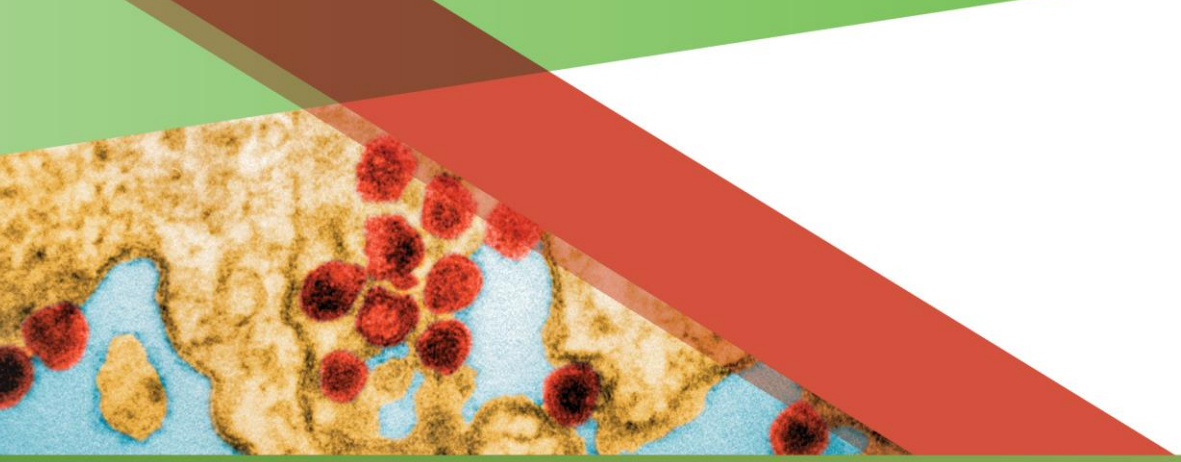

SURVEILLANCE REPORT

# Chikungunya virus disease

## Annual Epidemiological Report for 2019

## Key facts

- For 2019, 15 countries reported 516 cases of chikungunya virus disease, of which 421 (82%) were confirmed.
- The number of cases was higher than in 2018, but comparable to 2016 and 2017.
- The EU/EEA notification rate was 0.1 cases per 100 000 population.
- The majority (n=412, 80%) of the cases were 25–64 years of age.
- Seventy-eight percent of the cases with known probable country of infection were imported from Asia, mostly from Thailand, India and Myanmar.
- No autochthonous transmission of chikungunya virus occurred within the EU/EEA[1].

## Introduction

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

## Methods

This report is based on data for 2019 retrieved from The European Surveillance System (TESSy) on 9 October 2020. TESSy is a system for the collection, analysis and dissemination of data on communicable diseases.

For a detailed description of 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].

Twenty-five EU/EEA countries reported data on chikungunya virus disease. All countries reported case-based data except for Belgium which reported aggregated data. Ten countries reported no cases. No data were reported by Bulgaria, Cyprus, Denmark and the three EEA countries: Iceland, Liechtenstein and Norway.

Three countries (Malta, Poland and Romania) referred to the 2018 chikungunya virus disease case definition, 16 countries referred to the EU generic case definition for viral haemorrhagic fevers, two countries did not specify which case definition was used (Belgium and France), and four countries used other case definitions (Czechia, Germany, Sweden and the United Kingdom).

[1] For the purposes of this document, the EU/EEA excludes the Outermost Regions and the Overseas Countries and Territories.

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Stockholm, April 2021

All reporting countries except for the Netherlands had a comprehensive surveillance system. Reporting was compulsory in all countries, except for Belgium, Sweden and the United Kingdom where it was voluntary.

# Epidemiology

For 2019, 15 countries reported 516 cases of chikungunya virus disease, of which 421 (82%) were confirmed. France reported the highest proportion of cases (21%), followed by the United Kingdom (18%) and Germany (17%) (Table 1, Figure 1).

The EU/EEA notification rate in 2019 was 0.1 cases per 100 000 population. Country-specific rates were highest in Belgium and Sweden.

