To the Editor: In their recent article on the outbreak of chikungunya virus infection in North-eastern Italy, Angelini et al. [1] raised an important question: Why did no other outbreaks of chikungunya fever occur earlier in other regions of Italy or more widely in Europe? Why did they not occur already in 2005-2006, after the epidemic in La Reunion and other Indian Ocean islands - Comoros, Mayotte, the Seychelles, Mauritius and Madagascar, as a consequence of viraemic travellers carrying chikungunya virus when returning from the epidemic areas? Among the possible explanations, the authors listed (a) the fact that only few regions (including the affected areas) have a high concentration of competent vectors, and (b) social and behavioural factors of the returning travellers.

We would suggest to consider seasonal synchronicity as a third factor that has obviously played a decisive role in the outbreak in July to September in the surroundings of Ravenna (Emilia Romagna), Italy.

The outbreak in the Indian Ocean islands has raged for a six-month period, from January to June 2006, and had an estimated number of cases approaching one million. The epidemic in the islands then subsided rapidly due to decreased mosquito activity in the dry season in southern hemisphere. In 2007, chikungunya virus did not re-emerge in the Indian Ocean area as feared. Consequently, viraemic travellers from Europe must have been returning to their home countries at a time when the mosquitoes that serve as vectors for chikungunya virus were either not circulating or still scarce in Europe.

In contrast, first cases of chikungunya fever in India were reported in February 2006. Ultimately, this epidemic spread to many districts in India and many cases occurred in the course of the year 2006. The activity of Aedes aegypti and Ae. albopictus in India is constant throughout the year; cases have been reported continuously up to December 2007. As a consequence, travellers could have become infected with chikungunya virus in India, and returned during the viraemic period to European regions at a time when competent vectors were active there (summer). Due to the overlapping mosquito season in India and Europe, travellers returning from India can thus fuel an epidemic by infecting native mosquito populations in Europe.

Seasonal synchronicity, and related temporal overlapping of arthropod activity, is a critical factor that needs to be considered in the prediction or modelling of the emergence potential of vector-borne diseases.

Previous experience with West Nile virus in the United States suggests that a newly introduced vector-borne virus can establish itself and re-emerge after overwintering through trans-ovarial transmission [2-4]. We believe that the 2007 situation in Emilia Romagna should stimulate large scale studies aimed at the surveillance of chikungunya virus infected Ae. albopictus that could hatch from the infected eggs laid by females at the end of their active period. Although three studies suggested that chikungunya virus was not transmitted trans-ovarially [5-7], there is a need to confirm these data through additional studies. Whether chikungunya virus-infected eggs have the potential to initiate a new epidemic in summer 2008 is unknown, but must be taken into account as a serious issue for Italy and other European countries.

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