

Sporadic cases of chikungunya, Réunion Island, August 2009.

E. d'Ortenzio, M. Grandadam, E. Balleydier, J. S. Dehecq, M. C. Jaffar-Bandjee, A. Michault, S. F. Andriamandimby, Jean-Marc Reynes, L. Filleul

► **To cite this version:**

E. d'Ortenzio, M. Grandadam, E. Balleydier, J. S. Dehecq, M. C. Jaffar-Bandjee, et al.. Sporadic cases of chikungunya, Réunion Island, August 2009.. *Eurosurveillance*, European Centre for Disease Prevention and Control, 2009, 14 (35), pp.19324. 10.2807/ese.14.35.19324-en . pasteur-00595486

HAL Id: pasteur-00595486

<https://hal-riip.archives-ouvertes.fr/pasteur-00595486>

Submitted on 24 May 2011

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

SPORADIC CASES OF CHIKUNGUNYA, RÉUNION ISLAND, AUGUST 2009

E D'Ortenzio (ericdortenzio@gmail.com)¹, M Grandadam², E Balleydier¹, J S Dehecq³, M C Jaffar-Bandjee⁴, A Michault⁵, S F Andriamandimby⁶, J M Reynes⁶, L Filleul¹

1. Regional office of the French Institute for Public Health Surveillance, Institut de Veille Sanitaire, Réunion, France
2. National Reference Centre for Arboviruses, World Health Organization Collaborating Centre for Arboviruses, Institut Pasteur, Paris, France
3. Vector control team, Regional office for sanitary and social services (DRASS), Réunion, France
4. Microbiology Laboratory, Regional Hospital Centre of Saint-Denis, Réunion, France
5. Laboratory for Bacteriology, Parasitology, Virology and Hospital Hygiene, Regional Hospital Centre of Saint-Pierre, Réunion, France
6. Virology Unit, Institut Pasteur, Antananarivo, Madagascar

This article was published on 3 September 2009.

Citation style for this article: D'Ortenzio E, Grandadam M, Balleydier E, Dehecq JS, Jaffar-Bandjee MC, Michault A, Andriamandimby SF, Reynes JM, Filleul L. Sporadic cases of chikungunya, Réunion Island, August 2009. *Euro Surveill.* 2009;14(35):pii=19324. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19324>

On 28 August 2009, French authorities reported five cases of chikungunya fever on Réunion Island: three confirmed, one probable, and one suspected case under investigation. All three confirmed patients presented with an acute febrile syndrome, arthralgia, myalgia and cutaneous rash. All live in the same area on the western side of the island.

Introduction

In 2005-2006 a major epidemic of chikungunya virus (CHIKV) infections occurred on Réunion Island [1] and in the southwestern Indian Ocean region [2]. In Réunion, the cumulative attack rate was 36% [1] and corresponded to the seroprevalence rate of 38% that was measured at the end of the epidemic [3]. After December 2006, no new autochthonous confirmed case of CHIKV was detected on Réunion Island [4].

On the neighbouring island of Madagascar, chikungunya virus was responsible for a large outbreak in 2006 in Toamasina (Tamatave), a coastal town located 350 km northeast from the capital Antananarivo. Within 4,242 randomly selected patients over near 200 000 dengue like syndromes reported among representative residents, 67,5% were found positive for a recent Chikungunya infection [5]. Further outbreaks of chikungunya fever occurred in May 2006 in Mahajanga (northwest coast), in February 2007 in the Sava region (northeast coast), in March to June 2007 in Antsiranana (northern coast), with 20 (29 sampled), 10 (15 sampled) and 14 (28 sampled) confirmed cases, respectively [6]. Since March 2009, the sentinel surveillance network of the Malagasy Ministry of Health has reported sporadic confirmed cases in Toamasina [6]. In June 2009 viraemic cases imported from Madagascar (Toamasina) to continental France were documented [6].

Cases of chikungunya on Réunion Island in 2009

On 5 April 2009 a Malagasy patient travelled for a medical visit from Madagascar to Réunion where he developed symptoms typical of chikungunya fever. A blood sample on 10 April 2009

was positive for CHIKV by specific anti-CHIKV IgM and by real time RT-PCR [6,7].

An autochthonous confirmed case of chikungunya fever was reported to the regional office of the French Institute for Public Health Surveillance in Réunion (Cire Réunion-Mayotte, Institut de Veille Sanitaire) in August 2009 by the Pasteur Cerba laboratory. The Pasteur Cerba laboratory is a central laboratory that receives specimens (on average 3,500 specimens per month) from all over the country including the French overseas territories (West Indies, Guyana, Polynesia). This autochthonous confirmed case lives in Saint-Gilles-Les-Bains on the western side of the island. On 18 July 2009, she had presented with an acute febrile syndrome associated with arthralgia, myalgia, and a cutaneous rash. A blood sample, drawn on 24 July 2009 was found positive for specific anti-CHIKV IgM but negative for IgG and in the RT-PCR. The case was confirmed at the National Reference Centre for Arboviruses at the Institut Pasteur in Paris by detection of anti-CHIKV IgG in a second blood sample taken on 11 August 2009.

