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MODELLING THE RISK OF INTRODUCTION OF URBAN YELLOW FEVER, ZIKA VIRUS AND CHIKUNGUNYA FEVER IN *AEDES* INFESTED AREAS

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In this work a model is presented to calculate the probability of urban yellow fever, Zika virus and Chikungunya Fever invade aedes infested urban areas. Taken the case of dengue outbreaks in the city of Rio de Janeiro in 2008, we calculated the aedes mosquitoes density with respect to the humans hosts that could explain the outbreak pattern in that year. Next, we calculated the force of infection of Yellow Fever, Zika and Chikungunya from reporting data of affected areas. From these forces of infection and from the travel volumes from these areas we calculated the expected number of infected travellers from these areas to Rio de Janeiro. A new method to calculate the number of aedes mosquitoes that those infected travellers would infect allows the estimation of the risk of invasion of these viruses in the first generation of infected mosquitoes. The riks of Zika invasion is on average 1.75 higher than Yellow Fever and 1.56 higher than chikungunya.

References

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