

Occupational Health - Zoonotic Disease Fact Sheet

NEWCASTLE DISEASE

KEY FACTS:

- Newcastle disease is caused by a viral agent.
- The natural reservoir is wild and domesticated birds, primarily chickens, and is of great concern throughout much of the world's agricultural community.

SPECIES: Avian species, with chickens being the most susceptible.

CAUSATIVE AGENT: Newcastle disease is caused by a –ssRNA virus in the Order *Mononegavirales* and Family *Paramyxoviridae*.

TRANSMISSION: Transmission is by either direct contact by inhalation of infectious aerosols or by the fecal-oral route. Intensive poultry production conditions favor spread by contact, and the virus can contaminate fomites, resulting in airborne spread between poultry houses.

DISEASE IN ANIMALS: In poultry, the onset of disease can be rapid (2-12 days) after aerosol exposure. As disease progresses, respiratory and nervous signs occur, including gasping and coughing due to congestion with mucoid exudate appearing in the lungs and bronchi. Additional symptoms include drooping of wings, twisting of the head and neck, inappetence, and paralysis. Egg production in laying hens ceases, and petechial hemorrhages are characteristic, especially in the preenteric mucosa. Necrosis of the intestinal mucosa may also occur, presenting a "bran" like appearance.

DISEASE IN HUMANS: Human infections occur mainly amongst laboratory workers and those who work with infected chickens or who use live vaccines in their work, especially by aerosol. Symptoms are usually confined to painful conjunctivitis lasting a few days, but fever and influenza-like symptoms for up to 3 weeks may follow.

DIAGNOSIS: History of exposure to birds, and the presence of symptoms described above. Serological (ELISA, IFA) and molecular (PCR) testing may also be used. *Please review current literature before prescribing diagnostic testing as recommendations may have changed.*

TREATMENT: Supportive therapy only. *Please consult your physician for treatment options as recommendations may have changed.*

PREVENTION/CONTROL: A vaccine is available for use in poultry, however, hygienic precautions are needed when handling infected birds. Maintain strict hygiene in poultry sheds and quarantine of imported live birds, prohibit importation from infected countries, sterilization of, or prohibition on, waste food fed to poultry. To prevent and control unintended infections, use uninfected animals for research, and isolate any animals used in clinical trials. Additionally, only conduct projects in laboratories with proper engineering controls and train staff members in the proper use of required personal protective equipment when they are in spaces containing live agent.