Two further autochthonous cases of CHIKV infection in people from the same town were diagnosed at two local hospitals. Both patients reported an acute febrile syndrome associated with arthralgia, myalgia, and cutaneous rash on 23 July and 3 August 2009, respectively. The first one was found positive for CHIKV by RT-PCR and the second by seroconversion demonstrated on paired sera. All results were confirmed by the National Reference Centre for Arboviruses at the Institut Pasteur in Paris.

None of these three confirmed cases of chikungunya virus infection reported a recent travel history off the island or a contact with persons with a travel history or having received a package from abroad.

Currently two other probable cases are being investigated: a tourist who reported an acute febrile syndrome associated with arthralgia and cutaneous rash on 4 August 2009 and had stayed in the same area as the confirmed cases and a permanent resident

of Saint-Paul, a neighbouring town of Saint-Gilles-Les-Bains who had reported a stay in Saint-Gilles-Les-Bains.

Sequence analysis is in progress at the National Reference Centre for Arboviruses at the Institut Pasteur in Paris to tentatively determine the origin of the chikungunya virus in order to establish whether the 2005-2006 Réunion strain has re-emerged or whether a new isolate has been introduced.

Conclusion

Epidemiological and biological investigation of these cases provides evidence for active transmission of chikungunya virus in Saint-Gilles-Les-Bains, a tourist location on Réunion Island. In response to this outbreak, control measures are being organised by the Cire Réunion-Mayotte and the Vector Control Team of Drass Réunion. Active mosquito control measures and information to the population on how to prevent mosquito bites have rapidly been implemented.

Entomologic investigation found low vector activity correlated to winter in the southern hemisphere. Nevertheless, mosquito density seems to be sufficient to support CHIKV transmission. The current austral winter may contribute to moderate the transmission, but special attention in the next weeks is needed. Reinforcement of epidemiological and entomological surveillance has been organised to prevent the risk of potential spread of the virus on the island. Medical staff on the island has been informed about the situation and recommendations on how to react to suspected cases have been issued to them.

Currently, health services in Réunion are under intense strain because of the current H1N1 influenza pandemic. However, despite the small number of cases of CHIKV infection, special attention should be focused on arbovirus activity to prevent, or at least minimise, the spread of the virus during next summer in the southern hemisphere starting in November. Physicians should be aware to sample patients for chikungunya infection when facing a patient presenting an influenza-like syndrome without respiratory symptoms. The Réunion-Continental France laboratory network, built up in 2005 to support local laboratories confronted with the emergence of Chikungunya virus, has been reactivated to reinforce diagnostic capabilities. Specific information of persons living in the area or visiting this island, focusing on individual mosquito bite prevention, should be intensified both locally and in northern hemisphere countries.

References

1. Renault P, Solet JL, Sissoko D, Balleydier E, Larrieu S, Filleul L, et al. A major epidemic of chikungunya virus infection on Réunion Island, France, 2005-2006. *Am J Trop Med Hyg.* 2007;77(4):727-31.
2. Staples JE, Breiman RF, Powers AM. Chikungunya fever: an epidemiological review of a re-emerging infectious disease. *Clin Infect Dis.* 2009;49(6):942-8.
3. Gérardin P, Guernier V, Perrau J, Fianu A, Le Roux K, Grivard P, et al. Estimating Chikungunya prevalence in La Réunion Island outbreak by serosurveys: two methods for two critical times of the epidemic. *BMC Infect Dis.* 2008;28:8:99.
4. Cire Réunion-Mayotte. Épidémiologie du chikungunya à la Réunion – Bilan d'une année de surveillance – 19 avril 2007 – 18 avril 2008. Institut de veille sanitaire, décembre 2008, 8 p. [Article in French]. Available from : <http://www.invs.sante.fr/regions/index.htm>.
5. Ratsitorahina M, Harisoa J, Ratovonjato J, Biacabe S, Reynes JM, Zeller H, et al. Outbreak of dengue and Chikungunya fevers, Toamasina, Madagascar, 2006. *Emerg Infect Dis.* 2008;14(7):1135-7. Available from: <http://www.cdc.gov/EID/content/14/7/1135.htm>
6. ProMED-mail archive no. 20090611.2156. Available from: http://www.promedmail.org/pls/otn/f?p=2400:1001:735112850628827:::F2400_P1001_BACK_PAGE,F2400_P1001_ARCHIVE_NUMBER,F2400_P1001_USE_ARCHIVE:1001,20090611.2156,Y
7. Cire Réunion-Mayotte. Chikungunya à Madagascar et en Asie du sud-est et suspicion de dengue à Maurice Point épidémiologie n°37 au 16/06/2009. Available from : <http://www.reunion.sante.gouv.fr/epidemiologie/PE-CHIK-DENGUE-17-06-09.pdf>