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Hosts

Avian influenza viruses are capable of infecting a wide variety of birds, both domestic and wild, and other animals. They are particularly prevalent in wild waterfowl, wild ducks and similar species. In fact many regard wild waterfowl as the natural reservoir of avian influenza.

Almost 100 species of wild birds can be infected including ducks, geese, swans, gulls, puffins, herons, ibis, partridge, pheasant, moorhens, finches, woodpeckers, starlings and sparrows. Infection in the last two has been associated with influenza problems in poultry. In wild birds infection is rarely accompanied by illness or clinical signs. All species of farmed poultry, including ratites, can be infected.

A few infections with avian influenza viruses have been reported in man. Avian influenza virus infections, all be they experimental ones, have been seen in species such as pigs, rats, cats and primates.

Transmission

Avian influenza virus is excreted in nasal discharges, saliva, conjunctival discharges and faeces as virus replication occurs in respiratory, intestinal, reproductive and some other tissues. The greatest recovery of highly pathogenic avian influenza virus (HPAI) from infected birds is from the back of the throat.

Transmission can be by direct contact or indirect contact via contaminated fomite or aerosols. Aerosols from the respiratory tract of infected birds are highly infectious because of their high bacterial load. Large numbers of virus are also in the faeces of infected birds so transmission by fomites, including man and his clothing, is an important means of spread.

Interspecies transmission is most common between closely related species such as chickens and turkeys. Interspecies transmission between different types of animal also occurs and a good example of this is the transmission of H1N1 and H3N2 swine influenza viruses to turkeys.

Primary sources of infection for poultry have included other poultry (for example, backyard poultry), migrating wild birds, pet birds and pigs. Once in poultry transmission via fomites to other flocks is probably more important than airborne spread.

There is little or no evidence to suggest that vertical transmission occurs.

Incubation period

In the field incubation periods range from three days for individual birds to two weeks for flocks.

The incubation period is dose dependent and is also influenced by the route of infection, bird type and the extent to which clinical signs manifest themselves.

Many infections by LPAI (low pathogenic avian influenza) do not cause clinical signs in all species and ages of birds.