

# WEST NILE FEVER EVOLUTION IN EUROPE BETWEEN 2010 AND 2022

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## INTRODUCTION

West Nile Fever (WNF) is an infectious zoonotic disease of viral etiology, concretely, West Nile Virus (WNV), a flavivirus belonging to the Japanese Encephalitis virus serocomplex (JEV). Its natural cycle involves transmission between ornithophilic mosquitoes, mainly Culex species, and birds, which act as amplifying hosts. Mammalian species, including humans and horses, may get infected, but they do not seem able to sustain the transmission cycle (see figure 1). The WNF is considered a notifiable disease by the WOA, and it's an emerging zoonosis in many parts of the world.

## OBJECTIVE

The objective of this work is to describe the evolution of West Nile fever in Spain, France and Portugal and the surveillance and control measures applied respectively.

## MATERIAL AND METHODS

- Database in Excel of the data of outbreaks declared by country, region or CCAA, date of confirmation and affected species; to later be able to document the measures taken in each country. Information sources of Ministerio de Agricultura, Pesca y Alimentación del Gobierno de España (RASVE) and Réseau d'Epidémiologie-Surveillance en Pathologie Équine (RESPE).
- Histograms have been used for the absolute frequencies of cases in animals according to the years and the accumulated frequency by country.
- Comparative graph to see the seasonality between the months with the highest number of declared cases from 2010 to 2022
- Surveillance and control data have been obtained from the two sources cited, Bulletin de santé publique, European Center for Disease Prevention and Control (ECDC) and Carlos III Health Institute (ISCIII).

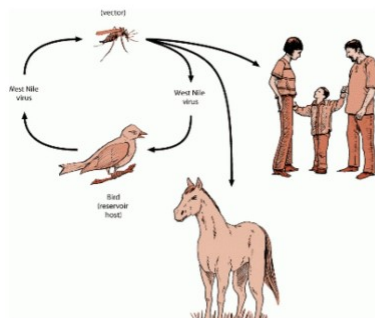


Figure 1: WNV transmission cycle

## RESULTS AND DISCUSSION

In the period analyzed in this study, we observe that the total number of cases of WNV in animals declared in the 3 countries totaled 6,333 being 5,094 cases in Spain, 1,042 in France and 184 in Portugal.

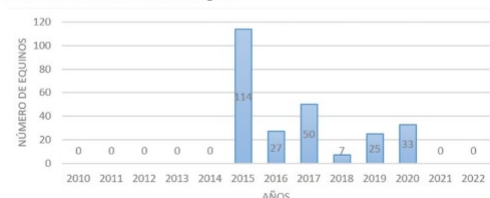


Figure 2: Graph of positive equines (2010 - 2022) in Portugal.

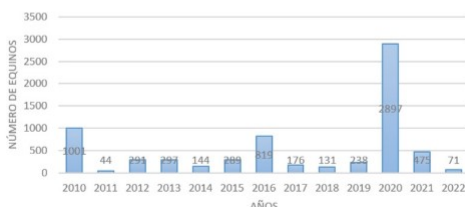


Figure 3: Graph of positive equines (2010 - 2022) in Spain.

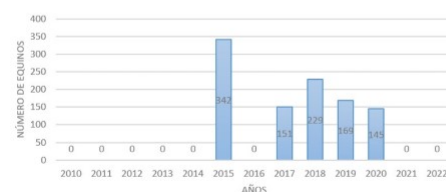


Figure 4: Graph of positive equines (2010 - 2022) in France.

## VIGILANCE PROGRAM

Detection of cases with clinical criteria in humans in territories with known circulation of the virus. CSF, blood and urine samples.

Urgently report a case or outbreak to the Coordination Center for Health Alerts and Emergencies (CCAES).

In animals, passive surveillance (symptoms) and active surveillance (sentinel sampling).

Reinforcement of entomological surveillance during the vector season.

In most countries, human surveillance of WNV is mainly passive. Any positive test in horses or birds should be reported to public health authorities. In high-risk areas, disinsection of farms, voluntary vaccination of horses was recommended.

## CONCLUSIONS

Spain is the country with the highest number of declared cases in animals (5,094), followed by France (1,042) and finally Portugal (184). In humans, 88 cases were declared in Spain, France registered 34 cases and Portugal only 1 case.

Spain suffered the worst outbreaks in animals in 2020 (2,897) followed by 2010 (1,001) and 2016 (819). In France, during the year 2015 (342), the same as Portugal (114).

The seasonality of the disease, the 3 countries have the peaks from August to November. Spain has the greatest number of outbreaks from August to October, France in September and October, and Portugal only in October.

The control measures are to reinforce the care to avoid mosquito bites in the summer season and the awareness of the general population and health professionals.

The three countries are under the surveillance program cited in the discussion.