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An FBK study on the Zika virus has been published in the international journal PNAS

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Another important international recognition for **Fondazione Bruno Kessler**'s studies in the field of virus spread. The results of a scientific work on the **Zika virus** conducted by FBK researchers **Stefano Merler** and **Piero Poletti**, in collaboration with the **ISI Foundation** in Turin, **Boston's Northeastern University**, the **University of Florida** and the **University of Washington**, were published on the latest issue of **PNAS (Proceedings of the National Academy of Sciences)**, one of the world's most popular journals in the field of research.

The Zika virus is primarily transmitted by Aedes mosquitoes. Human infection usually manifests with very mild symptoms, such as mild fever, rash or conjunctivitis, and is completely asymptomatic in about 80% of cases. However, the association between Zika virus and cases of microcephaly observed in infants born to infected mothers during the recent epidemic of 2015-2016 in South America generated much alarm.

The study entitled "**Spread of Zika virus in the Americas**," in which FBK participated, analyzed the causes of complex spatiotemporal spread of the virus in South America and estimated how many people have been infected and how many are the possible cases of neonatal microcephaly in different countries of South America, "although" Merler points out "estimates of the number of neonatal microcephalies must be interpreted with caution as there is still much uncertainty about what the real chances of developing these deficits following infection with the Zika virus in pregnancy. "

"These results," Merler says, "were obtained from the analysis of a complex mathematical model of diffusion of the Zika virus and are crucial to understanding on the one hand the complex dynamics that govern the spread of infectious diseases and, on the other hand, to more accurately evaluate the risk of becoming infected after traveling in affected areas, with special attention to pregnant women. "

The paper shows that the epidemic trend was mainly determined by climatic and human mobility-related factors. In particular, an early start and a more sustained transmission of the epidemic in the most tropical areas were recorded, that favor the continued presence of the mosquito throughout the year, and in those areas with sustained flow of domestic and international flights. As a result, estimates of the number of infections are very heterogeneous: the percentage of cases in the population ranges from 5% in Mexico to 49% in Haiti. The percentage of cases in Brazil, the most populated nation, is estimated at around 18%, with a number of cases of neonatal microcephaly ranging from 1300 to 6200. In addition, the authors estimate that the number of cases of Zika imported into the US could be about 60,000.

“With regard to the future of the epidemic,” says Merler, “it is likely that the incidence will drop considerably, following the typical evolution towards the endemic status of other diseases transmitted by Aedes mosquitoes, such as Dengue or Chikungunya”.

FBK researchers have also conducted important scientific work on the Zika virus in the past, published by the scientific journal Eurosurveillance, on a risk assessment of local spread of the Zika virus.

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