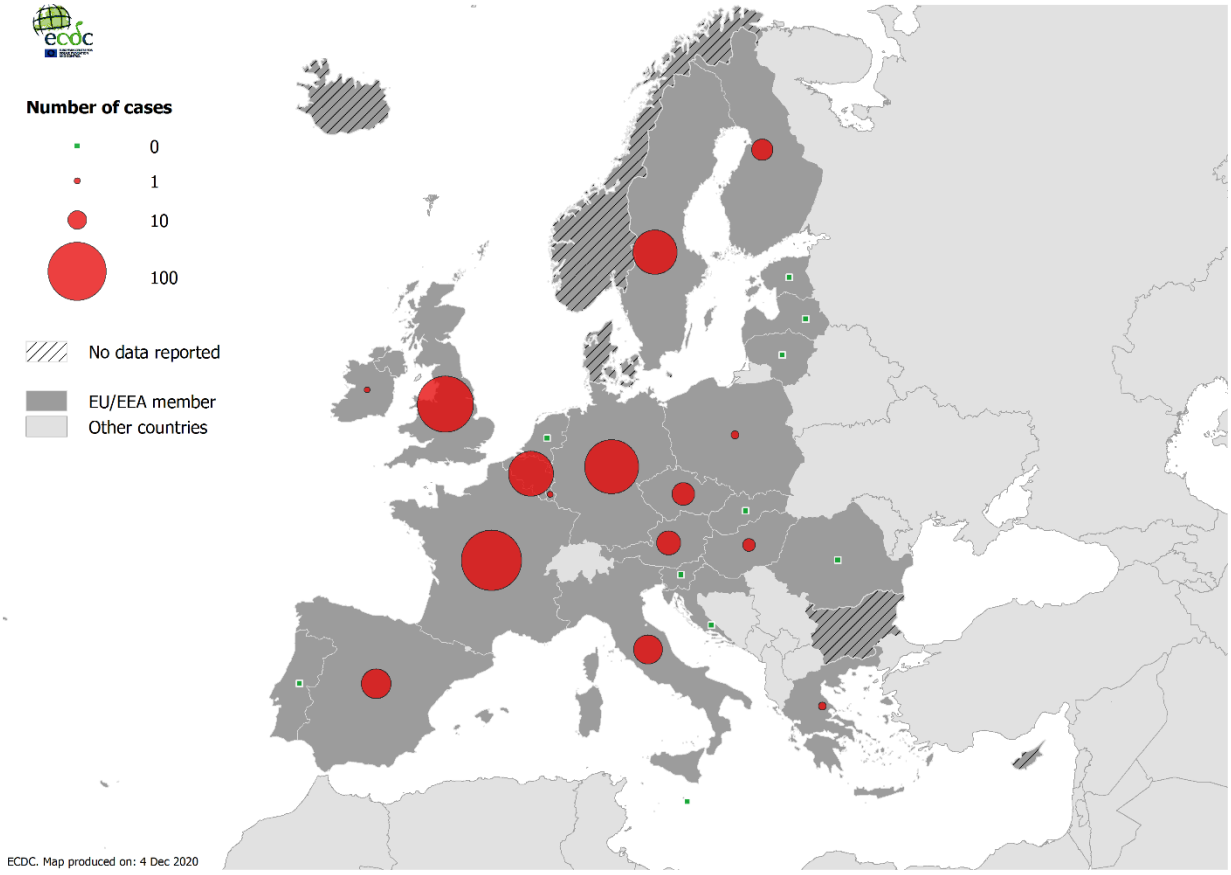
During the 2015–2019 period, the number of reported cases ranged from 170 in 2018 to 640 in 2015, with no obvious trend discernible (Figure 2).

**Table 1. Distribution of chikungunya virus disease cases and rates per 100 000 population by country and year, EU/EEA, 2015–2019**

