



# Twickenham Veterinary Surgery

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## An Update on RHD2 for Rabbit Owners Feb 2017

**There have been developments with the RHD2 disease in rabbits recently, most notably that we have just had our first confirmed case at the surgery, so I thought it would be a good idea to summarise all that we know so far about the disease and why it is so important to vaccinate your bunny against it. At the time of writing, and as far as I know, all the information on this handout is correct, but developments are occurring all the time. I hope that this handout helps everyone to understand the disease and its significance.**

**Christabel**

Rabbit Haemorrhagic Disease 2 (RHD2) is a variant from the classic rabbit haemorrhagic disease (RHD). Caused by the calicivirus, it has been around for a few years, but really started sweeping across the country about a year ago, killing hundreds of bunnies to date. There is still much not known about the disease, but this handout is aimed to give you an update so far.

**How is the virus spread?** The virus can survive in the environment for many months and is very difficult to kill, withstanding temperatures of 50°C for up to an hour, and not becoming inactivated by freezing. It can be spread by flying insects, rats, mice, and can also be carried on your shoes and clothes, but it is thought that its main mode of transmission is via wild birds that feed on infected carcasses and then spread the virus through their faeces. Only a few virus particles are needed to infect a rabbit. Infection is also easily transmitted between infected rabbits by the oral, nasal or conjunctival routes and via food bowls and bedding.

**Incubation period:** 3 – 9 days (as opposed to 1 – 4 days with RHD1) with prolonged illness of up to 5 days following the incubation period (compared with 3 – 4 days with RHD1).

**Mortality rate:** RHD2 carries a lower mortality rate of 5 – 70% than RHD1 (up to 90% in unvaccinated rabbits)

**Age affected:** can affect any age of rabbit (compared to RHD1 which rarely affects rabbits under 8 -10 weeks of age)

**Clinical signs:** RHD2 causes a more protracted disease than RHD1 with systemic illness, anorexia, weight loss and jaundice. It can cause sporadic deaths, often with companion rabbits that survive and show no sign of illness. Sometimes other underlying illnesses flare up, complicating diagnosis.

**Diagnosis:** initially could only be done via post mortem testing of a sample of liver or spleen, but can now be done via PCR (polymerase chain reaction) testing of blood, faeces, swab or intestinal contents as well as spleen or liver tissue.

**Treatment:** limited to supportive treatment of the rabbit: fluids, syringe feeding, intensive barrier nursing. Prevention is better than cure.

**Prevention:** through vaccination. There is currently no licensed vaccine in the UK for RHD2, so vets have to apply for a Special Import Certificate (SIC) from the Veterinary Medicines Directorate (VMD) to enable them to order the vaccine from France. Vaccination can be given from 4 weeks of age, but would then need to be repeated 4 – 6 weeks later. In rabbits over 10 weeks of age, a single vaccination should give a good level of immunity within 7 days and should last for up to 12 months. The duration of immunity depends on natural challenge: it is advisable to give bunnies that are at 'high risk' the vaccine every 6 months (this would include rabbits in breeding colonies and also rescue centres).

Avoidance of forage from areas with known RHD2 in the wild rabbit population would be sensible, as well as keeping rabbits away from the faeces of wild birds, so if you know a lot of wild birds come into your garden, keep your bunnies out of that part of the garden.

**Cleaning protocols:** cleaning is the most important aspect of preparing the environment that has housed an ill bunny. After thorough cleaning of the area to remove any residue or scale, use Ark-Klens (a benzalkonium chloride disinfectant) to routinely disinfect the housing and then periodically use Virkon (as an inorganic peroxygen compound) to kill any other viruses.

**Biosecurity:** use foot dips or change footwear between being inside and going outside, especially into areas frequented by wild rabbits. Quarantine any new animals coming in, feed them last, use new equipment e.g. bottles/bowls for them. Barrier nurse any suspicious cases. Try to exclude wild rabbits from the garden if at all possible, and if this is not possible, stop the practice of moving pens around the garden and even consider a double fence round the rabbit runs.

