

# Incursions of rabbit hemorrhagic disease virus 2 in Canada – clinical, molecular and epidemiological investigation

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## Abstract

Rabbit hemorrhagic disease virus 2 (RHDV2) is a newly emerging Lagovirus belonging to the family Caliciviridae. After its first discovery in 2010 in France, this highly pathogenic virus rapidly spread to neighboring countries and has become the dominant strain, replacing the classical RHDV1 strains. RHDV2 was first reported in North America in 2016 in Mont-Joli, Quebec, Canada and it was reported again in 2018 and 2019 on Vancouver, Island and the southeast mainland of British Columbia (BC). The whole genome sequence of the RHDV2 Quebec isolate resembled the RHDV-N11 isolate from Navarra, Spain identified in 2011 with 97% identity. The epidemiological investigation involved three hobby farms and one personal residence. In December and February 2018, high mortality was reported in first a private feral rabbit refuge and then, a large colony of feral rabbits on the Vancouver Island University Campus, Nanaimo, BC. The virus responsible showed only 93% identity to the Quebec RHDV2 isolate at the nucleotide level. Additional cases of RHDV2 on Vancouver Island and on the BC mainland affecting feral, captive domestic and commercial rabbits were reported subsequently. Vaccination was recommended to control the outbreak and an inactivated bivalent vaccine was made available to the private veterinary practices. In June 2019 an isolated RHDV2 outbreak was reported in an apartment building in Vancouver, BC. This virus showed only 97% identity to the RHDV2 isolate responsible for the BC outbreak in 2018 at the nucleotide level suggesting that it was an independent incursion. In October 2020, there are reports of partial recovery of the feral population in Nanaimo and to date there are no confirmed deaths of native rabbit species in BC.

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