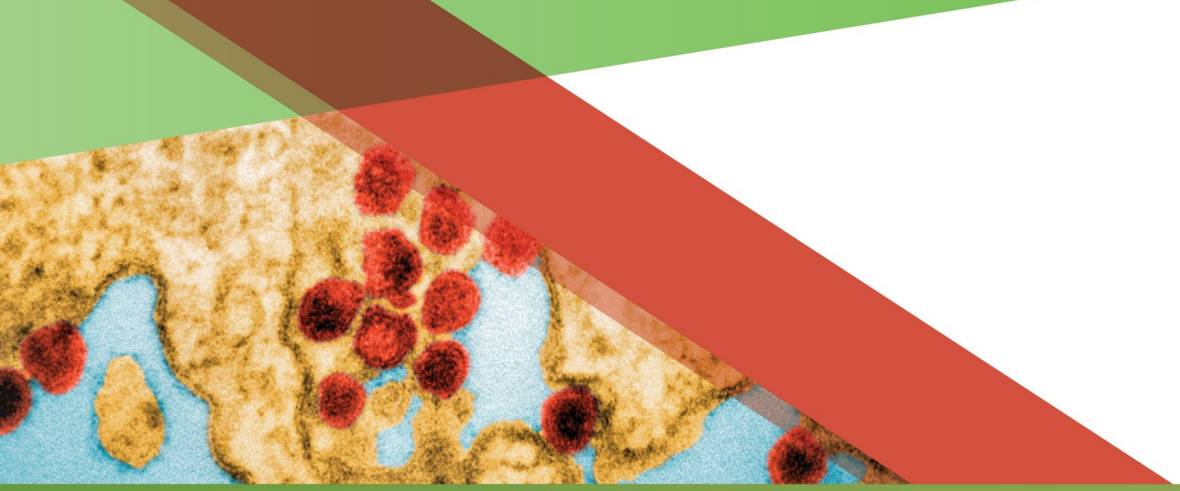


SURVEILLANCE REPORT

Chikungunya virus disease

Annual Epidemiological Report for 2017

Key facts

- For 2017, 10 countries reported 548 cases of chikungunya virus disease, of which 461 (84.1%) were confirmed.
- For the first time since 2014, autochthonous chikungunya cases were reported from continental Europe by France (n=17) and Italy (n=277).
- The EU/EEA notification rate was 0.1 cases per 100 000 population.
- Notification rates were comparable in all age groups above 15 years and higher among males in almost all age groups.
- The number of chikungunya cases peaked in late summer between August and October, with a large peak in September (45.3%; n=248).
- Most travel-related cases (35.9%) were associated with visits to India.

Methods

This report is based on data for 2017 retrieved from The European Surveillance System (TESSy) on 10 December 2018. 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-four EU/EEA countries reported data on chikungunya virus disease. All countries reported case-based data except for Belgium, which reported aggregated data. Fourteen countries reported no cases. No data were reported by Bulgaria, Croatia, Cyprus, Denmark and the three EEA countries: Iceland, Liechtenstein and Norway.

Reported data for chikungunya virus disease were heterogeneous since no specific EU case definition was available in 2017, as in previous years. Seventeen countries referred to the EU's generic case definition for viral haemorrhagic fevers, three did not specify which case definition was used (Belgium, Finland and France) and four used other case definitions (the Czech Republic, Germany, Sweden and the United Kingdom).

Suggested citation: European Centre for Disease Prevention and Control. Chikungunya virus disease. In: ECDC. Annual epidemiological report for 2017. Stockholm: ECDC; 2019.

Stockholm, April 2019

All reporting countries except the Netherlands have a comprehensive surveillance system. Reporting is compulsory in all countries except in Sweden and the United Kingdom, where it is voluntary.

Epidemiology

For 2017, 10 countries reported 548 cases of chikungunya, of which 461 (84.1%) were confirmed. Of these cases, 303 cases (55.3%) were locally acquired and 227 (41.4%) were imported, while the remaining 18 cases had an unknown place of infection.

As in 2016 and 2015, the EU/EEA notification rate in 2017 was 0.1 cases per 100 000 population.

