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Methodology and results of integrated WNV surveillance programmes in Serbia

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Abstract

Studies conducted during the past few years have confirmed active West Nile virus (WNV) circulation in Serbia. Based on these studies and the epidemiological situation, the Veterinary Directorate of the Ministry of Agriculture and Environmental Protection launched national WNV surveillance programmes in 2014 and 2015. The programmes encompassed the territory of Serbia and were conducted by the veterinary service in collaboration with entomologists and ornithologists. The objective of the programmes was early detection of WNV and timely reporting to the public health service and local authorities to increase both clinical and mosquito control preparedness. The WNV surveillance programmes were based on direct and indirect surveillance of the presence of WNV by the serological testing of initially seronegative sentinel horses and chickens as well as through viral detection in pooled mosquito and wild bird samples. The most intense WNV circulation was observed in all seven districts of Vojvodina Province (northern Serbia) and Belgrade City, where most of the positive samples were detected among sentinel animals, mosquitoes and wild birds. The West Nile virus surveillance programmes in 2014 and 2015 showed satisfactory results in their capacity to indicate the spatial distribution of the risk for humans and their sensitivity to early detect viral circulation at the enzootic level. Most of the human cases were preceded by the detection of WNV circulation as part of the surveillance programmes. According to the existing data, it can be reasonably assumed that WNV infection, now an endemic infection in Serbia, will continue to present a significant problem for the veterinary service and public health.

Introduction

West Nile virus (WNV) is a zoonotic neurovirulent mosquito-borne *Flavivirus*, which is maintained in nature in an enzootic transmission cycle between avian hosts and ornithophilic mosquito vectors. The virus occasionally infects other vertebrates, including humans and horses that are incidental, dead-end hosts and in which it may cause sporadic disease outbreaks that