

# MONTHLY SCIENTIFIC REVIEW ON CHIKUNGUNYA VIRUS

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## Situation at a glance

- Chikungunya is an infectious disease caused by an arbovirus, the chikungunya virus.
- Between 2010 and 2024, no cases were detected on Reunion Island. Since the beginning of 2025, Reunion Island has experienced a major epidemic, with almost 54,340 biologically confirmed cases of native chikungunya. The end of the epidemic was declared by the health authorities on June 24, 2025.
- At the same time, Mayotte is experiencing active circulation of the virus, with over 1,112 cases since the first importations and an epidemic phase declared on May 27, 2025.
- Metropolitan France is also experiencing active CHIKV circulation, with a total of 26 autochthonous cases, mainly in the PACA, Corsica, Occitanie and AuRA regions, already affected in previous years, and for the first time in Grand Est and Nouvelle Aquitaine. And 761 imported cases of chikungunya as of July 8, 2025.

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## Scientific articles

This section presents relevant articles published on peer-reviewed scientific journals or pre-print platforms.

**This week, discover breakthroughs in chikungunya surveillance, and clinical description.**

### Surveillance and modelisation

#### Impact of climate and *Aedes albopictus* establishment on dengue and chikungunya outbreaks in Europe: a time-to-event analysis.

Published in *Lancet Planet Health* on May 2025.

This study aimed to quantify the underlying drivers facilitating and accelerating Europe's transition from sporadic arbovirus outbreaks to *Aedes*-borne disease endemicity, focusing on dengue and chikungunya outbreaks. Between 1990 and 2024, the interval from the first UE regional level establishment of *Ae. albopictus* to the first outbreak of dengue or chikungunya decreased from 25 years to less than 5 years. Similarly, the interval from the first outbreak to the second outbreak decreased from 12 years in 1990 to less than 1 year in 2024. The climatic conditions play a significant role in this trend: a 1°C rise in mean summer temperature is associated with a hazard ratio of 1.55, suggesting an almost five-fold increase in dengue or chikungunya outbreaks by the 2060s, relative to the 1990–2024 baseline period.

### Clinical

#### Perinatal Mother-to-Child Chikungunya Virus Infection: Screening of Cognitive and Learning Difficulties in a Follow-Up Study of the Chimere Cohort on Reunion Island.

Published in *The Journal of Pediatrics* on April 2025.

This study assessed cognitive and learning difficulties in school-age children perinatally infected with chikungunya virus (CHIKV) on Reunion Island. Using the Evaluation of Cognitive Functions and Learning in Children (EDA) battery, 11 out of 19 children (57.9%) exhibited subnormal or abnormal scores. Children with encephalopathy were at higher risk for displaying at least one difficulty compared to non-encephalopathic children. Difficulties observed affected verbal functions, non-verbal functions, and learning abilities, such as phonology, lexical evocation and comprehension, graphism, selective visual attention, planning, visual-spatial reasoning, dictation, and mathematics, as well as core executive functions, such as inhibitory control, shifting, and working memory. Neurocognitive dysfunctions could be linked to severe brain damage, as evidenced by severe white matter reduction mainly in the frontal lobes and corpus callosum and potentially in all functional networks involved in difficulties. These results should motivate further investigation of intellectual and adaptive functioning to diagnose intellectual deficiency and severe maladaptive behavior in children perinatally infected with CHIKV.

#### Chikungunya virus-specific CD4<sup>+</sup> T cells are associated with chronic chikungunya viral arthritic disease in humans.

Published in *Cell Rep Med* on May 2025.

This study explores T cell immunity in individuals with chronic chikungunya virus disease (CHIKVD) following the 2014–2015 outbreak in Colombia. Most patients showed strong CHIKV-specific CD4<sup>+</sup> T cell responses, while CD8<sup>+</sup> responses were minimal. Those with chronic symptoms had heightened reactivity to viral proteins nsP1, nsP2, and E2, with a shift toward Th17 rather than Th1 polarization. Their CD4<sup>+</sup> T cells mainly produced TNF- $\alpha$ , in contrast to IFN- $\gamma$  dominance in recovered individuals. These findings suggest that persistent, TNF- $\alpha$ -driven CD4<sup>+</sup> T cell responses may contribute to ongoing inflammation and joint pain in chronic CHIKVD.

## Heterozygous interferon signaling deficient mice as animal models for Chikungunya virus infection in the heart.

Published in Nature on May 2025.

This study demonstrates that heterozygous mice lacking type I or II interferon receptors (*ifnar1*<sup>+/-</sup> and *ifnag*<sup>+/-</sup>) survive chikungunya virus (CHIKV) infection but show significantly elevated viral loads in the heart compared to wild-type mice. These mice also develop marked cardiac inflammation, with strong infiltration of immune cells—particularly neutrophils—and histological signs of vasculitis, cellular damage, and early-stage fibrosis. In contrast, homozygous knockout mice (*ifnar1*<sup>-/-</sup> and *ifnag*<sup>-/-</sup>) succumb rapidly to infection, indicating the critical role of interferon signaling in viral control. The heterozygous models represent a useful platform for investigating the mechanisms of CHIKV-induced cardiac disease and evaluating potential therapeutic strategies.

