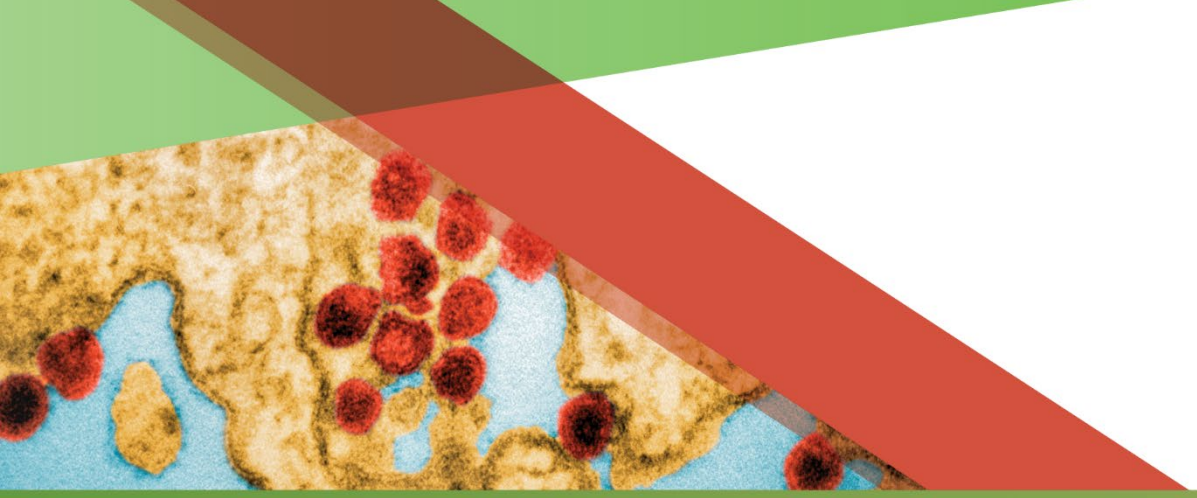


SURVEILLANCE REPORT

Chikungunya virus disease

Annual Epidemiological Report for 2022

Key facts

- For 2022, 26 European Union/European Economic Area (EU/EEA) countries reported 64 cases of chikungunya virus disease, of which 81% were confirmed.
- This was an increase compared with 2021.
- The EU/EEA notification rate was <0.1 cases per 100 000 population.
- The majority of these cases were likely infected in Asia (n = 27; 47%) and South America (n = 16; 28%).
- No autochthonous transmission of chikungunya virus was reported within the EU/EEA.

Introduction

Chikungunya virus disease is a mosquito-borne disease caused by a virus of the *Togaviridae* family. The disease is widespread in tropical and subtropical regions. It usually results in high fever, myalgia, skin rash and marked arthralgia. Chronic arthralgia may persist for weeks or months, causing significant disease burden in the affected population.

Methods

This report is based on data for 2022 retrieved from The European Surveillance System (TESSy) on 20 December 2023. TESSy is a system for the collection, analysis and dissemination of data on communicable diseases.

For a detailed description of the methods used to produce this report, refer to the Methods chapter [1]. An overview of the national surveillance systems is available online [2].

A subset of the data used for this report is available through ECDC's online 'Surveillance atlas of infectious diseases' [3].

For 2022, 26 EU/EEA countries reported data on chikungunya virus disease. No data were reported by four countries (Bulgaria, Cyprus, Denmark, and Norway). All countries reported case-based data except for Belgium, which reported aggregated data. In addition, as the United Kingdom (UK) left the EU on 31 January 2020, the country was not included in the data call and consequently did not provide data.

Fifteen countries referred to the 2018 chikungunya virus disease case definition, seven countries referred to the EU generic case definition for viral haemorrhagic fevers, and four countries used other case definitions.

Suggested citation: European Centre for Disease Prevention and Control. Chikungunya virus disease. In: ECDC. Annual epidemiological report for 2022. Stockholm: ECDC; 2024.

Stockholm, June 2024

All reporting countries, except for the Netherlands, had a comprehensive surveillance system. Reporting was compulsory in all countries, except for Sweden, where reporting cases of chikungunya was voluntary, and Belgium, where reporting is only compulsory for infections acquired within Europe [4].

Epidemiology

For 2022, 64 cases of chikungunya virus disease were reported by 11 countries, of which 52 cases (81%) were confirmed. Fifteen countries reported no cases.

From 2018 to 2022, the number of reported cases (excluding those from the UK) ranged from 12 in 2021 to 441 in 2019 (Table 1). France (n = 23), Germany (n = 16) and Spain (n = 10) reported 77% of the cases in 2022 (Table 1). The EU/EEA notification rate in 2022 was <0.1 cases per 100 000 population.

