

Outbreak of avian influenza A(H7N1) in ostriches, Oudtshoorn area (Western Cape Province)

The State Veterinary Services of the Department of Agriculture, Western Cape Government reported actively circulating influenza A virus in ostriches on 7 April 2013, detected through the routine avian influenza surveillance programme. Specimens submitted to Onderstepoort Veterinary Institute (OVI) underwent further testing, and the virus was characterised as avian influenza A(H7N1) of low pathogenicity. To date, gastrointestinal symptoms and deaths have been reported in a few ostrich chicks on infected farms, but no symptoms in older birds have been observed.

The outbreak is currently confined to 2 farms, around which a 3 km radius buffer zone of movement control and quarantine has been instituted. Intensified surveillance is ongoing within a 5 km radius. Decisions on culling of ostriches are still pending.

Avian influenza strains are characterized as low pathogenicity avian influenza (LPAI) or high pathogenicity avian influenza (HPAI). Most avian influenza strains, including HPAI, do not usually kill wild birds. However, HPAI strains may be highly infectious and pathogenic for poultry and therefore the OIE (World Organisation for Animal Health) regulations require mass culling of birds if HPAI viruses are detected. LPAI strains may, however, spread unnoticed through bird populations and do have the potential to revert to highly pathogenic phenotypes. Although LPAI strains do not kill poultry, outbreaks may be difficult to control because they spread undetected through wild and domestic bird populations.

Several avian influenza outbreaks have been reported in ostriches over the last decade in South Africa, the most recent being HPAI (H5N2) in 2011 in the Uniondale and Oudtshoorn areas (Western Cape Province), and LPAI (H7N1) in Heidelberg (Western Cape Province) in 2012. In neither of these outbreaks were increased numbers of ostrich deaths reported. Movement control and large-scale culling of ostriches occurred during the H5N2 outbreak, whilst movement control without culling was implemented in response to the H7N1 outbreak. Both outbreaks resulted in a ban on the export of ostrich meat to the European Union, and were devastating to the ostrich industry.

Avian influenza A subtypes H5, H7 and H9 have the ability to infect humans, although human-to-human transmission is usually limited. Following the H5N2

and H7N1 outbreaks in ostriches in 2011 and 2012 respectively, the Centre for Respiratory Diseases and Meningitis and the Outbreak Response Unit, NICD-NHLS conducted serosurveys amongst high-risk persons exposed/potentially exposed to infected ostriches. Screening of sera from 207 persons following the 2011 H5N2 outbreak, and 66 persons following the 2012 H7N1 outbreak identified 4 cases with significant antibody titres (>1:40) to H5N2 or H7N1 viruses: a veterinarian who did post-mortems of culled ostriches, an ostrich farm worker, and two ostrich abattoir workers. This suggests that a low risk of infection exists for humans exposed to ostriches with H5N2 (1.4%) and H7N1 (1.6%) viruses. Although the seropositive cases did recall non-specific symptoms including conjunctivitis and flu-like illness at some stage during the course of the outbreak, the occurrence of these symptoms could not be directly linked to infection with H5N2 or H7N1 viruses.

Before the occurrence of the newly described H7N9 strains in China, H7 strains were previously thought to be of low risk to humans. Human infections have been reported in previous outbreaks of HPAI H7 strains; an H7N3 outbreak in the Netherlands resulted in a high seroconversion rate in humans as well as cases of conjunctivitis and one death (a veterinarian who participated in culling birds). However, the emergence of the recent HPAI (H7N9) strain in China that causes no disease in birds but is associated with severe, sometimes fatal pneumonia in humans serves as a reminder that LPAI strains can be unpredictable in terms of their potential for human disease.

Although the serosurvey conducted in South Africa after the H7N1 outbreak in ostriches in 2012 showed that this strain likely poses a low risk for human infection and disease, healthcare workers are encouraged to submit specimens from patients presenting with conjunctivitis, influenza-like illness or severe respiratory infections, and who have a history of exposure to ostriches with avian influenza (or sick birds), to the NICD for testing.

Source: Centre for Respiratory diseases and Meningitis and Division of Public Health Surveillance and Response, NICD-NHLS; State Veterinary Services, Department of Agriculture, Western Cape Government