World Academy of Science, Engineering and Technology
International Journal of Animal and Veterinary Sciences
Vol:12, No:4, 2018

West Nile Virus in North-Eastern Italy: Overview of Integrated Surveillance Activities

Authors : Laura Amato, Paolo Mulatti, Fabrizio Montarsi, Matteo Mazzucato, Laura Gagliazzo, Michele Brichese, Manlio Palei, Gioia Capelli, Lebana Bonfanti

Abstract : West Nile virus (WNV) re-emerged in north-eastern Italy in 2008, after ten years from its first appearance in Tuscany. In 2009, a national surveillance programme was implemented, and re-modulated in north-eastern Italy in 2011. Hereby, we present the results of surveillance activities in 2008-2016 in the north-eastern Italian regions, with inferences on WNV epidemiological trend in the area. The re-modulated surveillance programmes aimed at early detecting WNV seasonal reactivation by searching IgM antibodies in horses. In 2013, the surveillance plans were further modified including a risk-based approach. Spatial analysis techniques, including Bernoulli space-time scan-statistics, were applied to the results of 2010–2012 surveillance on mosquitoes, equines, and humans to identify areas where WNV reactivation was more likely to occur. From 2008 to 2016, residential horses tested positive for anti-WNV antibodies on a yearly basis (503 cases), also in areas where WNV circulation was not detected in mosquito populations. Surveillance activities detected 26 syndromic cases in horses, 102 infected mosquito pools and WNV in 18 dead wild birds. Human cases were also recurrently detected in the study area during the surveillance period (68 cases of West Nile neuroinvasive disease). The recurrent identification of WNV in animals, mosquitoes, and humans indicates the virus has likely become endemic in the area. In 2016, findings of WNV positives in horses or mosquitoes were included as triggers for enhancing screening activities in humans. The evolution of the epidemiological situation prompts for continuous and accurate surveillance measures. The results of the 2013-2016 surveillance indicate that the risk-based approach was effective in early detecting seasonal reactivation of WNV, key factor of the integrated surveillance strategy in endemic areas.

Keywords : arboviruses, horses, Italy, surveillance, west nile virus, zoonoses
Conference Title : ICAWCPR 2018 : International Conference on Animal Welfare, Care, Procedures and Regulations
Conference Location : Venice, Italy
Conference Dates : April 12-13, 2018