Virulent Newcastle Disease

Information for Bird Owners

Fact Sheet No. 7 Update 1 October 2002

DESCRIPTION

Virulent Newcastle Disease (ND), also known as exotic Velogenic Viscerotropic Newcastle Disease, occurs in Central and South America, the Middle East, and most of Europe, Africa, and Asia. Virulent ND is one of several pathotypes of ND. After an incubation period of 2-15 days, Virulent ND causes extremely high morbidity (sickness) and mortality (death) in chickens and other birds. Some avian species show few clinical signs and may spread disease. Pet birds, especially parrots, may shed virus for more than a year without showing signs. In contrast, poultry ranches may experience up to 100% mortality in unvaccinated flocks and 10-20% mortality in vaccinated flocks. ND can also cause conjunctivitis in humans.

HISTORY IN CALIFORNIA

ND was first diagnosed in the United States in California in 1950 among chukars and pheasants imported from Hong Kong. The infection, which spread to five poultry farms in Contra Costa County, was quickly eliminated through the destruction of the infected chickens.

A catastrophic outbreak of ND occurred in California commercial poultry from 1971 through 1973. Poor security at a bird importer's premises led to contact between infected parrots from South America and neighboring commercial poultry. The disease spread rapidly within the Southern California commercial poultry population. Vaccination was widely used, but was not effective until aggressive destruction of infected birds and improved biosecurity were in place. The disease was eradicated, but in the process eight Southern California counties were quarantined and 11.9 million birds were destroyed. Eradication efforts cost taxpayers $56 million and severely disrupted the operations of many producers.

In 1998, ND was introduced into a small flock of game fowl by a bird purchased from a local swap meet. The flock was quarantined and destroyed. Surveillance was completed on all backyard flocks in the area with no further infection detected.

SIGNS OF DISEASE

- Sneezing, coughing and gasping for air
- Nasal discharge
- Greenish, watery diarrhea
- Depression, muscular tremors, drooping wings, twisting of the head and neck, complete paralysis
- Drop in egg production and thin-shelled eggs
- Swelling around the eyes and in the neck
- Sudden death

TRANSMISSION

Birds may become infected directly through contact with other infected birds, fecal material, or aerosol over a short distance; or indirectly through contact with contaminated people, vehicles, equipment, insects, and rodents.

VIRUS SURVIVAL

The virus may survive for several weeks in a warm, humid environment, and indefinitely in frozen material. The virus is rapidly destroyed by dehydration and sunlight, or 1 minute at boiling temperature.

REDUCE RISKS OF INTRODUCING ND

To reduce the risk of introducing ND into a flock, maintain a biosecurity barrier (physical barrier, personal hygiene, and equipment sanitation) between wildlife, poultry facilities, other commercial avian facilities, and pet birds. Some examples of good biosecurity practices include:

- Permit only essential workers and vehicles on the premises.
- Provide clean clothing and a disinfection procedure for employees and visitors.
- Clean and disinfect vehicles at the farm entrance.
- Avoid visiting other avian facilities.
- Do not keep pet birds or hire employees with birds.
- Protect the flock from exposure to wild birds.
- Control movement associated with the disposal of bird carcasses, litter, and manure.
- Quarantine new additions to the flock. Never allow people or material to move from the quarantined birds to the flock.
- Report signs of disease to your veterinarian and to your CDFA District Office.

Animal Health and Food Safety Services

CDFA™
California Department of Food and Agriculture

For additional information, contact the Animal Health Branch at:
Phone: (916) 654-1447 Fax: (916) 653-2215
Or visit our Web site at http://www.cdfa.ca.gov

Redding District:	(530) 225-2140	
Modesto District:	(209) 491-9350	
Tulare District:	(559) 685-3500	
Ontario District	(909) 947-4462	
USDA-VS Area Office	(916) 857-6170	(877) 741-3690

University of California Recommendations to Prevent the Spread of Exotic Newcastle Disease

1. **Sources of virus.** Exotic Newcastle disease virus (NDV) can infect a wide variety of bird species. Parrots and other psittacine birds are especially dangerous because they can carry exotic Newcastle disease virus and show no signs of disease. Most infected chickens and turkeys will die from this disease but can also spread the virus. NDV is hardy and can easily survive on feet, hands, and clothes.
2. **Transmission.** The virus is excreted in feces and from the respiratory tract as an aerosol. The virus can easily contaminate feed, ter, footwear, clothing, tools, equipment, and the environment.