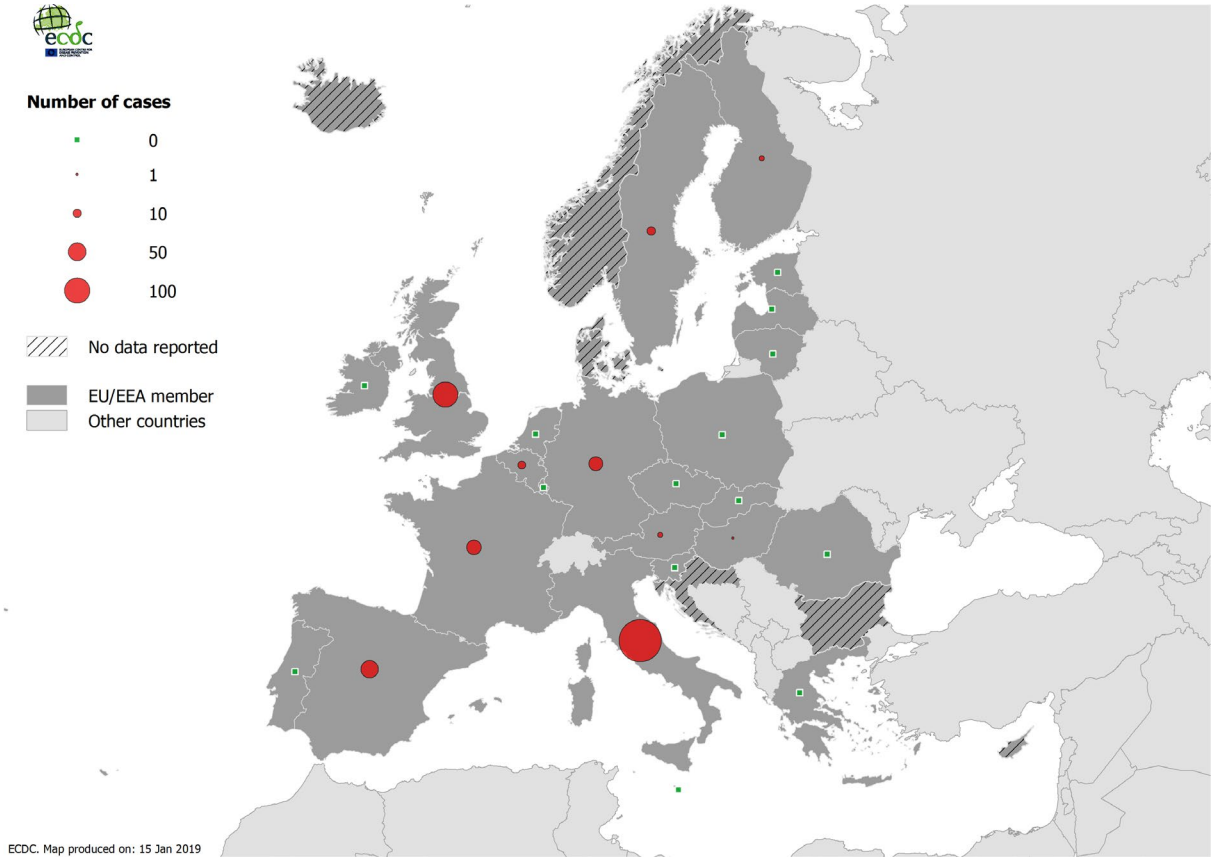
Italy reported the highest number of cases (52.7%; n=289), followed by the United Kingdom (19%; n=104) (Table 1, Figure 1). Both France (n=17) and Italy (n=277) reported autochthonous chikungunya virus disease cases. Most of the 181 imported cases for which the probable place of infection was known were infected in India (35.9%), Bangladesh (15.5%) and Brazil (13.3%).

Table 1. Distribution of chikungunya virus disease cases and rates per 100 000 population by country and year, EU/EEA, 2013–2017