| Country | 2015 | | 2016 | | 2017 | | 2018 | | 2019 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Rate | Number | Rate | Number | Rate | Number | Rate | Number | Rate | ASR |
| Austria | - | - | 9 | 0.1 | 5 | 0.1 | 1 | 0.0 | 17 | 0.2 | 0.2 |
| Belgium | 44 | 0.4 | 29 | 0.3 | 10 | 0.1 | 3 | 0.0 | 60 | 0.5 | 0.5 |
| Bulgaria | . | . | . | . | . | . | . | . | . | . | . |
| Croatia | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0.0 |
| Cyprus | . | . | . | . | . | . | . | . | . | . | . |
| Czechia | 1 | 0.0 | 7 | 0.1 | 0 | 0.0 | 6 | 0.1 | 15 | 0.1 | 0.1 |
| Denmark | . | . | . | . | . | . | . | . | . | . | . |
| Estonia | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0.0 |
| Finland | 7 | 0.1 | 0 | 0.0 | 5 | 0.1 | 1 | 0.0 | 14 | 0.3 | 0.3 |
| France | 68 | 0.1 | 42 | 0.1 | 35 | 0.1 | 16 | 0.0 | 108 | 0.2 | 0.2 |
| Germany | 110 | 0.1 | 74 | 0.1 | 33 | 0.0 | 26 | 0.0 | 88 | 0.1 | 0.1 |
| Greece | 0 | 0.0 | 2 | 0.0 | 0 | 0.0 | 1 | 0.0 | 2 | 0.0 | 0.0 |
| Hungary | 2 | 0.0 | 1 | 0.0 | 1 | 0.0 | 3 | 0.0 | 5 | 0.1 | 0.1 |
| Iceland | . | . | . | . | . | . | . | . | . | . | . |
| Ireland | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0.0 |
| Italy | 18 | 0.0 | 17 | 0.0 | 289 | 0.5 | 4 | 0.0 | 25 | 0.0 | 0.0 |
| Latvia | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0.0 |
| Liechtenstein | . | . | . | . | . | . | . | . | . | . | . |
| Lithuania | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0.0 |
| Luxembourg | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.2 | 0.2 |
| Malta | 0 | 0.0 | 1 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0.0 |
| Netherlands | 24 | - | 7 | - | 0 | - | 0 | - | 0 | - | - |
| Norway | . | . | . | . | . | . | . | . | . | . | . |
| Poland | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.0 | 0.0 |
| Portugal | 0 | 0.0 | 3 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0.0 |
| Romania | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 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 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0.0 |
| Spain | 234 | 0.5 | 105 | 0.2 | 51 | 0.1 | 27 | 0.1 | 26 | 0.1 | 0.1 |
| Sweden | 23 | 0.2 | 20 | 0.2 | 13 | 0.1 | 20 | 0.2 | 58 | 0.6 | 0.6 |
| United Kingdom | 106 | 0.2 | 169 | 0.3 | 104 | 0.2 | 59 | 0.1 | 94 | 0.1 | 0.1 |
| **EU-EEA** | **640** | **0.1** | **488** | **0.1** | **546** | **0.1** | **170** | **0.0** | **516** | **0.1** | **0.1** |

*Source: Country reports.*
*.: no data reported*
*-: no rate calculated.*
*ASR: age-standardised rate*

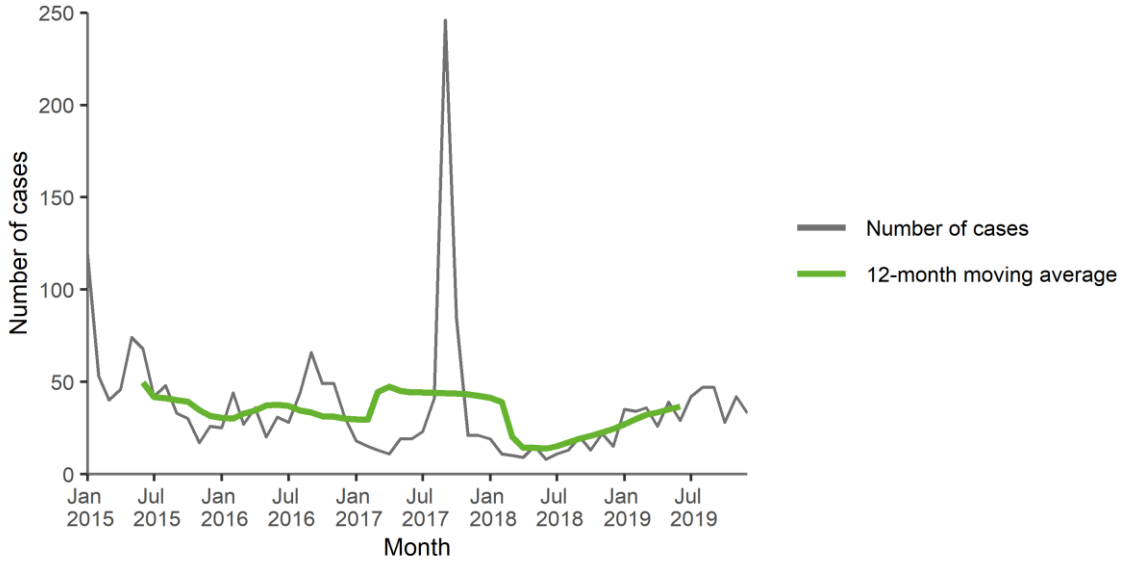
**Figure 1. Distribution of chikungunya virus disease cases by country, EU/EEA, 2019**




