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	Surveillance Report	volume	11
		issue	8
		date	24 August 2006

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## Imported cases of chikungunya in metropolitan France: update to June 2006

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### Introduction

We report a situation update of imported chikungunya infections in metropolitan France (the part of France that is in Europe, including the Mediterranean island of Corsica), from April 2005 to June 2006 [1].

Since the beginning of the epidemic in March 2005, 266 000 cases of chikungunya fever are estimated to have occurred on the island of Reunion, a French overseas territory [2]. Weekly estimates of suspect cases are based on the number of patients with suspected chikungunya seen by sentinel physicians on the island of Reunion and extrapolation of these figures to the entire island population. Numbers of newly estimated cases peaked at 45 000 in week 5 (first week of February 2006), and have since decreased. By June 2006, the estimated weekly number of cases was around 400. The islands of the southwest Indian Ocean (including Comoros, Madagascar, Mauritius, Mayotte, and Seychelles), and several states of India [3] have been affected by chikungunya epidemics in 2005-2006.

Imported cases of chikungunya have been reported from several European countries [4]. The vector, responsible for the transmission in the French territories of the Indian Ocean is known to be *Aedes albopictus*. This mosquito has been detected on the French Mediterranean coast, between the cities of Menton and Nice, and recently in the Bastia area of Corsica, a French Mediterranean island.

Given the situation and the high number of travellers (304 113 for the year 2004 according to the French Ministry of Tourism) between Reunion and metropolitan France, surveillance of imported cases and vector densities is an important part of the risk assessment of autochthonous transmission in France.

## Methods

Chikungunya serological testing in France is carried out by two national reference centres for arboviral diseases and two private laboratories.

Data on positive tests were collected regularly between April 2005 and June 2006 and have been analysed. The variables used are patient and laboratory postcodes, age, sex and date of blood sampling. An imported case is defined as follows:

- Detection of IgM antibodies against chikungunya virus and/or detection of viral RNA by PCR, and/or positive viral culture;
- and
- Sampled in metropolitan France (even if the patient is not resident in metropolitan France).

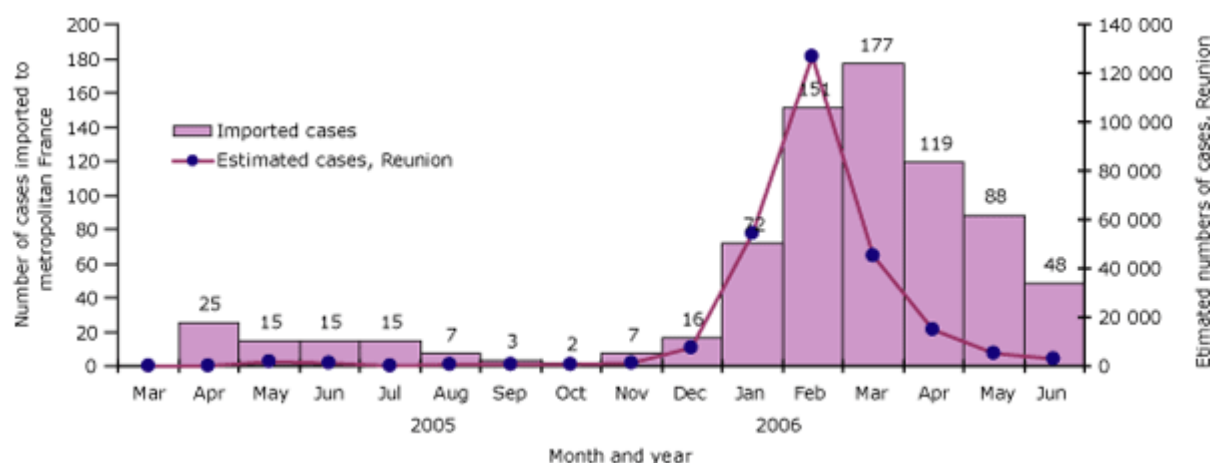
## Results

From April 2005 to June 2006 inclusive, 766 imported cases of chikungunya were identified in metropolitan France. The mean age was 48 years (range: 5 months-83 years), and the male:female sex ratio was 0.9:1.