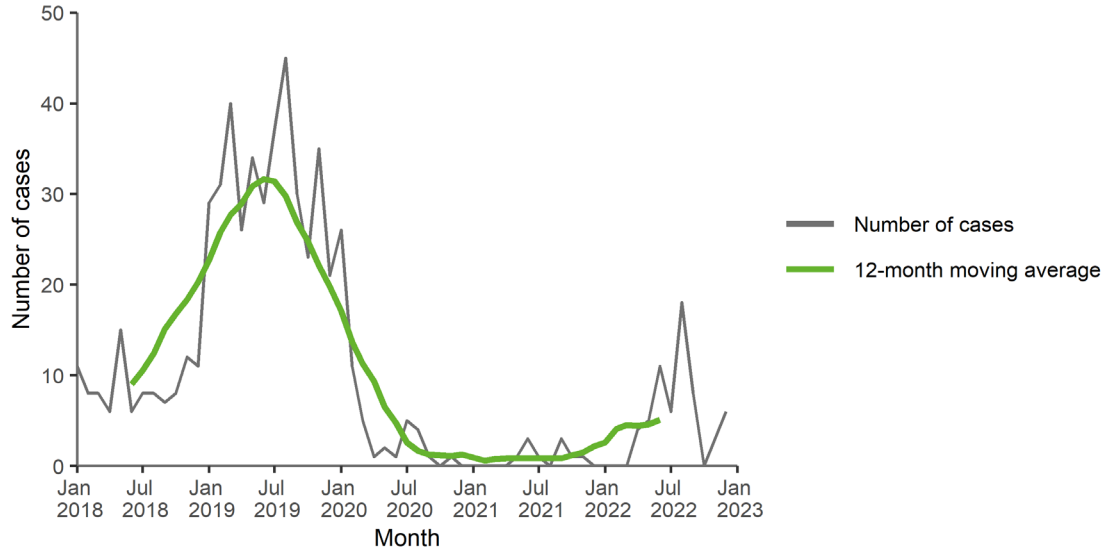
Table 1. Chikungunya cases and rates per 100 000 population by country and year, EU/EEA, 2018–2022

Country	2018		2019		2020		2021		2022		
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	ASR
Austria	1	0.0	17	0.2	0	0.0	0	0.0	3	0.0	0.0
Belgium	3	0.0	60	0.5	8	0.1	2	0.0	3	0.0	0.0
Bulgaria	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NRC
Croatia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Cyprus	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NRC
Czechia	6	0.1	15	0.1	0	0.0	0	0.0	2	0.0	0.0
Denmark	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NRC
Estonia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Finland	1	0.0	14	0.3	2	0.0	0	0.0	0	0.0	0.0
France	16	0.0	108	0.2	13	0.0	3	0.0	23	0.0	0.0
Germany	26	0.0	87	0.1	26	0.0	4	0.0	16	0.0	0.0
Greece	1	0.0	2	0.0	0	0.0	0	0.0	0	0.0	0.0
Hungary	3	0.0	5	0.1	0	0.0	0	0.0	2	0.0	0.0
Iceland	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	0	0.0	0.0
Ireland	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0.0
Italy	4	0.0	25	0.0	6	0.0	0	0.0	0	0.0	0.0
Latvia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Liechtenstein	NDR	NRC	NDR	NRC	NDR	NRC	0	0.0	0	0.0	0.0
Lithuania	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Luxembourg	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	0.0
Malta	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	0.2
Netherlands	0	NRC	0	NRC	0	NRC	0	NRC	1	NRC	NRC
Norway	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NDR	NRC	NRC
Poland	0	0.0	2	0.0	0	0.0	0	0.0	2	0.0	0.0
Portugal	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Romania	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Slovakia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Slovenia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Spain	27	0.1	46	0.1	9	0.0	1	0.0	10	0.0	0.0
Sweden	20	0.2	58	0.6	1	0.0	2	0.0	1	0.0	0.0
EU/EEA (30 countries)	**111**	**0.0**	**441**	**0.1**	**65**	**0.0**	**12**	**0.0**	**64**	**0.0**	**0.0**
United Kingdom	59	0.1	94	0.1	NDR	NRC	NA	NA	NA	NA	NA
EU/EEA (31 countries)	**170**	**0.0**	**535**	**0.1**	**65**	**0.0**	**NA**	**NA**	**NA**	**NA**	**NA**

Source: country reports; ASR: age-standardised rate; NDR: no data reported; NRC: no rate calculated. From 2020 onwards no data were reported by the United Kingdom, due to its withdrawal from the EU on 31 January 2020. Rates were not calculated for the Netherlands because no information was provided on the level of coverage of the national surveillance system.

