevention
20/07/2023-2/07/2023		2	3 (13/07/2023-26/07/2023)	
27/07/2023-02/08/2023		8 (2)		
03/08/2023-0/08/2023		11 (11)		
10/08/2023-16/08/2023		26 (2)	48 (13/07/2023-16/08/2023)	
13/07/2023-19/07/2023	Hungary	1		EU Center for Disease Control and Prevention
27/07/2023-02/08/2023	Italy	25 (1)		EU Center for Disease Control and Prevention
03/08/2023-09/08/2023		30 (1)		
MERS-CoV				
10/07/2023-10/07/2023	The United Arab Emirates	1	94 (12) (01/07/2023-10/07/2023)	WHO

hemorrhagic fever, salmonellosis, leptospira, zika virus, diphtheria, whooping cough, hantavirus, tick-borne encephalitis virus, legionellosis, West Nile fever, and MERS-CoV (Table 8).

CONCLUSION

In the modern world of large interconnected populations and rapid transport, where the potential for global spread of infectious diseases is extremely high, international cooperation in the surveillance, prevention, and control of infectious diseases is essential. The experience with new coronaviruses and the devastating pandemics of influenza and AIDS in the last century have focused on the threat posed by new pathogens. The number of Mpox cases in developed regions continues to rise considerably. Although there is no distinct season for the high incidence of cholera, July to October each year is still the period in which the incidence of cholera is high. Since entering the summer, the number of people suffering from dengue fever in tropical and subtropical areas has gradually increased. With the introduction of polio and measles vaccines, these two diseases have been eradicated in many countries, but are still prevalent in a few African regions due to limited medical resources.

SARS-Cov-2 has caused very serious illnesses, and the diseases caused by this strain have resulted in high mortality rates and large-scale social, cultural, and economic upheavals. Preventing outbreaks and related pandemics is therefore a global challenge. This is especially true for countries and regions with low health and economic capacity. At the same time, as pathogens evolve, so do the diagnostic methods. The first CRISPR diagnostic system received FDA Emergency Use Authorisation for the diagnosis of SARS-CoV-2 in the US in 2020. More importantly, countries and regions must have robust healthcare systems in place so that they are able to provide healthcare to sufficient populations during a pandemic.

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CONFLICT OF INTEREST STATEMENT

The authors declare that there are no potential conflicts of interest related to the research, authorship, and publication of this article.

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