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ВЕТЕРИНАРСКИ СПЕЦИЈАЛИСТИЧКИ ИНСТИТУТ “ЗРЕЊАНИН”

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WEST NILE VIRUS MONITORING PROGRAM IN SERBIA

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Summary

West Nile virus (WNV) is a neurovirulent mosquito-borne *Flavivirus* with zoonotic potential. Virus is maintained in nature in an enzootic transmission cycle between avian hosts and mosquito vectors, but occasionally infects other vertebrates. The infection in humans and horses can be asymptomatic or it can have different clinical manifestations ranging from light febrile diseases to fatal meningoencephalitis. Recently, the number, frequency and severity of outbreaks with neurological consequences for birds, humans and horses have increased dramatically throughout central and south Europe, including Serbia, constituting a serious veterinary and public health problem. The emergency of WNV infections in Serbia is described through the current epidemiology situation based on recent data on the presence and prevalence of WNV infection among virus natural hosts and vectors, in human population and in horses in Serbia.

Based on the existing results of previously conducted serological and virological studies, and realistic assumptions about the WNV intensive circulation in the future, and hazards, primarily for the public health but also for the animal health in the Republic of Serbia, the veterinary service in Serbia has recognized its important role in protecting public health and launched a national program for WNV monitoring in April 2014. Program is funded by the Veterinary Directorate, Ministry of Agriculture and Environmental Protection, and it is implemented on the field by veterinary service in collaboration with entomologists and ornithologists. The main objective of the monitoring program is the early detection of the presence of WNV in a certain area, and consequently timely alerting of human health services and local governments in order to control the mosquito population, to inform the local communities, and to take all possible preventive measures to protect human health.

The monitoring program is based on the direct and indirect monitoring of the presence of WNV in nature. Indirect monitoring of virus presence is performed by serological testing of WNV seronegative - sentinel horses and backyard chickens hatched during 2014, which are performed continuously and periodically (every 2 weeks in poultry and once a month in horses) during the period of intensive mosquito activity (May - September). The number of examined sentinel animals is defined at the level of each district of the Republic of Serbia in relation to the risks of WNV infection. The risk for WNV infection for each district is determined on the basis of existing data on reported human infections in 2012 and 2013, and previous serologic tests conducted in horses. A positive serological response, meaning detection of specific anti-WNV antibodies in sentinel

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animals, represents the indirect evidence of WNV presence - circulation in the area. Direct monitoring of the WNV presence in nature is done by molecular testing of WNV presence in pooled mosquitoes samples, continuous and periodically collected every two weeks during the period of their greatest activity (May - September), and in wild birds. Number of test samples is also determined by districts based risk on WNV occurrence. Evaluation of the monitoring program performance will be carried out at the end of 2014.

Key words: West Nile virus, monitoring program, Serbia