The temporal evolution of imported cases correlates with the dynamics of the epidemic in Reunion (Figure 1). Between April and July 2005, an average of 20 imported cases was observed monthly, corresponding to the first Reunion outbreak peak and the epidemics on the Comoros islands. Following a decrease between August and November 2005 (winter in the southern hemisphere), the estimated number of cases increased again and peaked in March 2006 (177 imported chikungunya cases).

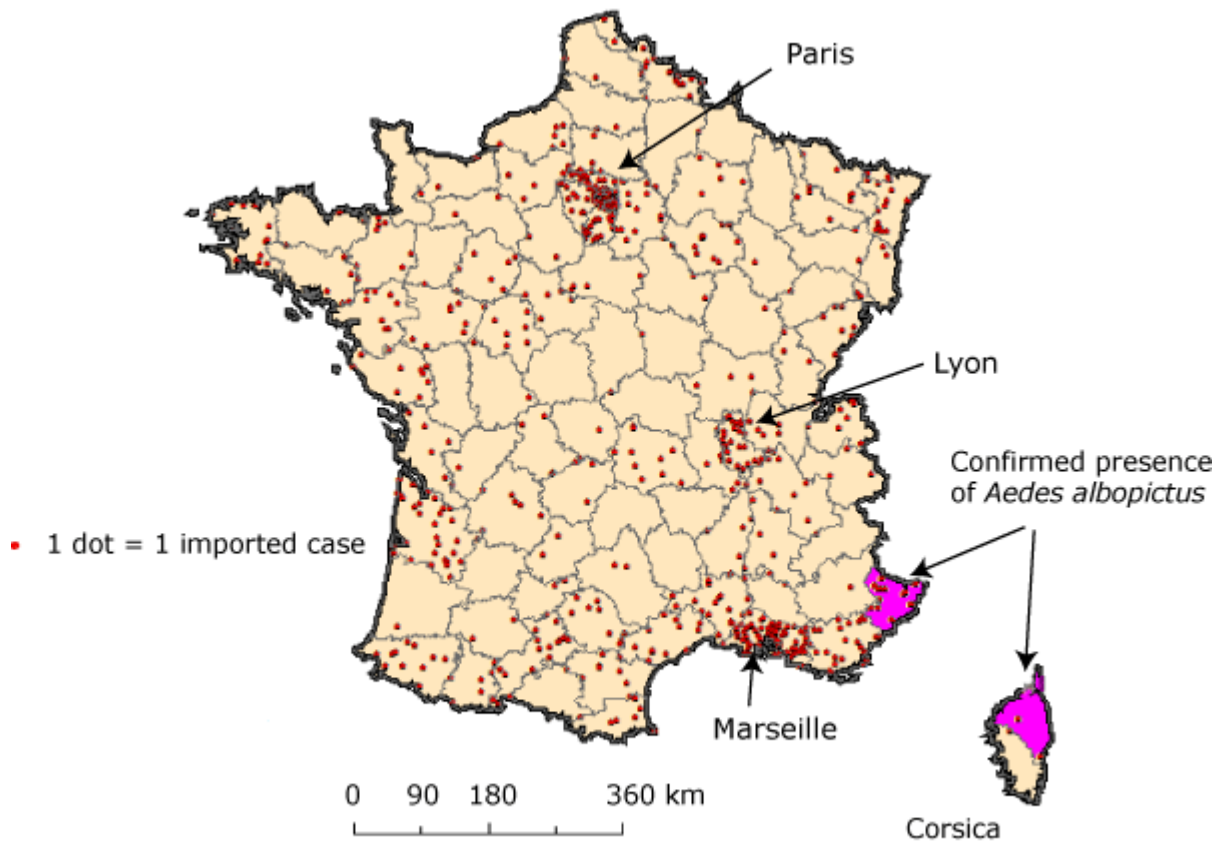
Since then the trend has been decreasing, with 119 imported cases reported in April, 88 in May and 48 in June. No severe chikungunya cases (neurological signs and/or organ failure) were reported in metropolitan France between April 2005 to June 2006.