## Relevant news

This section presents official reports from health agencies, manufacturers and press releases with reliable sources.

### Communiqué de presse - Un cas autochtone de chikungunya détecté en Gironde du 02/07/2025

Published by ARS Nouvelle Aquitaine on July 2, 2025.

A first indigenous case of chikungunya was detected in New Aquitaine today, in the Gironde commune of Illats. The case involves a 5-year-old child. Immediate measures are being taken to limit any risk of spread.

### Mosquito-borne viral disease sweeping Indian Ocean islands

Published by Science on may 9, 2025.

Twenty years ago, when the painful viral disease chikungunya exploded on the Indian Ocean island of Réunion and sickened hundreds of thousands, doctors longed for a vaccine. Now, the virus is surging again, causing 50,000 confirmed cases and 12 deaths on the island, a French department, and spreading on neighboring islands including Mauritius. This time a vaccine called Ixchiq is readily available. But safety problems have cropped up, and on Wednesday, the European Medicines Agency (EMA) suspended the vaccine's use in people 65 years and older after two deaths and several serious adverse events.

### Chikungunya, dengue et zika en France hexagonale. Bulletin de la surveillance renforcée du 9 juillet 2025.

Published by SPF on July 9, 2025.

As of July 8, 2025, ten local transmission events (26 cases: 9 chikungunya, 1 dengue) were reported in mainland France, including first-time cases in Grand Est and Nouvelle-Aquitaine. The risk of local spread remains high, with control measures ongoing. Since May 1, 552 imported dengue cases, 761 chikungunya, and 1 Zika case have been recorded.

### Un 4e cas autochtone de chikungunya a été confirmé en Corse-du-Sud

Published by ARS on July 10, 2025.

The onset date of symptoms and the area of residence of the infected individual, which are close to those of the first three cases detected last week, suggest a continuation of the previous episode through a confirmed local transmission chain.

### Fin de l'épidémie de chikungunya : passage au niveau 2 du dispositif ORSEC - Reunion island

Published by ARS on June 24, 2025.

On the recommendation of Gérard COTELLON, Director General of the Regional Health Agency (ARS) of La Réunion, Patrice LATRON, Prefect of La Réunion, has decided to revert to level 2 of the ORSEC emergency plan for combating arboviral diseases. This level corresponds to moderate local viral circulation and marks the end of the chikungunya epidemic on the island.

## Guidelines and practical information

This section lists official manuals of recommendations for clinical practice or public health policy published by leading health organizations.

HAS	Utilisation du vaccin IXCHIQ dans le contexte épidémique de chikungunya dans les territoires de La Réunion et de Mayotte (2025)
CDC	Information for traveller's : Chikungunya (2024)
WHO	Guidelines on Clinical Management of Chikungunya Fever (2019)
ECDC	Guidelines for mosquito surveillance
Ministère de la Santé et de la Prévention	Recommandations nationales sur la prise en charge du chikungunya (Formes aiguës, formes persistantes) (2014)
PAHO	Preparedness and Response for Chikungunya Virus Introduction in the Americas (2011)
WHO	Guidelines for prevention and control of Chikungunya fever (2009)

## Fact sheets

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### Transmission

CHIKV is an RNA virus from the *Alphavirus* genus, part of the *Togaviridae* family, originating in Africa. The disease's name means "the one who walks bent over," due to joint and muscle pain. There are four known clades: West African, Asian, ECSA (East/Central/South African), and IOL (Indian Ocean Lineage). The virus is mainly transmitted to humans through *Aedes* mosquitoes (*Aedes aegypti* and *Aedes albopictus*). Less common transmission can occur via contact with infected blood, especially in laboratory and healthcare settings (<1%). Vertical transmission from mother to child during the second trimester of pregnancy and intra-partum transmission during viremia at delivery have also been reported.

### Diagnosis

For suspected cases, PCR testing should be done as soon as possible after symptoms appear (viremia lasts about 8 days). Isolated IgM antibodies require a second sample at least 10 days later to confirm seroconversion (IgG appearance). IgG presence alone does not confirm recent infection due to their prolonged persistence.

### Symptoms

CHIKV infection is symptomatic in 80% of cases and typically progresses through three clinical stages: acute (day 1–21), post-acute (day 21–3 months), and chronic (beyond 3 months). Initial symptoms are non-specific (fever, headache, rash, muscle pain, and joint pain). Severe forms are more likely in patients with comorbidities, pregnant women, immunocompromised individuals, and people at extreme ages. Mortality for severe cases ranges from 0.5% to 1.3%. Chronic forms, which significantly affect quality of life, impact 20–60% of patients depending on the viral lineage and care quality.

### Treatment

There is no approved specific treatment for CHIKV. Management focuses on relieving symptoms and treating rheumatologic complications.

### Vaccination

IXCHIQ, developed by Valneva, is the only approved chikungunya vaccine. It is a live-attenuated vaccine given as a single intramuscular dose. It has FDA and EMA approval for individuals aged 18 and older who are not immunocompromised.

[More information](#)