Country	2013		2014		2015		2016		2017			
	Reported cases	Rate	Reported cases	Rate	Reported cases	Rate	Reported cases	Rate	Reported cases	Rate	ASR	Confirmed cases
Austria	0	0.0	-	-	-	-	9	0.1	5	0.1	-	5
Belgium	7	0.1	74	0.7	44	0.4	29	0.3	10	0.1	-	10
Bulgaria	.	.	.	.	.	.	.	.	.	.	.	.
Croatia	0	0.0	0	0.0	0	0.0	0	0.0	-	-	-	-
Cyprus	.	.	.	.	.	.	.	.	.	.	.	.
Czech Republic	0	0.0	3	0.0	1	0.0	7	0.1	0	0.0	0	0
Denmark	.	.	.	.	.	.	.	.	.	.	.	.
Estonia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0
Finland	1	0.0	4	0.1	7	0.1	0	0.0	5	0.1	-	5
France	11	0.0	550	0.8	52	0.1	45	0.1	37	0.1	-	20
Germany	16	0.0	162	0.2	110	0.1	74	0.1	33	0.0	-	33
Greece	0	0.0	1	0.0	0	0.0	2	0.0	0	0.0	0	0
Hungary	0	0.0	2	0.0	2	0.0	1	0.0	1	0.0	-	1
Iceland	.	.	.	.	.	.	.	.	.	.	.	.
Ireland	0	0.0	1	0.0	1	0.0	1	0.0	0	0.0	0	0
Italy	3	0.0	39	0.1	18	0.0	17	0.0	289	0.5	-	289
Latvia	0	0.0	0	0.0	2	0.1	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	0	0.0	0	0
Malta	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0
Netherlands	-	-	33	-	24	-	7	-	0	-	-	0
Norway	.	.	.	.	.	.	.	.	.	.	.	.
Poland	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0
Portugal	-	-	-	-	0	0.0	3	0.0	0	0.0	0	0
Romania	0	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	2	0.1	0	0.0	0	0
Spain	2	-	272	0.6	234	0.5	105	0.2	51	0.1	-	51
Sweden	6	0.1	19	0.2	23	0.2	20	0.2	13	0.1	-	13
United Kingdom	26	0.0	301	0.5	106	0.2	169	0.3	104	0.2	-	34
EU/EEA	**72**	**0.0**	**1461**	**0.3**	**624**	**0.1**	**492**	**0.1**	**548**	**0.1**	**-**	**461**

ASR: age-standardised rate
-: no rate calculated
.: no data reported.

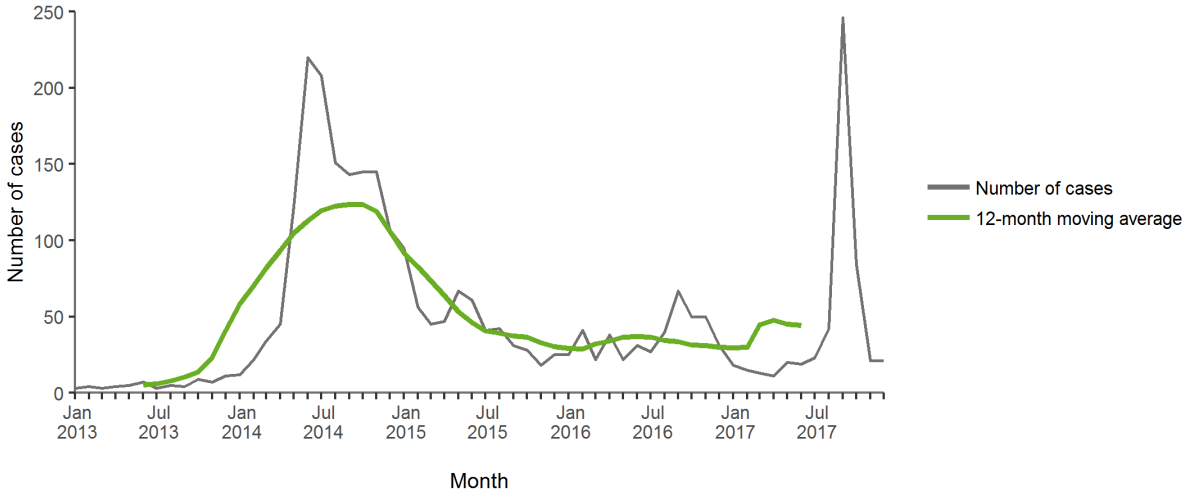
Figure 1. Distribution of chikungunya virus disease cases by country, EU/EEA, 2017



Source: Country reports from the Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