**Figure 1.** Chikungunya: Imported cases to metropolitan France and estimated cases in Reunion (Reunion data source: Cellule Inter Regionale d'épidémiologie Reunion-Mayotte)



Cases were documented in most areas of France (Figure 2), but were concentrated in the greater metropolitan areas of Marseille, Lyon and Paris.

**Figure 2.** Geographical distribution of imported cases of chikungunya in metropolitan France, April 2005-June 2006



### Discussion

The number of chikungunya cases imported to metropolitan France has been decreasing since March 2006. This temporal evolution correlates with the dynamics of the epidemic in Reunion, which has also been going down. The peak of the imported cases in March 2006 was observed one month later than the peak of the Reunion outbreak, which occurred in February 2006. This time lapse may be explained by the different methods used: distribution of estimated cases in Reunion was based on clinical symptoms onset, while imported cases were dated by blood sampling, which was often done several days or even weeks after symptom onset.

The number of imported cases is probably underestimated, since asymptomatic cases cannot be detected by surveillance. Chikungunya IgM antibodies appear 5 days after the onset of clinical symptoms on average, and can last for several weeks. Having measurable IgM titres at a given time does not imply viraemia, and only viraemic patients can cause further transmission. The risk of secondary transmission in metropolitan French areas where the vector is present is therefore probably overestimated, based on imported case data.

*A. albopictus* is known to be currently spreading around the world [5], and is present in north and central Italy [6] and Albania. The mosquito can transmit the virus, but its actual vectorial capacity (environment-dependent) in metropolitan France is not yet well documented. *A. albopictus* is also capable of transmitting dengue fever.

Risk assessment of autochthonous transmission is based on surveillance of both the vector and imported viraemic cases. A plan for preventing the circulation of chikungunya in metropolitan France [7] has been developed, and reinforces entomological and epidemiological surveillance. Since 7 July 2006, chikungunya and dengue fever have been added to the list of diseases for mandatory notification in France. Entomological surveillance in France has confirmed the presence of the vector in the city of Bastia in northern Corsica, in addition to the area on the southeast coast of France where it had previously been identified. Alert procedures have been

developed and coordination with vector control services strengthened. All 'suspect' chikungunya cases detected in these regions with confirmed vector presence must now to be reported immediately, without waiting for biological confirmation. This should facilitate rapid information to the surveillance system and the implementation of control measures.

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### Outbreak of Q fever in workers at a meat processing plant in Scotland, July 2006

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On 9 July 2006, local public health authorities became aware of an increase of influenza-like illness in people who worked at a meat processing plant where cattle and sheep were slaughtered and meat packaged, in the town of Bridge of Allan in central Scotland [1]. An investigation was initiated and, by 14 of July, 49 members of the staff, out of a workforce of 228, had been identified as having fallen ill predominantly with two or more of the following symptoms: fever, headache, myalgia, dry cough and joint pain. All those with symptoms were screened for a range of pathogens and results from blood samples tested at the West of Scotland Specialist Virology Centre confirmed the illness as Q fever. Since then an epidemiological investigation has been undertaken including screening of all staff working at the plant. Nine patients had been admitted to hospital by 18 July. By 4 August, 51 cases for which the initial IgM result was greater or equal to 256 had been identified. The investigation continues.

There is a risk of contracting Q fever by airborne spread especially within a half-mile radius of a source. The plant is not situated near to residential buildings, but is close to a road with much vehicular traffic. Enhanced surveillance was begun to identify cases in the surrounding communities. All public health authorities in the country were alerted. So far no cases have been identified in individuals who do not work at the plant. Control measures including shutting down of the putative source and cleaning and disinfection have been put in place.

Q fever is an uncommon zoonotic infection caused by an organism called *Coxiella burnetii*. In the United Kingdom (UK), the organism is most commonly found in infected farm animals, especially sheep, cattle and goats, it may also be found in cats and wild animal species such as birds, rodents or bats; in some countries it is also carried by ticks. Transmission of *C. burnetii*