

## Reovirus

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### Etiology

Avian reoviruses are a group of double-stranded RNA viruses in the family *Reoviridae* that cause infection in chickens, turkeys, ducks, and geese. Clinical infections primarily occur in chicken broilers.

The viral replication and recombination process result in different strains of reovirus over time, with there being 90+ strains isolated in Canada, each identified by changes in the code for the protein responsible for cell binding. Reoviruses are resilient to temperature changes, as they remain viable for 8 to 10 hours at 60°C and for 3+ years at 4°C. The virus can also remain virulent when in drinking water for 10+ weeks.

### Epidemiology and Transmission

Reovirus was originally identified in the USA, then isolated in several other countries including Europe, Japan, and Israel. However, since the early 2010s, clinical reovirus infections have been reported worldwide.

Reovirus can be transmitted vertically (i.e. from parent to offspring) or horizontally (i.e. between birds in a flock). The fecal-oral route is the primary method of transmission, as the virus is shed in the intestines of birds for several days after initial infection.

Young birds are most susceptible to infection, however the severity of the infection depends on the strain of reovirus, immune status of the bird, and method of transmission.

### Clinical signs

- Lameness
- Swollen hocks
- Poor uniformity of flock
- Gastric tendon rupture
- Torticollis (rare)

- Increased condemnations

## Treatment

There is no specific treatment for avian reoviruses.

If you are culling more than 2% of the flock due to lameness, reach out for a consultation to determine the cause of the lameness, rule out any secondary bacterial infections, and discuss management recommendations.

## Prevention

Reoviruses were effectively prevented by vaccination of breeders until the early 2010s, however mutation of the virus has made these vaccines less effective in preventing vertical transmission of the virus. Vaccine development against reoviruses has been stunted by the diversity of the virus, and therefore the inability for a single vaccine to provide adequate protection. Today, we rely on the administration of autogenous vaccines to effectively prevent vertical transmission of the virus from breeder to chick.

Biosecurity is essential in reducing pathogen load on the flock. After a reovirus infection, a full wash and disinfection is recommended to reduce the risk of infection in the subsequent flock. Additionally, since the virus can remain viable in water lines for 10+ weeks, water sanitation programs are crucial. The structure of avian reoviruses make it resistant to some disinfection practices. Reach out to our team at GPVS for guidance on what products and methods are best for your barn.

## Resources

Gamble T.C., Sellers H.S. Field control of avian reoviruses in commercial poultry production. *Avian Diseases*. (2022); 66: 427-431. doi: <https://doi.org/10.1637/aviandiseases-D-22-99991>

Jones, R.C. Diseases of Poultry. *John Wiley & Sons Inc.* (2013); pg. 682-725. doi: <https://doi.org/10.1002/9781119371199>

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Palomino-Tapia, V., Nickle, L., Schlegel, B., Mitevski, D., Inglis, T., et al. Review of viral arthritis in Canada. *Avian Diseases* (2022); 66: 452-458. doi: <https://doi.org/10.1637/aviandiseases-D-22-99997>

Sellers, H.S. Current limitation in control of viral arthritis and tenosynovitis caused by avian reoviruses in commercial poultry. *Veterinary Microbiology* (2017); 206: 152-156. doi: <http://dx.doi.org/10.1016/j.vetmic.2016.12.014>

Sellers, H.S. Avian reoviruses from clinical cases of tenosynovitis: an overview of diagnostic approaches and 10-year review of isolations and genetic characterization. *Avian Diseases* (2022); 66: 420-426. doi: <https://doi.org/10.1637/aviandiseases-D-22-99990>