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

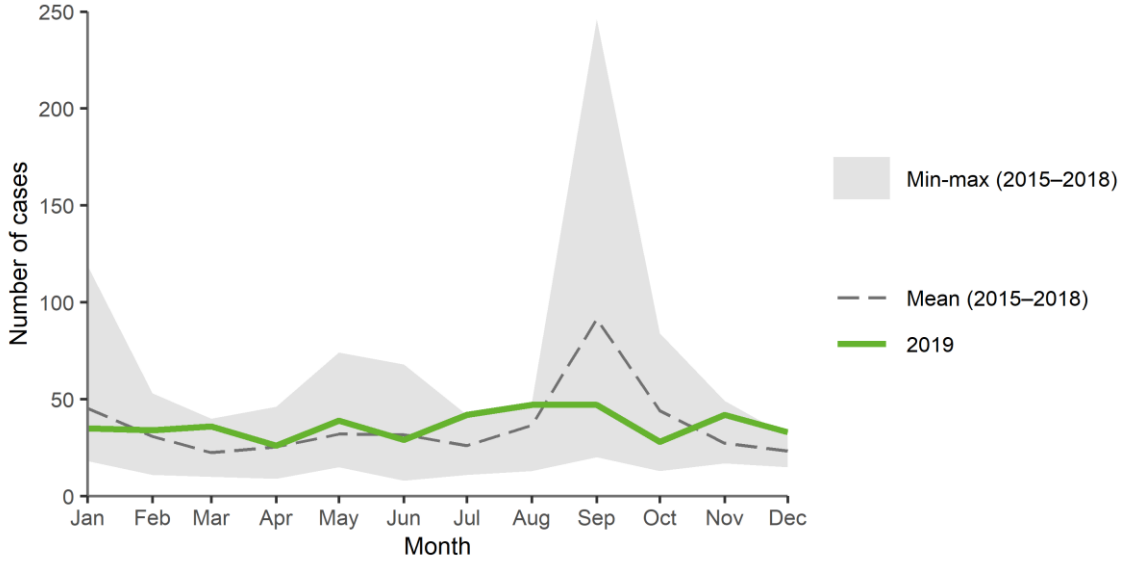
Information about the month of onset, diagnosis and/or reporting was available to 455 cases. One third of the cases were reported in July, August or September (Figures 2, 3).

**Figure 2. Distribution of chikungunya virus disease cases by month, EU/EEA, 2015–2019**




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

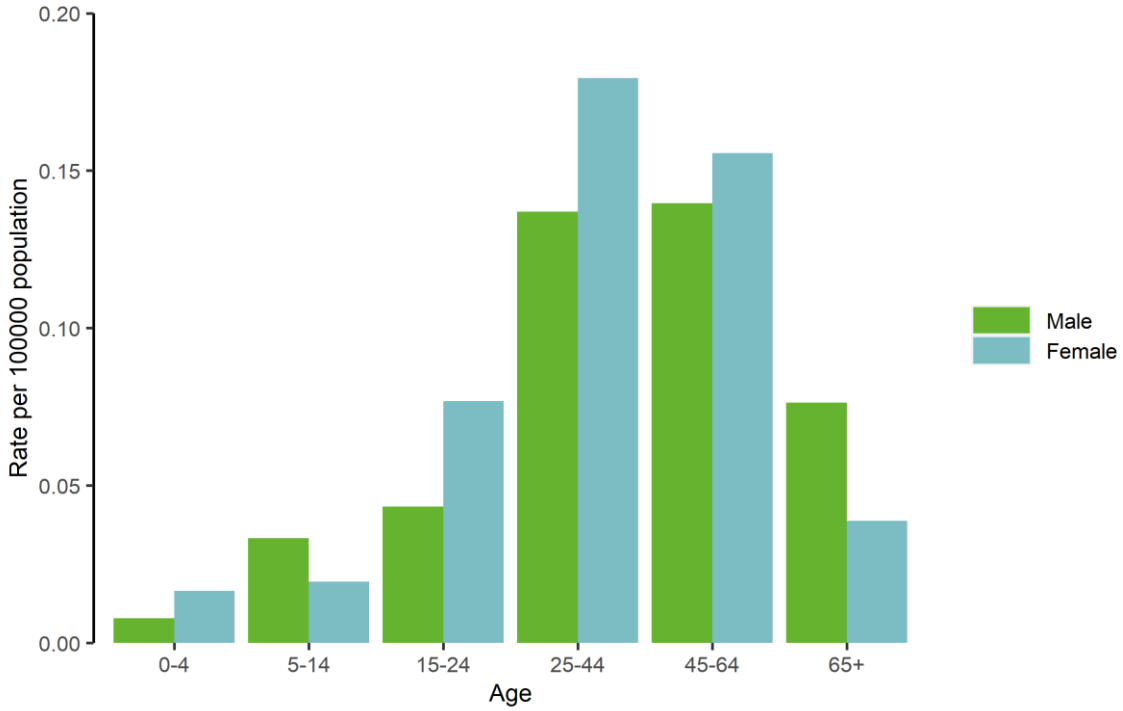
**Figure 3. Distribution of chikungunya virus disease cases by month, EU/EEA, 2019 and 2015–2018**




