

Newcastle Disease in Poultry

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Newcastle disease, also called ND or pneumoencephalitis, is caused by paramyxovirus. The highly contagious and lethal form of Newcastle disease is known as **viscerotropic velogenic Newcastle disease**, or **VVND**. (The term *viscerotropic* indicates that the virus attacks the internal organs; *velogenic* indicates that the disease is highly pathogenic.) VVND is also referred to as exotic Newcastle disease or Asiatic Newcastle disease. Newcastle disease affects all birds of all ages. In humans and mammals, the virus causes mild inflammation of the eye.

The Newcastle virus can be transmitted through the air within short distances. Sick birds can transfer the virus directly to flock mates through body secretions and fecal material. The virus can also contaminate shoes, persons who work with or near birds, tires, dirty equipment, feed sacks, crates, and so on, and be transmitted from flock to flock. Wild birds are another source of infection. The Newcastle virus is transmitted through the egg, but infected embryos typically die before hatching.

Clinical Signs

The three forms of Newcastle disease are categorized on the basis of the severity of their clinical signs.

- The **lentogenic** form is mildly pathogenic.
- The **mesogenic** form is moderately pathogenic.
- The **velogenic** form, or VVND, is highly pathogenic.

Mortality can range from 10% to 80% depending on the virus strain.

Newcastle disease is characterized by a sudden onset of symptoms, which include hoarse chirps (in chicks), watery discharge from the nostrils, labored breathing (gasping), facial swelling, paralysis, trembling, and twisting of the neck. The twisting of the neck, or torticollis, is a sign that the central nervous system is affected. In adult laying birds, symptoms also include decreased feed and water consumption and a dramatic drop in egg production.

Treatment

There is no specific treatment for Newcastle disease. Antibiotics can be given for three to five days to prevent secondary bacterial infections (antibiotics do not affect viruses). Increasing the brooding temperature for chicks by 5°F may help reduce losses.

Prevention and Control

Prevention programs should include vaccination, good sanitation, and implementation of a comprehensive biosecurity program.

For More Information

Newcastle Disease. Tina Savage, University of New Hampshire, and Michael Darre, University of Connecticut.