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# Rabbit Hemorrhagic Disease (RHD)

RHD is a scary disease, and should not be taken lightly

This document has been put together using various sources to give you as much current, accurate information and tips on how to help protect the rabbits in your area. Many of these precautions are best practices in general when it comes to potentially tracking pathogens back to your rabbits. There is no one-size-fits-all solution. You will need to look through the suggestions and adapt to your specific rabbit setup and situation (for instance, precautions for an indoor, free-roam bunny are going to be different than for someone who has outdoor rabbits, a barn setup, etc.)

## What is RHD?

Rabbit Hemorrhagic Disease (RHD), also known as Rabbit Calicivirus Disease (RCD) and Viral Hemorrhagic Disease (VHD), is a highly-infectious and often fatal disease that affects European rabbits (species *Oryctolagus cuniculus*). RHDV1 is the original strain of RHD. RHDV2 is a newer variant that was first discovered in 2010. For the current outbreak in BC, Canada, current mortality rate is estimated to be 95%. RHDV2 differs from the original RHDV1 virus in the following ways:

- Animals do not always show the common symptoms seen in RHDV1, which can make it harder to identify upfront
- Causes death in 3-10 days instead of 2-5 days common in RHDV1; this means the virus is less likely to flash and burn out quickly, and means quarantine is especially important
- Affects all ages of rabbits, unlike RHDV1 (rabbits under 4 weeks of age had a natural immunity to RHDV1)
- Appears to have the ability to also affect hares

## Which variant of RHD are we dealing with?

RHDV2 is the variant of the current outbreak in BC.

**What are the symptoms of RHDV2?** Clinical signs common for RHDV1 are unfortunately not as common or early-presenting in RHDV2. Clinical signs, if present, often develop in 3-9 days after infection. Because underlying illnesses (such as rhinitis or treponematosis) can often suddenly flare up when RHDV2 infection is present, this can complicate the diagnosis. Often for RHDV2, diagnosis is made during post-mortem examination.

Possible symptoms in live rabbits:

- **Peracute (most common):** Sudden death; animal may be found dead within a few hours of eating and behaving normally. This is the most common presentation of the disease.
- **Acute:** Lethargy Elevated body temperature/fever Increased respiratory rate Death within approximately 12 hours of symptoms presenting.

### **Post-Mortem Diagnosis of RHD**

Diagnosis is usually made at post-mortem examination. RHD may be suspected in any sudden death especially if more than one rabbit in the household has died. The post-mortem picture may be of a healthy rabbit with non-impacted food in the stomach and hard fecal pellets in the distal colon, suggesting that death was sudden.

**What animals are affected?** Rabbits of the species *Oryctolagus cuniculus* (common name: European Rabbit) are affected, which includes all standard domesticated breeds in the US and Canada. It is not thought to affect cottontails or the other types of native and wild rabbits in our area, however RHDV2 has been found to spill over into other lagomorph types (hares) in other countries. At-risk animals in our area would be stray/feral domestic breeds and domestic breeds kept as pets or livestock, as they are all “European rabbit” species. Other types of pets (cats, dogs, rats, etc.) and humans are not at-risk from the disease, but may still help spread it.

**How is it spread?** Transmission of RHD occurs in the following ways:

- Direct contact with an infected animal
- Oral, nasal, or conjunctival exposure to the virus
- Urine, feces, and respiratory secretions can shed the virus
- Virus carriers (such as insects, infected materials) may be carried by the wind
- Infected carcass or hairs from an infected animal
- Predators can excrete the virus in their feces after ingesting an infected rabbit
- Infected clothing, food, cages, bedding, feeders, water, etc.
- Flies, rabbit fleas, and mosquitoes may transmit the virus from an infected rabbit
- People may transport virus on their clothes, hair, shoes, tires etc.

### **Is there a vaccine?**

In some countries that have been dealing with RHD for many years, vaccines are routine for their rabbits. Although no vaccine has currently been approved for standard use and made available in the U.S. or Canada, Canadian authorities have been successful in importing the vaccines that address RHDV2 under emergency procedure.