A. Isolation *refers to the confinement of animals within a fence, which keeps your birds in, but it also keeps other animals out.*

1) Prevent the introduction of new birds to a previously infected facility for 2-3 weeks after a complete cleanout.
2) Clean out vegetation around poultry houses and pens to remove shelter and food for possible carriers of the virus.
3) Institute a control program for insect, mammalian, and avian vectors, which are important because they carry infections to new birds.
   a) If possible, keep birds in closed houses or coops rather than exposed to wild birds.
   b) Institute insect and rodent control programs.
4) Prevent the accumulation of standing water. This is a great attraction to migrating birds, which can carry NDV.
5) Limit sources of food for wild and free-flying birds. Cover all feed storage. Clean up spills when they happen.
6) Do not to visit live bird markets, pet stores that may have exotic birds, or other places where there are birds that could carry NDV.
7) Avoid dead wild, domestic or free-flying birds you find or are brought to you. Any found on your premises must be treated as though they are highly infectious. Handle them with gloves, place in a plastic bag, and seal it, finally, shower and change clothes before entering poultry facilities again.

B. Traffic control *includes both the traffic onto your farm and the traffic patterns within the farm.*

1) Be a good neighbor. If you have or suspect Newcastle disease, initiate a self-imposed quarantine.
   a) Most critically, stop all movements of people
   b) Get birds (some sick and some dead) to the diagnostic laboratory (phone numbers follow)
   c) Get advice (contacts follow)
2) Keep human farm-to-farm traffic to a minimum. Conduct business by phone when possible.
3) Find out where someone has been before inviting them visit your flock. Shoes and clothes can carry NDV so, it is best to provide plastic boots and coveralls to all visitors.
4) Isolate dead bird disposal away from your flock. Never walk from this area back to your flock. Protect carcasses from predators and take them to the diagnostic laboratory as soon as it is reasonable (Laboratory phone numbers follow).

C. Sanitation *means the disinfection of people, and equipment entering the farm and the cleanliness of the personnel on the farm.*

Cleaning and disinfection

1) Newcastle disease virus can survive at room temperature for days to months. However, NDV is sensitive to most disinfectants and can be readily inactivated if a surface is properly cleaned first. A list of disinfectants effective in killing NDV follow.
2) Feathers and feces, must be removed before disinfection by any method can be effective. Cleaning protocols should include a fair amount of elbow grease and critical inspection.

Prevent the spread of NDV on equipment

1) Make sure that any vehicles coming near your flocks are not contaminated with litter or feces. Wash and disinfect the tires and wheel wells of all vehicles coming onto your premises.
2) Wash with detergent and disinfect all bird hauling and manure handling tools, equipment, and vehicles.
3) Enclose all dead birds to be taken to the laboratory in plastic bags. Confine live birds being submitted to the laboratory in boxes that will not return to your farm. Disinfect any vehicles returning from the laboratory including the floor mats. Do not let anyone who has been to the laboratory return to your flock without a shower and a change of clothes.

The details of cleaning and disinfecting any facility will depend on a number of factors that differ between farms. In all situations, it is highly recommended that a professional advisor be consulted to help develop and implement your plans.

General comments

1) Spraying a facility with a disinfectant after complete depopulation to remove NDV from an infected facility. At the same time a vector control program should be instituted, followed by removal of manure, cleaning of all surfaces followed by a second application of viricidal spray. All manure should be removed and all surfaces thoroughly dry cleaned prior to applying disinfectants. Next, apply the disinfectant to all surfaces twice, allowing the disinfectant to dry between applications. The house should be left empty for 2-3 weeks before repopulation.

The Newcastle disease virus is sensitive to many disinfectants. However, it is very difficult to inactivate the virus if it is in organic material, such as feces. Therefore, it is very important to use a combination of both cleaning and disinfection to get rid of this virus.

Disinfectants that will kill Newcastle disease virus

1. Phenols such as One-Stroke Environ[1]
2. Formaldehyde
3. Hypochlorites such as bleach

[1] This is not a complete listing of effective or approved disinfectants and should not be considered a recommendation.

Diagnostic Laboratories in California

California Animal Health and Food Safety Laboratory (call for locations)—(530) 752-8700
San Diego County Laboratory--(858) 694-2838

tacts

Cooperative Extension

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