

## Infections in French Polynesia

**D. Musso**

Institut Louis Malardé, PO BOX 30, 98713 Papeete, Tahiti, French Polynesia and Aix Marseille Université, IRD, AP-HM, SSA, VITROME, IHU-Méditerranée infection, Marseille, France

**Original Submission:** 4 October 2018; **Revised Submission:** 31 October 2018; **Accepted:** 7 November 2018

**Article published online:** 15 November 2018

**Corresponding author:** D. Musso.  
**E-mails:** [dmusso@ilm.pf](mailto:dmusso@ilm.pf), [dmusso12345@gmail.com](mailto:dmusso12345@gmail.com)

French Polynesia is a remote French overseas territory located in the South Pacific (Fig. 1). It belongs to the 22 Pacific Islands Countries and Territories. The population of French Polynesia is about 280 000 inhabitants distributed among 72 inhabited islands grouped in five archipelagos. French Polynesia is characterized by a small population spread in a maritime geographic area larger than Europe.

Unlike most of the other Pacific Islands Countries and Territories, French Polynesia has advanced medical and research facilities; as a result, it can conduct surveillance and research programmes, provide support to close countries, and

develop collaborations with local and international organizations such as the 'South Pacific Community' or the WHO. French Polynesia collaborates with reference research centres all over the world.

The public health-care system of French Polynesia consists of a main hospital (*Centre Hospitalier de la Polynésie française*) located on the main island Tahiti, four smaller public hospitals, and 115 infirmaries and dispensaries across the archipelagos. The private health-care system consists of two clinics located in Tahiti, and a network of private healthcare professionals. Surveillance of infectious diseases and vector control are coordinated by the French Polynesia Health Surveillance Department in collaboration with a sentinel network of public and private practitioners, the main public hospital and the *Institut Louis Malardé* [1].

Favourable local conditions for infectious diseases are tropical climate, infestation by *Aedes* and *Culex* mosquitoes,



**FIG. 1.** French Polynesia (red circle) and the other Pacific Countries and Territories (blue circles).

poor sanitation conditions in some parts of the country, and being a tourist destination, which favours pathogen exchange.

In the past, the 'isolation' of French Polynesia was a protection against infectious diseases with short duration of infectivity. Now all French Polynesian archipelagos have flight facilities and according to our recent experience, when a new pathogen is introduced, it spreads within a few weeks to all archipelagos (for example, influenza A H1N1 virus in 2009, Zika virus in 2013, Chikungunya virus in 2014).

The main infectious disease public health issues in French Polynesia are arbovirus outbreaks. The first dengue virus outbreak with a known serotype was reported during World War II. Since then, dengue virus has become endemic with frequent outbreaks caused by the four dengue virus serotypes. Zika virus emerged in 2013 and Chikungunya virus in 2014 [1–3]. In addition, as *Aedes aegypti* is widely distributed in French Polynesia, other *A. aegypti*-transmitted viruses, such as yellow fever virus, have the potential to emerge in the country. On the other hand, the Zika story demonstrated that Pacific islands, especially French Polynesia, are hubs for emerging viruses [4]. After its emergence in French Polynesia, Zika virus spread in the Pacific and subsequently in the Americas [5].

In addition to arboviruses and their vectors in French Polynesia, we report data about other endemic infectious diseases: leptospirosis (hyperendemic) [6], tuberculosis (hyperendemic with recent emergence of multidrug-resistant strains) [7], lymphatic filariasis (incidence decreasing but still endemic) [8], leprosy (incidence decreasing but still endemic) [9]. At the frontier of infectious diseases, we report data on ciguatera, a seafood poisoning disease highly prevalent in French Polynesia,

causing a health issue and a threat to food sustainability and food security for local populations [10].

## References

- [1] Musso D, Bossin H, Mallet H, Besnard M, Brout J, Baudouin L, et al. Zika virus in French Polynesia, 2013–2014: anatomy of a completed outbreak. *Lancet Infect Dis* 2017;3099(17).
- [2] Chungue E, Deparis X, Murgue B. Dengue in French Polynesia: major features, surveillance, molecular epidemiology and current situation. *Dengue Bull* 1998;22:74–93.
- [3] Aubry M, Teissier A, Roche C, Richard V, Shan Yan A, Zisou K, et al. Chikungunya outbreak, French Polynesia, 2014. *Emerg Infect Dis* 2015;21:724–6.
- [4] Cao-Lormeau V-M. Tropical islands as new hubs for emerging arboviruses. *Emerg Infect Dis* 2016;22:913–5.
- [5] Baud D, Gubler DJ, Schaub B, Lanteri MC, Musso D. An update on Zika virus infection. *Lancet* 2017;390:2099–109.
- [6] Guernier V, Richard V, Nhan T, Rouault E, Tessier A, Musso D. *Leptospira* diversity in animals and humans in Tahiti, French Polynesia. Wunder E, editor. *PLoS Negl Trop Dis* 2017;11:e0005676.
- [7] Osman DA, Phelippeau M, Drancourt M, Musso D. Diversity of *Mycobacterium tuberculosis* lineages in French Polynesia. *J Microbiol Immunol Infect* 2017;50:199–206.
- [8] Plichart C, Sechan Y, Davies N, Legrand A-M. PCR and dissection as tools to monitor filarial infection of *Aedes polynesiensis* mosquitoes in French Polynesia. *Filaria J* 2006;5. <https://doi.org/10.1186/1475-2883-5-2>.
- [9] Nguyen N, Mallet H, Segalin J, Lasarde C, Buluc A, Daudens E, et al. La lèpre dans le Pacifique et en Polynésie française. *Bull d'informations sanitaires, épidémiologiques statistique* 2011;4:5–6 (in French).
- [10] Gatti C, Lonati D, Darius H, Zancan A, Roué M, Schicchi A, et al. *Tectus niloticus* (Tegulidae, Gastropod) as a novel vector of ciguatera poisoning: clinical characterization and follow-up of a mass poisoning event in Nuku Hiva Island (French Polynesia). *Toxins (Basel)* 2018;10(3). <https://doi.org/10.3390/toxins10030102>.