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

Information on gender was available for 514 cases and information on age was available for all cases. The male-to-female ratio was 0.9:1. The majority (n=412, 80%) of the cases were 25–64 years of age. The highest rates were observed in the age groups 25–44 years and 44–64 years, with 0.16 and 0.15 cases per 100 000 population, respectively (Figure 4). A relatively similar age distribution was observed for both men and women. The main difference was that the infection rate among women age 15–24 years was higher than for women over 65 years, while the opposite was observed for males in these two age groups.

**Figure 4. Distribution of chikungunya virus disease rate per 100 000 population, by age and gender, EU/EEA, 2019**




All cases were either imported or had unknown importation status.

In 2019, information on the probable country of infection was available for 397 travel-related cases and these cases had acquired their infection in a variety of probable countries of infection (36 countries). The majority (n=308; 78%) of these cases were infected in Asia, mainly in Thailand (n=191; 62%), India (n=41; 13%) and Myanmar (n=41; 13%).

# Discussion

After a decrease in travel-related cases in 2017 and 2018, the number of travel-related cases in 2019 was comparable to that observed in 2016. The number of travel-related cases indicates the intensity of virus circulation on a global scale. Asia is still the region where the majority of cases are infected.

The age and gender distribution of the chikungunya virus disease cases reported in the EU/EEA most probably reflects the demographic characteristics of travellers rather than other risk factors.

The peak in the number of cases observed in the autumn most probably reflects an increased transmission of the virus in the probable countries of infection due to climatic conditions favourable to vector activity and viral replication during this period of the year. The variation in the number of retuning travellers also contributes to the seasonality among travel-related cases, albeit to a lesser extent [4].

No autochthonous transmission of chikungunya virus was reported within the EU/EEA. The last outbreaks were in 2017 in France (n=17 cases) and in Italy (n=282 cases) [5]. Vector-borne transmission events involving chikungunya virus within the EU/EEA are expected in areas where *Aedes albopictus* is established and when environmental conditions are suitable for vector activity and virus replication (roughly from early summer to mid-autumn) [6].

# Public health implications

Vigilance regarding travel-related cases of chikungunya virus disease 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 [6]. 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, and to guide vector control measures.

*Aedes aegypti*, the primary vector for chikungunya virus transmission globally, is not established in the EU/EEA, but the species is established around the Black Sea and in several EU Overseas Countries and Territories (e.g. Anguilla, Aruba, French Polynesia) and Outermost regions (e.g. Madeira, Martinique, La Réunion). The introduction and subsequent establishment of *Aedes aegypti* in the EU/EEA would certainly increase the likelihood of autochthonous transmission events occurring on the continent.

Transmission of chikungunya virus through transfusion and transplantation of substances of human origin has not been documented. However, in animal models, intravenous inoculation of the virus has led to the infection of the recipient. Preventive safety measures are therefore applied to substances of human origin from donors residing in or returning from an affected area [7].

There is no licenced vaccine against chikungunya virus infection; prevention is based on protection against mosquito bites. *Aedes* mosquitoes have diurnal biting activities in both indoor and outdoor environments. Personal protection measures should therefore be applied all day long and especially during the hours when mosquito activity is at its highest (mid-morning and late afternoon to twilight) [27].

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