

VECTOR SURVEILLANCE IN THE CITY OF BARCELONA: THE USE OF GEOGRAPHICAL INFORMATION SYSTEMS

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Abstract In recent years, mosquito surveillance and control programmes have been immersed in a series of threats related to globalisation and climate change that have created new risk scenarios for the transmission of emerging and re-emerging diseases. There is a need to incorporate new tools in order to help and improve vector surveillance and control systems and to make interventions more effective. Geographic Information Systems (GIS) respond to this challenge, and have become an essential tool for planning, surveillance, and vector monitoring and control. In the case of Barcelona, the integration of this tool is extremely useful to design plan vector surveillance areas by taking into account different variables related to vector activity, the risk of disease transmission, or even the vulnerable population living in certain areas of the city. Geographical analysis helps to combine the information of:- Risk elements of mosquito proliferation in public areas, which are mainly sand and siphon sewers and ornamental fountains (> 8000 elements). Mapping of larval activity detected each year in risk elements of mosquito proliferation (around 160 points of activity/year), hospitals and health centres where people with symptoms (usually in the viral phase) go to be treated after a trip in endemic countries of dengue, chikungunya or zika and which can be areas of the city particularly sensitive for vector-virus coincidence, vulnerable areas of the city, understood as those places with lowest family incomes, and therefore the effect of the vectors on the population can be more intense due to the lack of resources (purchase of repellents, placement of mosquito nets, maintenance of spaces). The combination of these factors make possible to draw up an annual risk map areas that are monitored during the season of vector activity (April - November) and where surveillance and control focuses its efforts to reduce the nuisance of vector activity and the possible risks of disease transmission.

Key words GIS, climate, risk map, vector surveillance