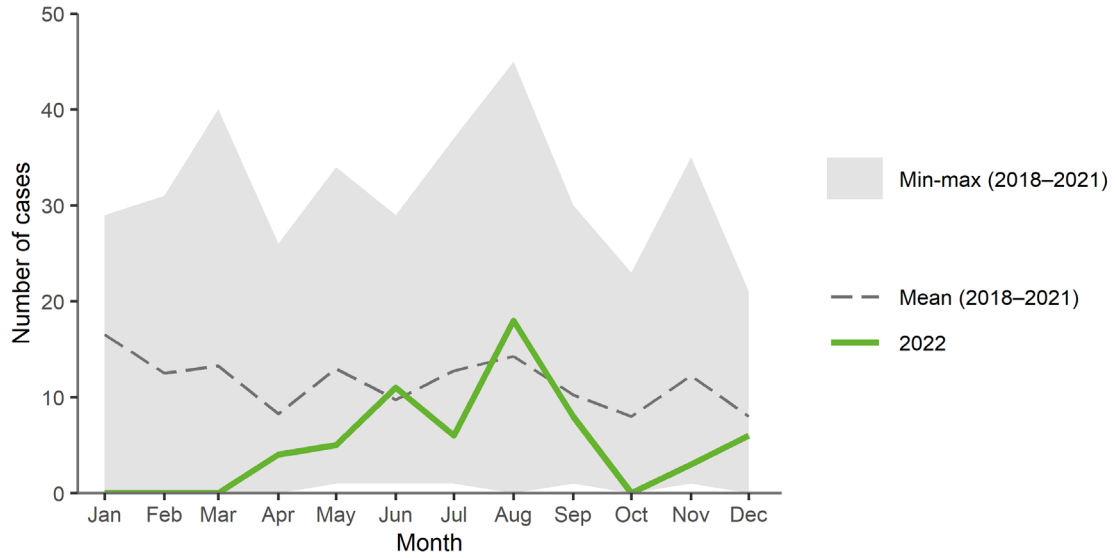
Among the cases with information available on month of onset, diagnosis and/or reporting (61 cases), in 2022 the highest were recorded in the month of August (18 cases, see Figure 1). When compared with previous years, the monthly numbers of cases reported in 2022 rose slightly above the historical mean (2018–2021) for the months of August and June.

Figure 1. Chikungunya cases by month, EU/EEA, 2018–2022



Source: Country reports from Austria, Croatia, Czechia, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

Figure 2. Chikungunya cases by month, EU/EEA, 2022 and 2018–2021



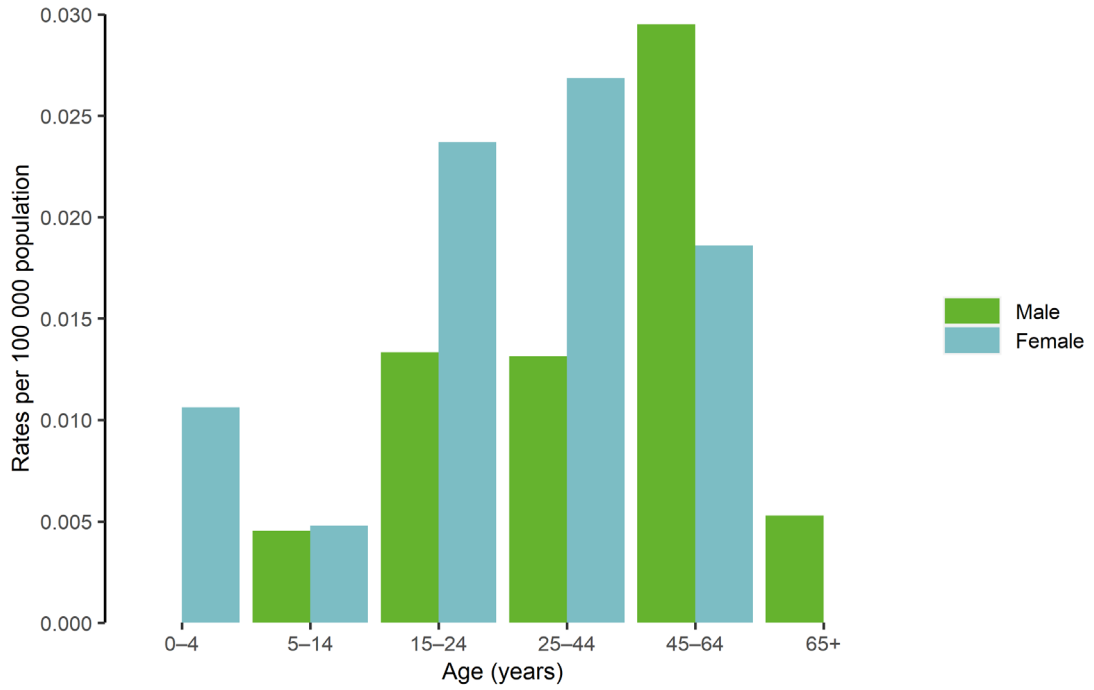
Source: Country reports from Austria, Croatia, Czechia, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

Information on gender and age was respectively available for 63 (98%) and 64 (100%) of the cases reported in 2022. The male-to-female ratio was 0.7:1. Of the cases reported, 78% were in the age groups 25-44 years (n = 22) and 45-64 years (n = 28).

