

University of California

Recommendations to Prevent the Spread of Exotic Newcastle Disease

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Sources and Transmission

1. Sources of virus. Exotic Newcastle disease virus (NDV) can infect a wide variety of bird species. Some species do not show any or only limited signs of disease if they become infected. Parrots and other psittacine birds are especially dangerous because they can carry exotic Newcastle disease virus and show no clinical signs. Many other birds can become infected with NDV but have not been associated with the transmission of disease to chickens and turkeys. Despite the wide number of species that can be infected by Newcastle disease virus, chickens and turkeys are most likely to be infected by infected chickens and turkeys. Most infected chickens and turkeys eventually die from this disease but there is a period before they succumb when they can easily spread the virus.

The Newcastle disease virus is hardy and can easily survive on the feet, hands, and clothes of humans. In addition, it can survive in the eyes and in nasal passages of people who have been in contact with infected birds.

2. Transmission between premises. The virus is excreted in feces and from the respiratory tract as an aerosol. The virus can easily contaminate feed, water, footwear, clothing, tools, equipment, and the environment. Fertile eggs laid by infected hens can carry virus although they rarely hatch. However, the distribution of hatching eggs from an infected flock can carry the virus to susceptible birds.

A. Isolation refers to the confinement of animals within a controlled environment. A fence 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. All birds should be removed in this process.
2. Clean out vegetation around poultry houses and pens to remove shelter and food for possible carriers of the virus.

3. Institute a vector control program for insect, mammalian, and avian vectors. These vectors are important because they can both directly transmit or indirectly carry infected feces from one house, pen, or premise to another.
 - a. If possible, keep birds in closed houses or coops rather than exposed to wild birds.
 - b. Institute an insect control program.
 - c. Rodent control and preventing their traffic between houses on a single premise are essential.
4. Prevent the accumulation of standing water. This is a great attraction to migrating waterfowl, which can carry NDV without showing clinical signs of disease.
5. Limit sources of food for wild and free-flying birds. Cover all feed storage. NDV has been transmitted to naïve birds via contamination of feed with infected feces. Clean up spills when they happen.
6. Educate your employees about the potential dangers of live bird markets, pet stores, fairs and other poultry and advise them not to raise their own poultry for any purpose. Advise them not to visit any place with birds when they will also have contact with your flocks.
7. Advise your employees to avoid dead wild and free-flying birds they find. 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, a complete change of clothes including shoes and a shower should happen before entering poultry facilities.

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 Exotic 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 logbooks of visitors to your facilities.
3. Keep human farm-to-farm traffic to a minimum. Conduct business by phone when possible.
4. Find out where someone has been before inviting them onto your premises. Inspect visitors for evidence of cleanliness and contact with other birds before they come onto your premises.
5. Make no unnecessary visits to other farms.
6. Do not let truck drivers, repairmen, or delivery personnel step out onto your facility without clean or new protective foot covering and clean

coveralls. It is best to provide plastic boots and coveralls for this purpose. Shoes and clothes are an excellent vehicle for the transmission of NDV.

7. If your company has several farms, establish zones to prevent one person from traveling to all farms.
8. Require employees and crews to wear freshly laundered clothing or clothing supplied at the farm each day. Do not allow persons employed at other poultry operations on your premises.
9. Isolate dead bird disposal outside the perimeter of the ranch. Control traffic to and from bird disposal. Carcasses can be a significant source of NDV. Any unusual mortality should be taken to the laboratory for a diagnosis as soon as it is possible (Laboratory phone numbers follow).

C. Sanitation addresses the disinfection of materials, people, and equipment entering the farm and the cleanliness of the personnel on the farm.

Cleaning and disinfection

1. Newcastle disease virus is a hardy virus and 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. Organic material, like 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 bird hauling equipment and vehicles.
3. Wash and disinfect manure clean-out equipment taken from farm to farm.
4. 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.
5. Do not allow vehicles in areas grossly contaminated with manure.
6. Wash and disinfect all egg trays, carts, and racks making sure to remove all feathers, feces, and egg material.

The specifics of cleaning and disinfecting any facility will depend on a large number of factors that differ between farms. Hence, it is not possible to address each individual concern. However, these are some guidelines that generally address cleaning and disinfection and some facts that should be considered when developing a strategy for cleaning and disinfection following

a flock push-out. In all situations, it is highly recommended that a professional advisor be consulted to help develop and implement any plans.

General comments

1. Spraying a facility with a viricide after complete depopulation is the best method 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.
2. Although most birds are vaccinated for Newcastle disease, vaccines cannot protect flocks from exotic Newcastle disease. This virus, if it gets into a flock of vaccinated chickens or turkeys, their mortality may still be nearly 100%.

The Newcastle disease virus is extremely 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 Virus¹ ([extensive information on disinfectant chemicals](#))

1. Phenols such as One-Stroke Environ™
2. Formaldehyde
3. Hypochlorite such as bleach
4. Quaternary Ammonia disinfectants such as Roccal D™
5. Peroxygens such as Virkon S™
6. Lysol™

*for information on disinfectants and their proper use see http://www.vetmed.ucdavis.edu/vetext/INF-PO_Sanitation.html

¹ This is not a complete listing of effective or approved disinfectants and should in no way be considered a recommendation. The University of California does not in any way endorse this or any other commercial product.

Sources of equipment to use in this and other biosecurity programs

1. Portable high-pressure sprayers can be purchased from hardware stores at a cost of \$100-\$500. These sprayers are useful in washing and disinfecting equipment and poultry houses.
2. Hand-held sprayers can be purchased from hardware stores for \$30-70. These items are helpful for spraying disinfectants on the floor mats of cars, disinfecting wheel wells, etc. In addition, the same type of sprayer can be used to distribute insecticides in a vector control program. However, these sprayers do not have enough pressure to cut through organic material and, thus, can only be used on clean equipment.

3. Disposable coveralls, boots, and caps can be purchased from several places. If you need help finding them, feel free to contact the people listed at the end of this document. Costs: Tyvek disposable coveralls are \$2.50-\$3.50 each, plastic boots are \$10-\$13/10 pairs, and bouffant caps are \$14/case of 500. These items are useful to provide for visitors.
4. Other materials important in a biosecurity program including signs, gates, pylons, and other indications of barriers can be purchased for minimal cost. These items are important in preventing unwanted human traffic and are well worth their cost.

Diagnostic Laboratories in California

California Animal Health and Food Safety Laboratory

Davis—(530) 752-8700

Turlock—(209) 634-5837

Fresno—(559) 498-7740

San Bernardino—(909) 383-4218

San Diego County Laboratory—(858) 694-2838

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California Department of Food and Agriculture

Ontario District office (909) 947-4462

Modesto District office (209) 491-9350