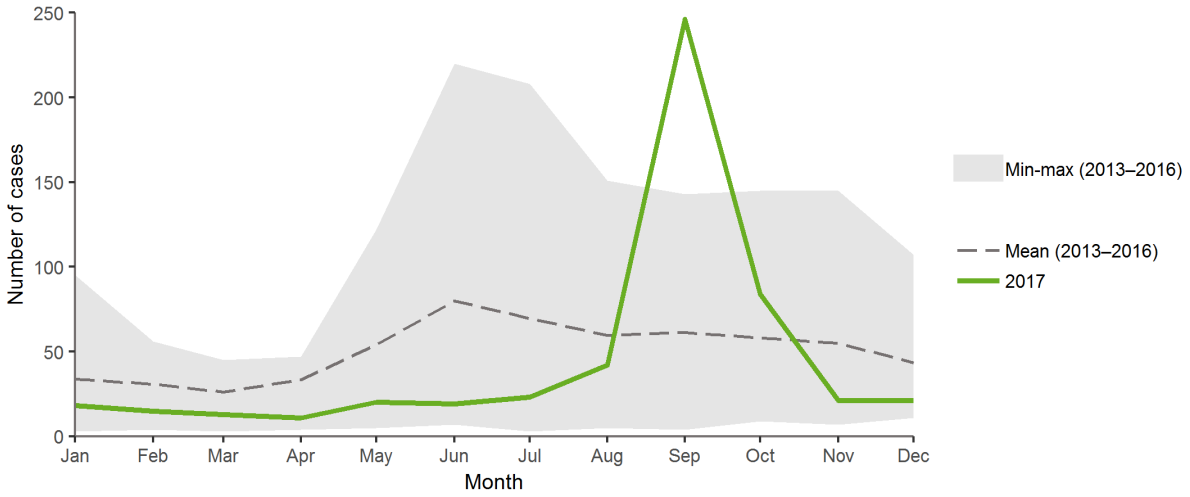
The number of chikungunya virus disease cases peaked in late summer between August–October, with a large peak in September (45.3%; n=248). The number of cases reported for September was considerably higher than the mean number of cases and even exceeded the maximum number of cases reported for the same period between 2013–2016 (Figures 2,3).

Figure 2. Distribution of chikungunya virus disease cases by month, EU/EEA, 2013–2017



Source: Country reports from the Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

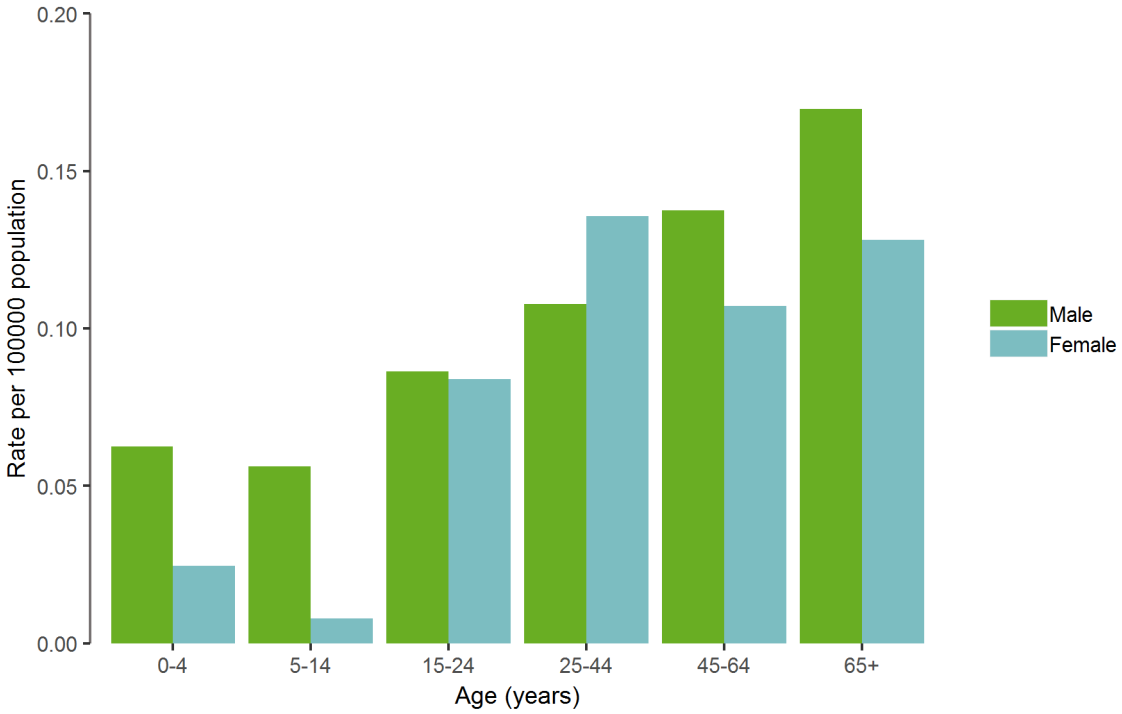
Figure 3. Distribution of chikungunya virus disease cases by month, EU/EEA, 2017 and 2013–2016



Source: Country reports from the Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom. (n=20)

In 2017, the male-to-female ratio was 1.1:1. The majority of cases were 25–64 years of age (n=329, 60.0%). Rates were comparable in all age groups above 15 years (0.1 cases per 100 000; Figure 4) and highest for males >65 years of age (0.2 cases per 100 000). Rates were higher among males in all age groups, with an exception for the age group 25-44.

