A diagnostic approach to wild bird surveillance and environmental sampling

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Prior to the ongoing Asian H5N1 epidemic, it was believed that Highly Pathogenic Avian Influenza (HPAI) was a disease of domesticated birds and that wild birds could only act as reservoirs for the low pathogenic form of these viruses (LPAI). The unprecedented situation occurring in Asia has determined the spill-over of infection to naïve populations of wild birds, and the role that wild birds may play in the ecology and epidemiology of A/H5N1 is still far from being understood.

Recent outbreaks of HPAI in Russia and Central Asia, Europe and Africa suggest that there is a potential that A/H5N1 may have been be carried by wild birds during their autumn and spring migrations. This event, if confirmed, dramatically impacts the epidemiology of AI with inauspicious consequences, and among these, it could be argued that wild birds might contribute to the introduction and to the spread of the infection to AI-free areas.

Active and passive surveillance in wild bird population has become a priority in many countries in order to be able to reveal the circulation of LPAI and HPAI viruses in natural reservoirs and to provide data for risk assessment and risk analysis. In addition, in recent times, environmental detection of AI viruses has been considered as a possible indicator to establish virus persistence following the application of cleaning and disinfection procedures during and after an AI outbreak.

Several diagnostic methodologies are currently available for the detection of AI infection, including viral detection methods and serology. However, in order to generate reliable data, it is imperative that the most appropriate diagnostic approach is selected, taking into account the aim of the surveillance programme and the ecology of the virus in both the target population and the environment.

It is essential that harmonised diagnostic strategies aiming at the detection of A/H5N1 are developed and followed worldwide in order to make results comparable and useful to the international scientific community. The OIE/FAO Reference Laboratory in Padova, Italy is conducting an intensive diagnostic programme on wild birds sampled in Europe, Africa and the Middle East consisting of over 5000 samples which have been processed in the last six months.

On the basis of the results of this programme, we have developed a set of diagnostic guidelines which will be presented and discussed. These guidelines could represent a basis for a harmonized approach to be used by diagnostic laboratories involved in this aspect of AI diagnosis.

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