

# Salmonella Testing

CONNECTICUT VETERINARY MEDICAL DIAGNOSTIC LABORATORY

## Salmonella testing at the Connecticut Veterinary Medical Diagnostic Laboratory (CVMDL).

Salmonella infection (salmonellosis) is a common bacterial disease that targets the intestinal tract of humans and animals as well. Salmonella bacteria typically live in the intestines and are shed to the environment through feces. Backyard poultry and wild birds are susceptible to Salmonella species. They also can carry and transmit Salmonella bacteria even if they look healthy and clean and show no signs of illness.

## CVMDL has been routinely performing testing for *Salmonella pullorum* in backyard chickens.

- Why *Salmonella pullorum* (*Salmonella enterica* subsp. *enterica* serovar: *pullorum*)?

Based on the current edition of the Merck Manual of Veterinary Medicine the disease caused by this bacterium (Pullorum disease, white bacillary diarrhea) is characterized by a very high mortality in young chicks and poults. Affected birds tend to huddle, become weak, show lack of appetite, they look depressed and they may have depositions of white colored feces. The disease may also affect older chickens, turkeys, game birds, guinea fowl, ostriches, parrots, peafowl, ring doves and sparrows.



- Sources of infection for domestic birds.

According with the literature, the disease spreads mainly through contact with infected birds. Transmission from hens to chicks may occur via the egg. Both domestic and wild birds may act as reservoirs for the infection. Other sources of the bacterium could be contaminated feed, water and litter, as well as through contaminated clothing, footwear, vehicles and equipment.

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- Testing for *Salmonella enterica subsp. enterica* serovar: *pullorum* and *Salmonella* species at CVMDL.

Serologic testing to detect potentially positive birds, but isolation, identification, and serotyping is essential to confirm infection. At CVMDL the Avian Serology Laboratory performs serologic tests to detect antibodies against *Salmonella enterica subsp. enterica* serovar: *pullorum*

Table shows the number serum samples obtained from backyard-noncommercial flocks tested at CVMDL during calendar year 2019.

Year 2019	# of serologic tests performed
Quarter 1	354
Quarter 2	553
Quarter 3	1516
Quarter 4	284
Total	2707

Interpretation of results: birds testing positive on the Serology screening test can be retested in 21 to 28 days after the original test. Those birds that test positive after the second test can be retested again. At the owner's discretion birds can be submitted to CVMDL for necropsy and further microbiological diagnostics (i.e.; isolation of *Salmonella* spp.)

Following the workflow described here, the Microbiology Laboratory at CVMDL performed isolation, identification and serotyping of *Salmonella enterica subsp. enterica* serovar: *pullorum* and other *Salmonella* species in 17 different birds. Five of these birds were from Connecticut backyard flocks, one was from a Rhode Island backyard flock but eleven were from commercial flocks for a total of 17. Some of these birds had tested positive before with the serological assay

- Why is it necessary to test for *Salmonella enterica subsp. enterica* serovar: *pullorum*?

Freedom from infection and elimination of positive birds and flocks is central to control the spread this disease among susceptible birds. Treatment of affected birds will not eliminate the carrier state (animal shedding the bacterium) and that is the reason why it is not recommended. **Although antibodies might be present, birds may not be infected and therefore, they are not capable of spreading the disease.**

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By testing for Salmonella it is possible to control the spread of disease among birds, but also it is critical for preventing spread of this disease from birds to people.

- *Salmonella enterica subsp. enterica serovar: pullorum* causes a reportable disease in birds.

According to the State of Connecticut Department of Agriculture, Office of the State Veterinarian pullorum disease is a reportable disease (<https://portal.ct.gov/-/media/DOAG/State-Vet/2020/Connecticut-Reportable-Animal-Diseases-042320.pdf>).

### CVMDL tests for Salmonella infections in commercial poultry.

CVMDL is a certified NPIP laboratory. NPIP stands for National Poultry Improvement Program (<http://www.poultryimprovement.org>) and the objective of this organization is to provide a cooperative program through which the poultry industry, states and federal officials work together in a common objective. For commercial flocks, NPIP sets the regulatory standard for disease surveillance, sample collection, diagnostic testing, and lab protocols focusing on three poultry diseases caused by Salmonella, Mycoplasma, and Avian Influenza.

CVMDL, part of the Department of Pathobiology in UConn's College of Agriculture, Health and Natural Resources, is on the frontlines of research and testing to keep humans and animals safe. For more information visit <http://cvmdl.uconn.edu>.



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