Figure 4. Distribution of chikungunya virus disease cases per 100 000 population by age and gender, EU/EEA, 2017



Outbreaks and other threats

In 2017, two distinct events based on epidemiological and microbiological evidence were detected in Europe. They involved strains of different origin and are therefore not related. France reported two clusters, including 15 confirmed and two probable cases, in the Var department (Provence-Alpes-Côte d'Azur region) of south-eastern France. One cluster was in Cannet-des-Maures and the other one in Taradeau. An epidemiological link between the cases in Cannet-des-Maures and Taradeau indicated that these two clusters were related [4,5]. Italy reported 277

confirmed and probable cases in the Lazio and Calabria regions, both popular holiday destinations with increased population density during the summer holidays when the outbreak was ongoing. This was the first known transmission of chikungunya virus disease in central and southern Italy [4,6–8].

As in previous years, Asia and the Americas were the regions most affected by chikungunya [9].

In 2017, India was particularly affected with over 62 000 suspected cases. However, this was a decrease compared with 64 057 cases in 2016. A large countrywide outbreak was ongoing in Pakistan in 2017, with 8 387 suspected and confirmed cases [9].

In 2017, 185 000 suspected and confirmed chikungunya cases were reported in the Americas and the Caribbean region, considerably fewer than the 498 000 cases reported for the same time period in 2016 [9]. Brazil accounted for 93% of the cases reported in the Americas since the beginning of 2017.

Discussion

Travel-related cases of chikungunya virus disease in the EU/EEA reflect the chikungunya situation in tropical regions where the disease is endemic. The number of travel-related cases reported in 2017 was lower than in 2016, possibly due to the decrease in virus transmission in the Americas in the same year. The number of cases has fluctuated over the years, with the highest number of cases reported in 2014, when a large outbreak of chikungunya virus disease occurred in the Americas. In 2017, two distinct events of autochthonous chikungunya transmission were reported in continental Europe for the first time since 2014 [5–7]. Local outbreaks had previously been reported in Italy in 2007, and in France in 2010 and 2014 [10–12]. Clusters of autochthonous chikungunya virus disease cases in areas in France and Italy in 2017 where *Aedes albopictus* is established are not unexpected during the summer months, when environmental conditions are favourable for mosquitoes [9].

Transmission usually occurs during or just after the hot rainy season, mainly between mid-spring and mid-autumn [13]. As chikungunya virus disease is endemic in large areas of the intertropical zone, repeated introductions can occur through viraemic travellers returning from these areas when weather conditions are suitable for *Aedes albopictus* activity in areas where the mosquito species is established [9]. *Aedes albopictus* is established in the southern part of the continental EU/EEA. *Aedes aegypti*, the primary vector for chikungunya virus disease transmission is not established in the continental EU/EEA, but the species is established around the Black Sea and in several EU Overseas Counties and Territories such as Madeira and several islands in the Caribbean region (e.g. Martinique and Guadeloupe). More information about vector distribution is available from ECDC's mosquito maps [14].

Public health implications

Vigilance regarding imported cases of chikungunya and other diseases transmitted by *Aedes* mosquitoes remains essential. Public health authorities should consider raising awareness about the risk related to chikungunya virus disease among clinicians and travel clinic specialists in the EU/EEA, especially in areas where competent mosquito vectors are present and environmental conditions are suitable for transmission [14]. There is currently no recommended vaccine available against chikungunya in Europe and treatment of the disease is symptomatic and supportive. Prevention is based on protection against mosquito bites. The detection of an autochthonous case should trigger epidemiological and entomological investigations to assess the size of the transmission area and potential of onward transmission; it should also guide vector control measures. *Aedes* mosquitoes have diurnal biting activities in both indoor and outdoor environments. Therefore, personal protection measures should be applied all day long and especially during the hours of highest mosquito activity (mid-morning and late afternoon to twilight) [7,13].

Transmission of chikungunya virus infection through transfusion and transplantation has not been reported. However, in animal models using intravenous inoculation, the infection has been transmitted. Preventive safety measures are therefore applied to substances of human origin from donors residing in or returning from an affected area [15].

Preparedness plans to contain and/or mitigate the spread of chikungunya in the EU/EEA should address the following aspects:

- strengthened surveillance systems (including clinician awareness, laboratory capacity and capability for accurate confirmation and rapid notification of cases)
- regular reviews of contingency plans for mosquito-borne outbreaks
- education and collaboration of the general public on how to control mosquito breeding sites; and
- strengthened vector surveillance systems and rapid implementation of vector control measures following each case.

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