The burden of chikungunya in the Pacific

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We would like to add complementary data to the Infection Hot Topic 'Globalization of Chikungunya: 10 years to invade the world' published by Charrel *et al.* in *Clinical Microbiology and Infection* (2014; 20:662–3).

In this letter, we update the data on the worldwide expansion of chikungunya virus (CHIKV), with a focus on the burden of chikungunya in the Pacific.

Chikungunya emerged in the Pacific in 2011, and is now spreading throughout the region.

In February 2011, CHIKV was detected for the first time in the Pacific in New Caledonia (33 autochthonous cases), subsequently to cases being imported from Indonesia [1].

In June 2012, a CHIKV outbreak started in Papua New Guinea; it lasted until 2013, with >1500 reported cases [1].

In 2013, an increase in the rate of spread of CHIKV was observed, with new outbreaks being reported: a second epidemic started in New Caledonia in April (30 autochthonous cases) following a new introduction from Indonesia, and another outbreak started in Yap State (Federated States of Micronesia) in August [1].

In 2014, CHIKV epidemics were reported in Tonga, American Samoa, Independent States of Samoa, and Tokelau [2]. In October 2014, a large CHIKV outbreak started in French Polynesia, with 66 000 estimated cases (~25% of the population) as of January 2015 [2,3]; this outbreak reached all of the archipelagoes of French Polynesia, and is still ongoing. Phylogenic studies demonstrated that CHIKV was probably introduced to French Polynesia from the Caribbean, and not from other Pacific countries [2]. CHIKV re-emerged in New Caledonia [2] following multiple introductions from French Polynesia; 27 imported and two autochthonous cases were reported in mid-December 2014.

In January 2015, local transmission of CHIKV has been reported in the Cook Islands [3].

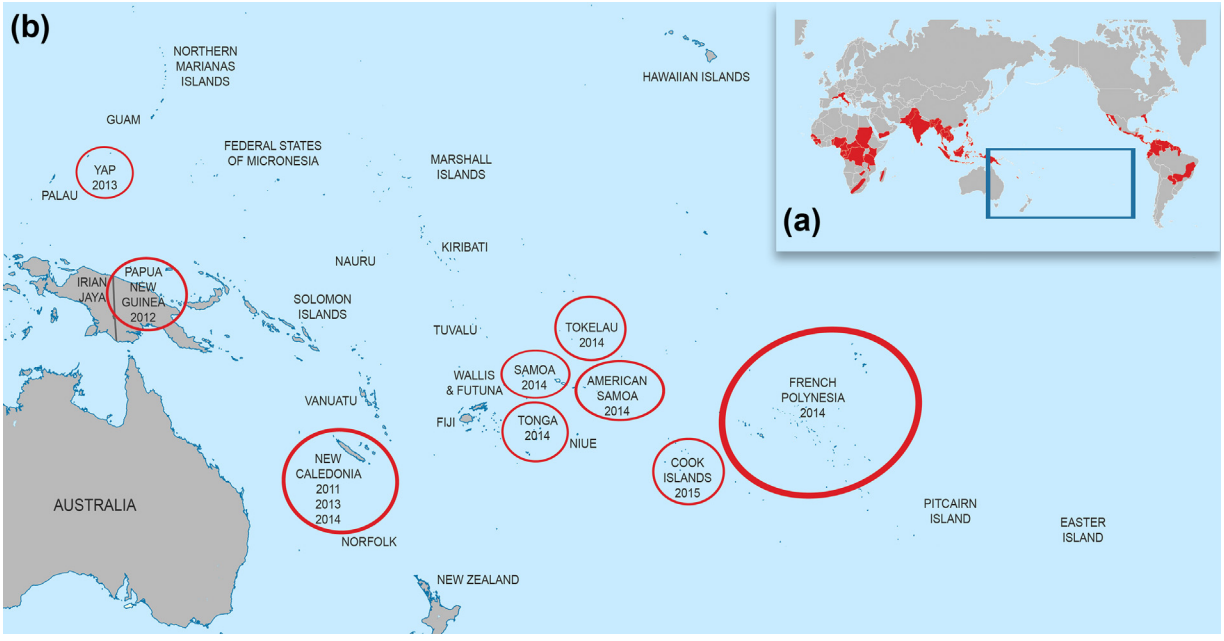

FIG. 1. Countries/territories with reported local transmission of chikungunya virus in the world (a), with a focus on recent emergence in the Pacific 2011–2015 (b).

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In the Pacific, imported cases of chikungunya have been reported in Queensland (Australia) from Papua New Guinea, in New Zealand from Tonga, in Niue from Independent States of Samoa, and in New Caledonia from French Polynesia.

Two CHIKV lineages have been detected in the Pacific: the Asian lineage in most of the islands, and the East/Central/South African lineage in Papua New Guinea in 2012 [2].

Before 2011, the 22 Pacific Islands Countries and Territories were presumed to be free of chikungunya. Within the last 3 years, autochthonous CHIKV infections have been reported in nine of these countries (Fig. 1).

The main favourable conditions contributing to the spread of CHIKV in the Pacific are the intensification of travel exchange, climatic conditions and climate warming, and the distribution of *Aedes aegypti* and other competent mosquito vectors for CHIKV, such as *Aedes albopictus* and *Aedes polynesiensis* [4].

CHIKV has the potential to spread throughout the whole Pacific, and to reach close countries that contain competent vectors.

A unique feature of the emergence of arboviruses in the Pacific is the circulation in recent years of the four dengue virus serotypes, Zika virus, and CHIKV. The peak of co-circulation was in 2014: CHIKV was detected in eight of the 22 Pacific Islands Countries and Territories, Zika virus in four, and dengue virus in eight [5]. However, owing to limited laboratory capacity in the Pacific, the global incidence and prevalence of arbovirus infections are unknown and the burden of these diseases is potentially underestimated.

During the past decade, the status of chikungunya has changed, from a relatively uncommon and poorly documented disease, to an emerging disease, and now to a global public health concern. CHIKV now circulates in all of the inhabited continents (North and South America, Europe, Africa, Asia, and Oceania), which confirms the globalization of the disease.

Transparency declaration

The authors declare that there are no conflicts of interest.

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