Information on importation status was available for 59 cases, all of which were imported.

In 2022, information on the probable country of infection was available for 58 cases, who acquired their infection in 22 different probable countries of infection, in Africa (19%: Burkina Faso (n=1), Egypt (n=1), Ethiopia (n=1), Mauritius (n=1), Nigeria (n=1), Senegal (n=1), Chad (n=2), South Africa (n=1), Côte d'Ivoire (n = 2)); Asia (47%: Bangladesh (n=1), Indonesia (n=20), Philippines (n=2), Thailand (n = 1), Malaysia (n = 1), India (n = 2)); North America (7%: Costa Rica (n=1), Cuba (n=1), Dominican Republic (n=1), Mexico (n=1)); South America (28%: Brazil (n=14), Peru (n=1)); and Oceania (Papua New Guinea (n=1)).

Figure 3. Chikungunya rates per 100 000 population, by age and gender, EU/EEA, 2022



Source: Country reports from Austria, Belgium, Croatia, Czechia, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

Discussion

After a decrease in cases from 2019 to 2021, the number of chikungunya virus disease cases increased again in 2022. This is in line with the global rise in cases from 2021 to 2022, mostly driven by cases from Brazil (127 487 cases in 2021 to 265 289 cases in 2022) and India (91 477 in 2021 to 108 957 cases in 2022) [5,6].

No autochthonous transmission of chikungunya virus was reported within the EU/EEA in 2022. The last outbreaks were seen in 2017 in France (n=17 cases) and in Italy (n=489 cases) [7]. Vector-borne transmission events of chikungunya virus within the EU/EEA are expected in areas where *Aedes albopictus* and *Aedes aegypti* are established and when environmental conditions allow sufficient vector capacity (roughly from early summer to mid-autumn) [8].

No autochthonous transmissions were reported in the Outermost Regions of France, Spain, or Portugal [9].

Public health implications

Vigilance regarding travel-related cases of chikungunya and other *Aedes*-borne infections remains essential. Public health authorities in the EU/EEA should consider raising awareness among clinicians and travel clinic specialists about the risk related to such diseases, especially when and where vector-borne secondary transmission may take place. The detection of an autochthonous case in the EU/EEA should trigger epidemiological and entomological investigations to assess the size of the transmission area and the potential for onward transmission, as well as to guide vector control measures.

Aedes albopictus has been the primary vector of chikungunya virus in mainland EU/EEA and is widely established throughout the region [10]. *Aedes aegypti*, the primary vector for chikungunya virus transmission in most tropical and sub-tropical regions, has recently established itself in Cyprus [11]. It is also established around the Black Sea and in several EU outermost regions (i.e. Madeira, Martinique, Mayotte, Guadeloupe, French Guiana, La Réunion) [12-14]. Further spread and subsequent establishment of *Aedes aegypti* in mainland EU/EEA would likely increase the likelihood of autochthonous transmission events within the region, as well as the size of the epidemics.

Transmission of chikungunya virus through transfusion and transplantation of substances of human origin has not been documented. Based on knowledge from other vector-borne diseases, preventive safety measures are anyway applied to substances of human origin from donors residing in or returning from a chikungunya-affected areas [15].

There is currently no licenced vaccine against chikungunya virus disease in Europe; prevention is based on protection against mosquito bites.

Personal protective measures focus principally on protection against mosquito bites. *Aedes* mosquitoes have diurnal biting activities in both indoor and outdoor environments [16]. Personal protective measures should therefore be applied all day long and especially during the hours of highest mosquito activity (mid-morning and late afternoon to twilight). Personal protective measures to reduce the risk of mosquito bites include wearing long sleeves and pants, impregnated with insect repellent, the use of repellent sprays applied in accordance with the instructions indicated on the product label and limiting activities that increase mosquito exposure [17]. In addition, it is recommended to sleep or rest in screened or air-conditioned rooms [18]. In regions where chikungunya epidemic occurs, we also recommend using mosquito bed nets (preferably insecticide-treated nets).

Travellers who visit areas endemic for *Aedes*-borne diseases (e.g. chikungunya virus disease, dengue, Zika virus disease) and reside in areas of mainland EU/EEA where *Aedes albopictus* and/or *Aedes aegypti* mosquitos are established should continue to apply personal protective measures after their return for a period of three weeks. This is to avoid infecting local mosquitoes, which could result in autochthonous transmission within mainland EU/EEA. In addition, local authorities could consider conducting preventive vector control measures around imported chikungunya cases in areas in which outbreaks may occur.

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