**ONLY** veterinarians can file an e-permit to import the vaccine. There are a number of clinics running vaccination clinics in Kelowna. Okanagan Veterinary Clinic, Rutland Pet Hospital, and Tri-Lake Animal Hospital are confirmed.

It is important to remember that the vaccine is not a cure-all (it is not without its risks, and vaccinated rabbits still have a chance of contracting/dying from RHD), and **good biosecurity is currently our best way of protecting our rabbits.**

### **What if I find a dead or possibly infected rabbit stray/feral rabbit?**

If you find a dead stray/feral rabbit that shows no obvious cause of death, or one that is showing symptoms of infection, do not touch it. Contact your local animal control and let them know about the rabbit. In Kelowna please contact the SPCA. Be sure to tell them it may be related to Rabbit Hemorrhagic Disease and will need to be reported to state or federal authorities if it is diagnosed with RHD. Practice biosecurity precautions to decrease the chance of tracking potential disease into your home from the area.

### **What if my rabbit dies suddenly or shows possible symptoms of infection?**

If your pet rabbit shows signs of this illness or passes away suddenly or without clear cause of death, contact your veterinary office immediately. Let them know your rabbit will need a necropsy (if deceased) and to be tested for Rabbit Hemorrhagic Disease. Follow your veterinarian's directions. Some pet owners do not feel comfortable having their rabbit necropsied, but if there is a chance the rabbit died of RHD, this could help save many lives in the future

### **What can we do to protect our rabbits?**

Here is a list of things you can do to start protecting your rabbits now if you are close to an infection site:

- Vaccinate!
- Keep your rabbits indoors if at all possible (this includes playtime)
- Forego taking your rabbits to areas with frequent traffic from other animals/rabbits
- Avoid feeding local foraged plants
- Do not share rabbit supplies/equipment with other rabbit owners (or sterilize first)
- Avoid travel to known areas that have had outbreaks of the disease
- Put up fly netting around outdoor rabbit areas
- Keep rabbits' enclosures very clean
- Restrict access of wild rodents to your rabbit enclosures and supplies
- Stock up on 110-120 days' worth of hay and straw before contamination reaches your area
- Keep up on flea treatment for all animals in your household (Revolution is safest)
- Use sterile coveralls and shoe covers
- Remove shoes before entering your house and keep them away from your rabbit area
- Change clothing entirely before entering rabbit area if you may be contaminated
- Wash hands thoroughly before entering rabbit area or handling rabbits
- Wear foot covers over your shoes before entering rabbit area
- Follow strict quarantine procedures before introducing a new rabbit to your household

- On outdoor cages - try and put fine insect mesh on all cages. Flying insects especially flies are high risk for carrying virus from dead rabbit to your rabbits.
- If you leave the property - do not go straight to your rabbits but wash and change first especially shoes.
- Don't let visitors near your rabbits
- Trap your mice and rats as best you can - they can bring it in especially if you are rural because they will eat dead wild rabbits and pick up the virus. While they don't get sick, they can act as a calicivirus host for more to breed.
- Store all HAY/STRAW for minimum of 3 months. Old virus lasts 110 days at least on surfaces and hay has been known to be the source of some deaths. No one knows really how long the V2 lasts but it can be assumed that it will have some survival time outside dead rabbits etc. Places to store can be hard but off the ground on a wooden pallet, garden shed or garage if possible.
- Pellet feed will be virus free so long as sealed at the factory - it is heat treated such that the virus died.
- Vegetables and green feed – even from supermarket will be a possible source of virus.
- Rabbits in runs - hardest to protect. Perhaps the top can be covered with fine mesh shade cloth to exclude insects and sides done with this or insect mesh.
  - Remember - the local cats and even your own dog (especially if you are rural) can bring the virus to your bunnies via fleas, flies, and mosquitoes.
  - *Quarantine for rabbits in regions of infection should be for 15 weeks from the date of the last confirmed case of Rabbit Hemorrhagic Disease*