

VIROLOGY LECTURE

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Avian Influenza Infection in Humans

- Type A Influenza viruses can infect several animal species, including birds, pigs, horses, seals and whales.
- Influenza viruses that infect birds are called “avian influenza viruses”.
- All known subtypes of influenza A viruses circulate among wild birds.
- Wild birds are the natural hosts for influenza A viruses.
- Avian influenza viruses, usually do not cause diseases in wild birds.

Avian Influenza Infection in Humans (Continued)

- They cause diseases in domestic birds and can be fatal.
- They do not usually infect humans
- However, several instances of human infections and outbreaks have been reported since 1997.
- Infected wild birds (natural hosts) shed the virus in saliva, nasal secretions and feces.
- Domestic birds (Chicken and Turkeys) acquire the infection when they have contact with contaminated nasal, respiratory and fecal material from infected birds.

Avian Influenza Infection in Humans (Continued)

- The Fecal-to-oral is the most common mode of spread among poultry.

Transmission to Humans:

- Most cases of avian influenza infection in humans resulted from direct contact with infected poultry or contaminated surfaces.

Avian Influenza Infection in Humans (Continued)

Symptoms of avian Influenza in humans:

- Fever
- Cough
- Sore throat
- Muscle ache
- Conjunctivitis
- Acute respiratory distress
- Pneumonia

Confirmed Instances of avian Influenza viruses infection in humans

- H5N1, Hong Kong 1997:
 - The first documented cases on transmission of avian flue from infected birds to human
 - 1.5 million chicken have been killed by authorities
 - 18 people were hospitalized and six of them died.

Confirmed Instances of avian Influenza viruses infection in humans (Continued)

- H9N2, China and Hong Kong 1999:
 - Two confirmed cases were reported in children, both patients recovered.
 - Poultry was the source of infection
 - The main mode of transmission was from birds to human.

Confirmed Instances of avian Influenza viruses infection in humans

(Continued)

- H7N2, Virginia, 2002:
 - Outbreak of H7N2 among poultry.
 - One person was found to have serologic evidence of infection.

- H5N1, China and Hong Kong 2003:
 - Two cases of avian influenza infection occurred in two family members of a Hong Kong. One recovered the other died.

Confirmed Instances of avian Influenza viruses infection in humans (Continued)

- H7N7, Netherlands, 2003:
 - Outbreak of avian influenza in poultry on several farms.
 - 89 people were confirmed to have H7N7

- H5N1, Thailand and Vietnam 2004

- H7N3, Canada, 2004:
 - Human infections of H7N3 among poultry workers.

Treatment

- Four different anti-viral drugs are approved by the FDA for treatment and/or prophylaxis of influenza A
 - Amantadine
 - Rimantadine
 - Zanamivir
 - Oseltamivir
- Some influenza A strains can become resistant to these drugs