

СЕКЦИЈА ЗА ЗООНОЗЕ  
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ВЕТЕРИНАРСКИ СПЕЦИЈАЛИСТИЧКИ ИНСТИТУТ “НИШ”

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## RETROSPECTIVE ANALYSIS OF WNV MONITORING PROGRAM FOR 2014 AND SUGGESTIONS OF MODIFICATIONS FOR 2015

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### Summary

Recently, the number, frequency and severity of outbreaks of infections caused by West Nile virus (WNV), 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 veterinary service in Serbia launched a national program for WNV monitoring in April 2014. Program is funded by the Veterinary Directorate, and it is implemented on the field by veterinary service in collaboration with entomologists and ornithologists. The main objective of the monitoring program was 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 and to inform the local communities.

The monitoring program was based on the direct and indirect monitoring of the presence of WNV in nature. Indirect monitoring of virus presence was performed by serological testing of WNV seronegative - sentinel horses and backyard chickens hatched during 2014. Direct monitoring of the WNV presence in nature was done by molecular testing of WNV presence in pooled mosquito's samples and in wild birds. Number of tested samples is defined at the level of each district of the Republic of Serbia in relation to the risks of WNV infection.

In the period June-September 2014 in Serbia, according to the program, 2133 blood sera of the sentinel horses were tested, and seroconversion was detected in 165 (7.74%) horses. The seroconversion was in the ascendant as the program progressed, and with increasing the activity of the vectors, positive serological response were determined in July in 1.5% and in August in 5.73% sentinel horses. In the same period 3765 blood samples of backyard sentinel poultry were also tested and seroconversion was detected in 219 (5.82%) samples. Seroconversion increased during the program and was the highest in August (9.15%) and September (7.56%). In direct monitoring of virus presence, 995 pools of mosquitoes were tested and WNV was confirmed in 22 (2.21%) samples. The prevalence of WNV in mosquitoes has increased since the first positive findings in July (0.76%), 2.88% in August and to 9.68% in September. Virus positive mosquito pools were not identified in May and June. Among 152 samples of the dead and hunted wild birds, WNV was found in 2 (1.31%) cases - in a dead cormorant on Palic Lake in July and in the hunted magpie in town Apatin surroundings in September. WNV was not detected in 638

samples of pharyngeal swabs of live wild birds. The largest number of seroconversions and positive findings on the presence of WNV in mosquitoes and birds was found in Central Banat, North Backa, South Banat and West Backa districts.

WNV monitoring program during 2014 was proved as very successful and meaningful, despite some technical problems at the beginning. At the same time it pointed to the opportunities and the need for its improvement. The reasons for this are, first of all, in the large percentage of already seropositive horses due to many years of virus circulation in the area, so the sufficient number of seronegative (sentinel) horses for the program in 2015 is questionable. Also, many errors have been noticed in the field in determining the age of backyard poultry during implementation of the monitoring program (only the poultry that had been hatched during the current year was planned to be tested), so often older poultry were sampled that has already been in contact with the virus during the previous years. Therefore, as basic changes in the WNV monitoring program we propose the exclusion of poultry as sentinel animals for serological surveillance and testing of horses for the presence of IgM antibodies that indicates a recent acute infection i.e. recent contact with the virus. For this purpose samples of the horses that are regularly sent for testing of Infectious anemia of horses, under the Program of measures of animal health care could be partly used. Direct monitoring of the presence of WNV would be further conducted also with continuous and periodical testing of pooled mosquitoes samples and wild birds, but the frequency of samplings and testing of mosquitoes in one part of the year should be increased, as well as the total number of susceptible dead wild birds throughout the year.

**Keywords:** West Nile virus, monitoring program, Serbia

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