NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

COMPILED JUNE 2017
CENTRE FOR RESPIRATORY DISEASE AND MENINGITIS
OUTBREAK RESPONSE, DIVISION OF PUBLIC HEALTH SURVEILLANCE AND RESPONSE

Avian influenza

Frequently Asked Questions

1. What is avian influenza?

Avian influenza, also known as 'avian flu' or 'bird flu' is an infection- usually of wild birds- but sometimes also of commercial or domestic poultry. Water birds are the natural host of avian influenza. Avian influenza viruses are within the group of 'influenza A viruses' and are classified into subtypes according to two proteins found on the surface of the virus: haemagglutinin (H) and neuraminidase (N). There are 18 haemagglutinin subtypes and 11 neuraminidase subtypes. These proteins determine the kind of animal (birds, pigs, or humans) that the virus can infect. Avian influenza and human influenza viruses are the same virus: they have the same basic viral structure, but have different H and N proteins. Human influenza is caused by 'influenza A(H1N1)' and 'influenza A(H3N2)' and influenza B. Many different avian influenza strains are responsible for bird flu outbreaks, such as 'influenza A(H5N8)', 'influenza A(H5N2)'. Rarely, avian influenza strains can cause disease in humans. Avian influenza strains that have caused disease in humans are 'influenza A(H5N1)' and 'influenza A(H7N9)'

2. Who can get avian influenza?

Human infections with avian influenza are uncommon and usually occur in individuals who have close contact with birds, either live or dead, that are infected with avian influenza viruses. Human infections have occurred in persons who visit or work in live poultry markets or commercial farms where an avian influenza strain is circulating. Avian influenza viruses do not usually spread from person-to-person.

3. What is the risk of avian influenza infection in humans in South Africa?

No symptomatic cases of human infection with avian influenza viruses have been documented in South Africa, even following the outbreaks of highly pathogenic avian influenza in South Africa (influenza A (H5N2) in Oudtshoorn in 2004, 2006, 2011-13. A few cases of very mild or asymptomatic infection have been documented amongst South African farm workers in the ostrich industry as evidenced by serological testing. Two strains of avian influenza are of concern globally but these have not been identified as a problem in South Africa: since 2003 sporadic human infections with avian influenza A(H5N1) virus have been reported in South East and mainland Asia, and in Egypt on the African continent. In 2013 human infections with low pathogenic avian influenza A(H7N9) were reported in China and since then localised annual epidemics occur. Other avian influenza viruses associated with sporadic infections in humans include influenza A(H5N6, influenza A(H7N7), influenza A(H9N2) and influenza A(H10N8). No cases of human infection with avian influenza virus H5N8.

4. How is avian influenza transmitted?

Birds that are infected with avian influenza shed the virus in their droppings or their mucous, which may also be released into the air. Contact with bird mucous or droppings through inhalation or direct contact with mucous membranes may lead to infection.

5. How does avian influenza affect animals?

Aquatic migratory birds are the primary natural reservoir for avian influenza viruses. Most subtypes cause asymptomatic or mild infection in birds, and are called low pathogenic avian influenza (LPAI) viruses. Virus strains that cause severe disease/death in birds are called highly pathogenic avian influenza viruses (HPAI). HPAI viruses carry a high economic burden as culling of commercial flocks is the main way to control and prevent widespread infection. HPAI has occurred in South Africa in the Western Cape Province, Eden District, due to outbreaks of influenza A(H5N2) in 2004, 2006 and 2011-13. In May 2017, an outbreak due to highly pathogenic avian influenza A(H5N8) was documented at a commercial poultry farm in Zimbabwe. This outbreak required the culling of over 70,000 birds. There is a risk of spread to South African poultry industry through transmission by wild migratory birds. Surveillance in wild birds in South Africa, Mozambique, Botswana and Zimbabwe has identified influenza A (H1N8) and influenza A (H3N8), and H5, H6 and H7 strains. In the 1960s a HPAI H5N1 strain (A/Tern/South Africa/1963) was identified in dead terns found along the Cape coast, but

since then influenza A(H5N1) and influenza A(H5N8) strains have not been identified in wild birds, or domestic poultry in South Africa.

6. What are the signs and symptoms of avian influenza infection in humans?

Human infection may be asymptomatic or present with mild, flu-like symptoms including runny nose, body pains, fever and red eyes. Severe infections may present with severe pneumonia, acute respiratory distress syndrome (ARDS), and multi-organ failure leading to death. Both low and high pathogenic avian influenza viruses can be associated with severe disease and death following human infections.

7. How is avian influenza diagnosed in humans?

There are currently no rapid, commercially available tests to diagnose avian influenza and distinguish the virus from seasonal human influenza. However, real-time reverse transcription polymerase chain reaction–based (rRT-PCR) tests are available to detect avian influenza viruses in respiratory tract (i.e., nose, throat and lung) specimens from suspected cases and to distinguish it from seasonal human influenza virus infections. A naso- and/or oropharyngeal swab/s (flocked swabs with plastic shafts should preferably be used) should be collected from the patient and placed into viral or universal transport media for immediate transport on ice to the NICD.

8. How is avian influenza infection treated?

Severe infections with avian influenza (for example due to H5N1) should be treated with supportive care, and individuals should be isolated to prevent secondary cases. In addition, avian influenza infections in humans can be treated with the same anti-viral agents used to treat human influenza. These are the neuraminidase inhibitors - oral oseltamivir or zanamivir as indicated in the "Healthcare workers handbook on Influenza in South Africa (www.nicd.ac.za under 'Influenza' in the Diseases A-Z tab).

9. How can avian influenza infection in humans be prevented?

There is a low risk of human infection with avian influenza viruses for South Africans. However, the following points are recommended for prevention of human infection:

- Do not touch dead birds, especially where large numbers of dead birds are found.
- Where a suspected or confirmed outbreak of avian influenza has occurred, only limited numbers of persons should be exposed, and all persons should use appropriate personal protective equipment.
- Surveillance for avian influenza amongst animal populations, and occupationally exposed humans should be ongoing. There is ongoing adaptation of avian influenza viruses, and it is possible that viruses with the ability to infect humans, and be transmitted from person-to-person could emerge.
- All suspected cases of potential transmission of avian influenza virus from infected birds/ poultry or ostriches to humans should be investigated.
- Clusters (*e.g.*, 3 or more cases in 72 hours, or 5 or more cases in a 5-day period) of severe respiratory illness (hospitalised or warranting hospitalisation or ICU admission or death) with evidence of common exposure or epidemiologic link (attention should be given to recent travel or exposure to animals implicated in zoonotic transmission of respiratory pathogens) are notifiable in South Africa and should be investigated

10. Who can I contact for more information?

Visit the NICD website at www.nicd.ac.za for further information. For medical/clinical related queries by health care professionals, contact the NICD Hotline +27 (0) 82 883 9920 (for use by healthcare professionals only). For laboratory related queries call the Centre for Respiratory Disease and Meningitis (011-386-6410 or 011-386-6390/3673).