**Environmental considerations:** the RHD virus can survive in the environment for many months (up to 200 days in ideal conditions) but it is not yet known what that means in practice. To err on the side of caution, and until more is found out about this aspect of care, it is suggested that if you have had a confirmed case of RHD2, that you do not repopulate the living quarters for at least 200 days.

If you have had a sudden death in a rabbit, it is recommended to double bag the body, disinfect the outside of the bag and take it to your vet for incineration (preferably after a post mortem has been carried out) – do not bury the body as it is a source of the infection which may be transmitted via birds.

**Survivors of the RHD2:** there is not enough information known about RHDV2 to know whether survivors of the virus still carry it or still shed it and how soon it would be safe to bond another rabbit with them. In theory it is safe to bond after 200 days, but in practice it may be safe to do this sooner, we just don't know yet.

Below is a table showing a summary of RHD1 vs RHD2:

	RHD1	RHD2
Aetiology (cause)	Calicivirus	Calicivirus
Mode of infection	<ul style="list-style-type: none"> <li>- transmission between infected individuals via the oral, nasal and conjunctival routes</li> <li>- via food bowls and bedding</li> <li>- can be spread by flying insects, rats, mice and birds</li> <li>- can also be carried on your shoes and clothes</li> <li>- infected rabbit carcasses can be a source of infection, with the virus being spread via the faeces of scavengers</li> </ul>	As for RHD1
Incubation period	1 – 4 days with illness of 3 – 4 days	3 – 9 days with prolonged illness of up to 5 days following the incubation period
Symptoms	<p>Peracute - Sudden death</p> <p>Acute – lethargy, pyrexia (&gt;40C), increase respiratory rate – usually die within 12 hours.</p> <p>Causes massive drop in blood pressure, so difficult to find a vein; dying rabbits are pallid, shocked and collapsed; haematuria, haemorrhagic vaginal discharges or foamy exudates from the nostril</p>	Can cause sudden death, but more commonly has a slow onset and sometimes no clinical signs. Can cause weight loss, anorexia and jaundice

	<p>may be seen.</p> <p>Subacute – rabbits show mild or subclinical signs from which they recover and then are immune to RHD1.</p>	
Mortality	Up to 90% in unvaccinated rabbits	Less virulent with a lower mortality rate of 5 – 70%
Age affected	Rarely seen in rabbits under 8 weeks of age	Can affect any age of rabbit
Diagnosis	Usually at post mortem, PCR test will determine between RHD1 and 2	PCR test can be performed on blood, faeces, swab or intestinal contents as well as on liver or splenic samples
Treatment	Often too late to treat – prevention is the only way	Supportive treatment, intensive nursing – must be barrier nursing to avoid accidental spread
Prevention	Vaccination – this strain is in both the Nobivac Myxo-RHD and also the Filavac vaccines	No licensed vaccine in the UK, but vets can apply for a Special Import Certificate from the VMD to import Filavac vaccine from France
Special considerations	<p>Any rabbit found dead in their hutch should be double-bagged, placed in the fridge and taken to the vets as soon as possible – a post mortem should be requested and samples taken for PCR testing.</p> <p>Survivors can be infectious to other rabbits for up to 30 days</p>	Some rabbits do not show any clinical signs and those who survive may still be infectious to other bunnies – we don't know how long for with RHD2, so it is recommended to keep them away from all other rabbits for 30 days
Environmental concerns	<ul style="list-style-type: none"> <li>- RHDV is difficult to kill and can survive harsh environmental conditions.</li> <li>- It can survive temperatures of 50 ° C for up to an hour and is not inactivated by freezing.</li> <li>- The virus can survive in the environment for many months (up to 200 days in ideal conditions)</li> </ul>	As for RHD1

	<ul style="list-style-type: none"><li>- rabbit carcasses can be a source of infection by spreading the virus via the faeces of scavengers</li></ul>	
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**MAKE SURE THAT EVERYONE SPREADS THE WORD ABOUT RHD2 SO THAT ALL BUNNY OWNERS GET THEIR RABBITS VACCINATED.**