



Erinaceus coronavirus infection in Hedgehogs

Agent

Erinaceus coronavirus (EriCoV) is a virus that was first described in Western European hedgehogs (*Erinaceus europaeus*) in Germany and has subsequently been detected in this wildlife species in France, Italy and Great Britain. *Erinaceus coronavirus* belongs to a group of viruses called clade C betacoronaviruses that have mostly been detected in bats.

Signs of disease

A variety of coronaviruses exist and are known to infect different hosts, including people, domestic and wild animals. Coronaviruses often target the respiratory or gastrointestinal systems, with resultant signs of disease corresponding to the affected system e.g. cough or diarrhoea.

A recent study of EriCoV in British hedgehogs found no evidence of this viral infection being associated with disease in the respiratory or gastrointestinal systems. This indicates that the hedgehog may act as a natural reservoir host of EriCoV without developing disease. A similar situation has been reported in other wildlife species with other betacoronavirus infections e.g. bats and aquatic birds. However, we cannot exclude the possibility that EriCoV infection may result in disease that is not easily detected, or that disease might occur through co-infections with EriCoV. Therefore, further monitoring is required to assess whether the virus may adversely impact hedgehog health.

Disease transmission

The route of transmission for EriCoV infection is currently unknown. Since the virus has been detected in hedgehog large intestinal contents, faecal-oral transmission may occur, perhaps in combination with other routes.

Distribution

Surveillance detected EriCoV in 10% of samples from circa 350 hedgehogs that were tested from across Great Britain. Whilst EriCoV has been found in hedgehogs from England and Wales, further testing of a larger sample of hedgehogs is required to determine whether this virus is also present in Scotland.

Risk to human health

There is no known public health risk from EriCoV infection in hedgehogs.

Since EriCoV is in the same group of clade C betacoronaviruses as Middle Eastern Respiratory Virus (MERS-CoV), a virus known to cause disease in people, there is an interest in learning more about coronaviruses in wildlife hosts.

Risk to domestic animal health

Although a range of domestic animals are susceptible to other coronaviruses, there is no evidence that species other than hedgehogs can either be infected, or become ill as a consequence of infection, with EriCoV.

Diagnosis

Diagnosing EriCoV infection in hedgehogs requires specialist laboratory testing (e.g. molecular testing).

Although there is no evidence that EriCoV causes disease in hedgehogs or any other species, more information on this and other infections of hedgehogs is extremely useful to help understand more about the health of this declining wildlife species. If you wish to report finding a dead hedgehog, or signs of illness in a hedgehog, please visit www.gardenwildlifehealth.org. Alternatively, if you have further queries or have no internet access, please call the **Garden Wildlife Health** vets on **0207 449 6685**.

Control

There is no specific treatment available for coronavirus infection in animals. Vaccination is available for prevention of some coronavirus infections of domestic animals e.g. porcine epidemic diarrhoea in pigs and feline infectious peritonitis in cats.

Since clinical disease is not known to occur in hedgehogs with EriCoV infection, there is currently no need for treatment.

While reporting sick animals to **Garden Wildlife Health** helps us to build up a picture of hedgehog health across Great Britain, we cannot advise on the treatment of sick animals. If you find a sick hedgehog, please contact your nearest veterinary surgery or wildlife rehabilitation centre for further advice and use sensible hygiene precautions when handling the animal (see *Prevention* below).

Prevention

At this time, there is no evidence that EriCoV infection causes disease in hedgehogs or other animals. Nevertheless, routine best practice is recommended to prevent the spread of disease amongst hedgehogs in the wild.

Disinfection of any bowls or plates used to feed wild hedgehogs should be routinely carried out as follows:

- Clean surfaces, bowls or plates using a suitable disinfectant (for example, a weak solution of domestic bleach (5% sodium hypochlorite) or other product following the manufacturer's instructions). Always rinse thoroughly and air-dry before re-use.
- Brushes and cleaning equipment should not be used for other purposes and should not be brought into the house, but be kept and used outside and away from food preparation areas.
- Wear rubber gloves and thoroughly wash hands and forearms afterwards with soap and water, especially before eating or drinking.

If you need to handle a hedgehog, please use thick gardening or rubber gloves and wash your hands thoroughly with warm water and soap afterwards.

Further information

More advice on hedgehogs in your garden can be found on the Garden Wildlife Health website www.gardenwildlifehealth.org

Scientific publications

Delogu M, Cotti C, Lelli D, Sozzi E, Trogu T, Lavazza A, Garuti G, Castrucci MR, Vaccari G, De Marco MA, Moreno A (2020) Eco-virological preliminary study of potentially emerging pathogens in hedgehogs (*Erinaceus europaeus*) recovered at a wildlife treatment and rehabilitation center in Northern Italy. *Animals* **2020(10)**:407. [doi:10.3390/ani10030407](https://doi.org/10.3390/ani10030407)

Saldanha IF, Lawson B, Goharriz H, Rodriguez-Ramos Fernandez j, John SK, Fooks AR, Cunningham AA, Johnson N, Horton DL (2019) Extension of the known distribution of a novel clade C betacoronavirus in a wildlife host. *Epidemiology and Infection* **147**:e169, 1–8. [doi:10.1017/S0950268819000207](https://doi.org/10.1017/S0950268819000207)

Monchatre-Leroy E, Boué F, Boucher JM, Renault C, Moutou F, Ar Gouih M, Umhang G (2017) Identification of Alpha and Beta Coronavirus in Wildlife Species in France: Bats, Rodents, Rabbits, and Hedgehogs. *Viruses Multidisciplinary Digital Publishing Institute* **9**:364. [doi:10.3390/v9120364](https://doi.org/10.3390/v9120364)

Corman VM, Kallies R, Philipps H, Göpner G, Müller MA, Eckerle I, Brünink S, Drosten C, Drexler JF (2013) Characterization of a novel betacoronavirus related to Middle East Respiratory Syndrome Coronavirus in European hedgehogs. *Journal of Virology* **88**:717–24. [doi: 10.1128/JVI.01600-13](https://doi.org/10.1128/JVI.01600-13)

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